LA-UR- 98-3484

Approved for public release;
distribution is unlimited.

CONF-980803--

Title: DETONATION AND COMBUSTION OF EXPLOSIVES:
A SELECTED BIBLIOGRAPHY

Author(s): Brigitta Dobratz

Submitted to: 11th International Detonation Symposium
Snowmass Conference Center
Snowmass, Colorado
August 30-September 4, 1998

RECEIVED

APR 13 1999

OSTI

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

MASTER

Los Alamos

NATIONAL LABORATORY

Los Alamos National Laboratory, an affirmative action/equal opportunity employer, is operated by the University of California for the U.S. Department of Energy under contract W-7405-ENG-36. By acceptance of this article, the publisher recognizes that the U.S. Government retains a nonexclusive, royalty-free license to publish or reproduce the published form of this contribution, or to allow others to do so, for U.S. Government purposes. Los Alamos National Laboratory requests that the publisher identify this article as work performed under the auspices of the U.S. Department of Energy. Los Alamos National Laboratory strongly supports academic freedom and a researcher's right to publish; as an institution, however, the Laboratory does not endorse the viewpoint of a publication or guarantee its technical correctness.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

**DETONATION AND COMBUSTION OF EXPLOSIVES:
A SELECTED BIBLIOGRAPHY**

Compiled by Brigitta Dobratz

Los Alamos, New Mexico

August 1998

ABSTRACT

This bibliography consists of citations pertinent to the subjects of combustion and detonation of energetic materials, especially, but not exclusively, of secondary solid high explosives. These references were selected from abstracting sources, conference proceedings, reviews, and also individual works. The entries are arranged alphabetically by first author and numbered sequentially. A keyword index is appended.

INTRODUCTION

The "science of explosives" grew over time as the number of energetic materials discovered and used proliferated, and chemical and physical properties, performance, applications, related properties, and theoretical aspects were studied. The study of combustion and detonation is one such discipline.

Reports of the first explosive - a mixture of saltpeter, sulfur, and charcoal - called gunpowder or black powder, was described in Chinese writing before 1000 AD. Various powder mixtures were used in bombs, rockets, pyrotechnics, and related items, which deflagrate but do not detonate. Such explosives are called "low" explosives. The next major development occurred when the DuPont de Nemours family built a plant in Wilmington, Delaware in 1802 to mass-produce gunpowder and initiators. They compiled the "Blaster's Handbook" as a guide.

The 19th century saw rapid growth in the field of explosive science. Many detonating explosives were synthesized. These explosives are designated "high" explosives, and are divided into two classes: primary or initiating explosives, mostly inorganic metal azides and fulminates; and secondary, which are mostly CHNO compounds and mixtures. Nobel obtained a Swedish patent in 1863 for a nitroglycerin (NG) percussion detonator. After several fatal accidents, he incorporated NG in an absorbent inert substance named kieselguhr and patented it as dynamite in 1866. In 1875 Nobel introduced blasting gelatin, also called gelatin dynamite, which is nitrocellulose dissolved in NG. Many chemical compounds were synthesized in Europe and the USA that were recognized as explosives. Some compounds frequently used in secondary explosives are listed below.

<u>MATERIAL</u>	<u>YEAR OF FIRST PREPARATION</u>
ammonium nitrate (AN)	1659
ammonium perchlorate (AP)	1831
hexogen (RDX)	1899
nitroglycerin (NG)	1846
nitroguanidine (NQ)	1877
octogen (HMX)	1942
pentaerythritol tetranitrate (PETN)	1901
triaminotrinitrobenzene (TATB)	1888
trinitrotoluene (TNT)	1863

Many of these explosives and mixtures were used in WWI. Then came WWII with synthesis of HMX, the development of atomic bombs and propellants for weapons, rockets, and space flight. Theoretical developments, modeling, and data manipulation were aided by developments in computer hardware and software.

Because of this proliferation in development and applications of energetic materials with concomitant "explosion" of the literature, this bibliography is limited to references on combustion and detonation of high explosives (HE). Also, no attempt has been made to cover this ever-growing body of literature exhaustively. However, references on general works and milestone developments have been included in this compilation. Three journals have ceased publication: Explosifs 1948-1982 (Belgian), Explosivstoffe 1952-1973 (German); this has been resurrected as Propellants, Explosives, and Pyrotechnics (International), and the Zeitschrift für das gesamte Schiess- und Sprengstoffwesen 1906-1944 (German). The users of this compilation may want to use additional sources of information. For example, a detailed index (LA-UR-2237) exists for the papers presented at the Detonation Symposia.

The citations, selected from abstracting sources, conference proceedings, reviews, and individual books, are arranged alphabetically by first author and numbered sequentially. A keyword index has been compiled at the end of the listing.

ACKNOWLEDGMENTS

The author would like to thank J. E. Kennedy for suggesting this project, providing many useful suggestions as well as several source works, and taking the time to proofread the entire document. Thanks go also to W. E. Deal and J. Vorthman for many helpful suggestions and to J. H. Carter for providing the computerized literature searches.

BIBLIOGRAPHY

1. M. S. Abdelazeem and W. G. Hoover, "One-Dimensional Dense-Fluid Detonation Wave Structure," J. Phys. Chem. 87 2795 (1983).
2. G. K. Adams, "Theory of Initiation of Detonation in Solid and Liquid Explosives," Ninth Symp. (Int.) on Combustion - 1962, Academic Press, New York (1963) p. 545.
3. T. C. Adamson, "On the Structure of Plane Detonation Waves," Phys. Fluids 3 706 (1960).
4. I. S. Akhatov and P. B. Vainshtein, "Transition of Porous Explosive Combustion into Detonation," Combust., Explos., Shock Waves 20 63 (1984).
5. I. B. Akst, "Heat of Detonation, the Cylinder Test, and Performance in Munitions," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 478.
6. D. F. Aldis, W. Quirk, and R. D. Breithaupt, "The Effect of Detonation Curvature on Cylinder Wall Motion," Lawrence Livermore National Laboratory report UCRL-ID-107480 (1981).
7. J. W. S. Allan and B. D. Lambourn, "An Equation of State of Detonation Products at Pressures Below 30 kbar," Proc. Fourth Symp. (Int.) on Detonation, Silver Spring, Maryland, 1965, Office of Naval Research - Department of the Navy, Washington, D. C. report ACR-126 p. 52.
8. L. V. Altschuler, G. S. Doronin, and V. S. Zhuchenko, "Detonation Regimes and Jouguet Parameters of Condensed Explosives," Combust., Explos., Shock Waves 25 209 (1989).
9. L. V. Altschuler, V. T. Ryazonov, and M. P. Separanskaya, "The Effect of Heavy Admixture on the Detonation Conditions of Condensed Explosive Substances," Z. Prikl. Mekh. i Tekh. Fiz. (English) 1 110 (1972).
10. L. V. Altschuler, V. S. Zhuchenko, and E. R. Kuzmenkov, "Supercompressed Detonation Waves and "Superdetonation"," Combust., Explos., Shock Waves 24 92 (1988).
11. L. V. Altschuler, V. N. Zubarov, and G. S. Telegin "Supercompressed Detonation Waves in Condensed Explosives," Combust., Explos., Shock Waves 10 648 (1976).
12. L. V. Altschuler et al., "Detonation Parameters and Regimes of Condensed HE," Combust., Explos., Shock Waves 19 515 (1984).
13. Y. A. Aminov, et al., "The Study of Shock Wave Sensitivity of a Plasticized TATB-Based Explosive," Combust., Explos., Shock Waves 31 100 (1995).
14. A. B. Anderson, et al., "Shock Initiation of Porous TATB," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 385.
15. K. K. Andreev, ed., "Theory of Explosives #53," Vysshaya Shkola, Moscow (1967) (Russian).
16. K. K. Andreev and A. F. Belyaev, "Theory of Explosive Substances," transl., U. S. Department of Commerce report AD-643597 (1966).

17. S. G. Andreev, et al., "Applicability Limits of the Stationary Combustion Model in the Study of Explosive Initiation," *Combust., Explos., Shock Waves* **18** 613 (1983).
18. S. G. Andreev, et al., "Effects of Flow Divergence on Product Behavior Behind a Detonation Wave," *Combust., Explos., Shock Waves* **23** 44 (1987).
19. S. G. Andreev, et al., "Effect of Temperature on the Combustion of Charges of TNT and Hexogen by Compression Waves with an Amplitude of 0.15-1.0 GPa," *Combust., Explos., Shock Waves* **21** 42 (1985).
20. V. V. Andreev, "Characteristics of the Development of Accelerated Transition of Combustion to Detonation in Charges with Nondestructible Casings," *Combust., Explos., Shock Waves* **29** 212 (1993).
21. V. V. Andreev, A. Y. Dammer, and L. A. Lukyanchikov, "Initiation and Propagation of Detonation in Dry and Water-Filled Explosives of Small Diameter," *Combust., Explos., Shock Waves* **30** 566 (1994).
22. V. V. Andreev, L. A. Lukyanchikov, and A. P. Shov, "Two-Phase Low-Speed Detonation of a Porous Explosive," *Combust., Explos., Shock Waves* **2** 50 (1984).
23. V. F. Anisichkin, et al., "Investigation of the Process of Decomposition in a Detonation Wave by the Isotope Method," *Combust., Explos., Shock Waves* **24** 376 (1988).
24. V. E. Annikov and B. N. Kondrikov, "Effect of Charge Diameter on the Burning Rate of Explosives," *Combust., Explos., Shock Waves* **4** 197 (1968).
25. A. G. Antipenko, A. N. Dremin, and V. V. Yakushev, "Electrical Polarization with Initiation of the Detonation of Homogeneous Explosives by a Shock Wave," *Combust., Explos., Shock Waves* **14** 786 (1978).
26. A. Y. Apin and V. K. Bobolev, "Characteristics of Accelerated Detonation in Explosive Powders," *Dokl. Akad. Nauk SSSR* **58** 241 (1947).
27. B. W. Asay and J. M. McAfee, "Temperature Effects on Failure Thickness and the Deflagration-to-Detonation Transition in PBX 9502," *Proc. Tenth Int. Detonation Symp.*, Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 485.
28. B. W. Asay, et al., "Shock Compression of DuPont Detasheet at Low Stress," *Shock Compression of Condensed Matter - 1991*, Williamsburg, Virginia, *Proc. APS Topical Conf.*, S. C. Schmidt, et al., eds., North-Holland, Amsterdam, Netherlands (1992), p. 679.
29. V. K. Ashaev, G. S. Doronin, and A. D. Levin, "Detonation Front Structure in Condensed High Explosives," *Combust., Explos., Shock Waves* **24** 88 (1988).
30. J. L. Austing and D. E. Baker, "The Shock Initiation of Covered Explosive and Pyrotechnic Charges by Flyer Plate Impact Across an Air Gap. II. Results for Composition A4," *Proc. 15th Int. Pyrotechnics Seminar*, Boulder, Colorado (1990) p. 35.
31. J. L. Austing, et al., "The Shock Initiation of PBXN-301 (XTX-8003) by Impact of an Explosively-Driven Flyer Plate Across an Air Gap," *Proc. 18th Pyrotechnics Seminar*, Breckenridge, Colorado (1992) p. 11.
32. J. Aveille, et al., "Experimental Study of Spherically Diverging Detonation Waves," *Proc. Eighth Symp. (Int.) on Detonation*, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 523.

33. M. R. Baer and J. W. Nunziato, "Deflagration-to-Detonation Transition in Reactive Granular Materials," Numerical Approaches to Combustion Modeling, E. S. Oran, J. P. Boris, eds., Progress in Astronautics and Aeronautics vol. 135 A. R. Seebass, ed., AIAA, Washington, DC (1991) Ch. 15 p. 481.
34. M. R. Baer and J. W. Nunziato, "A Two-Phase Mixture Theory for the Deflagration-to-Detonation Transition (DDT) in Reactive Granular Materials," Int. J. Multiphase Flow 12 861 (1986).
35. M. R. Baer, R. L. Bell, and E. S. Hertel, "Multidimensional DDT Modeling of Energetic Materials," Shock Compression of Condensed Matter - 1995, Proc. APS Topical Conf., Seattle, Washington, S. C. Schmidt, W. C. Tao, eds., AIP Press, Woodbury, NY (1995) Conf. # 370 Pt. 2 p. 433 and Sandia National Laboratories report SAND-95-1765C (1995).
36. K. L. Bahl, R. S. Lee, and R. C. Weingart, "Velocity of Spherically Diverging Detonation Waves in RX-26-AF, LX-17 and LX-10," Shock Waves in Condensed Matter - 1983, Proc. APS Topical Conf., Santa Fe, New Mexico, J. R. Asay, R. A. Graham, G. K. Straub, eds., North-Holland, Amsterdam, Netherlands (1984) p. 559.
37. K. L. Bahl, H. C. Vantine, and R. C. Weingart, "Shock Initiation of Bare and Covered Explosives by Projectile Impact," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 325.
38. F. Baillou, et al., "Influence of Crystal Defects on Sensitivity of Explosives," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, July 12-16, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 816.
39. E. L. Baker, "An Application of Variable Metric Nonlinear Optimization to the Parameterization of an Extended Thermodynamic Equation of State," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 394.
40. E. L. Baker, "An Explosives Products Thermodynamic Equation of State Appropriate for Material Acceleration and Overdriven Detonation: Theoretical Background and Formulation," Army Armament Research Development and Engineering Center, Picatinny Arsenal, New Jersey report ARAED-TR-91013, AD-A238 948 (1991).
41. E. W. Baker, "Explosions in Air," University of Texas Press, Austin, Texas (1973).
42. E. G. Baranov and E. A. Semenyuk, "Possible Mechanism for the Propagation of the Detonation Front on the Basis of Huygens Principle in Relation to the Heterogeneity of Solid Explosives," Soviet Mining Sci. 22 106 (1986).
43. R. D. Bardo, "Theoretical Calculations of Rate-Determining Steps for Ignition of Shocked Condensed Nitromethane and PETN," Microscopic and Macroscopic Approaches to Detonation, Megeve, France, Proc. J. Physique 48 Colloque C4, Suppl. to no. 9, p.265 (1987).
44. R. D. Bardo, T. N. Hall, and M. J. Kamlet, "Energies and Volumes of Activation for Condensed Detonating Explosives," J. Chem. Phys. 77 5858 (1982).
45. R. D. Bardo, T. N. Hall, and M. J. Kamlet, "Volume of Activation in the Shock Initiation of Explosives," Combust. Flame 35 259 (1979).
46. H. O. Barthel, "Reaction Zone-Shock Front Coupling in Detonations," Phys. Fluids 15 43 (1972).
47. V. V. Barzykin, et al., "Mechanism of Heat Transfer During Detonation of Liquid Explosives," Combust., Explos., Shock Waves 7 261 (1971).

48. Y. V. Batkov, et al., "Investigation of the Influence of Specimen Diameter on the Explosive Transformation Development Behind a Weak Nonstationary Shock Front," *Combust., Explos., Shock Waves* **19** 359 (1983).
49. F. A. Baum, K. P. Stanyukovich, and B. I. Shekter, "Physics of Explosives," Moscow (1959) (Russian).
50. J. Baute and R. Chirat, "Which Equation of State for Carbon in the Detonation Products?" Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 521.
51. J. B. Bdzil, "Steady-State Two-Dimensional Detonation," *J. Fluid Mech.* **108** 195 (1981).
52. J. B. Bdzil and W. C. Davis, "Time-Dependent Detonations," Los Alamos Scientific Laboratory report LA-5926-MS (1975).
53. J. B. Bdzil and R. Engelke, "Chemical Rates in Detonation Reaction Zones: Determination of Temperature and Pressure Dependence," *J. Chem. Phys.* **77** 5694 (1982).
54. J. B. Bdzil and W. Fickett, "Detonation Shock Dynamics: A New Approach to Modeling Multi-Dimensional Detonation Waves," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 730.
55. J. B. Bdzil and W. Fickett, "DSD Technology: A Detonation Reactive Huygens Code," Los Alamos National Laboratory report LA-12235-MS (1992).
56. J. B. Bdzil and A. K. Kapila, "Shock-to-Detonation Transition: A Model Problem," *Phys. Fluids* **A4** 409 (1992).
57. J. B. Bdzil and S. F. Son, "Engineering Models of Deflagration-to-Detonation Transition," Los Alamos National Laboratory report LA-12794-MS (1995).
58. J. B. Bdzil and D. S. Stewart, "Modeling Two-Dimensional Detonations with Detonation Shock Dynamics," *Phys. Fluids A (Fluid Dynamics)* **1** 1261 (1989).
59. J. B. Bdzil and D. S. Stewart, "Time-Dependent Two-Dimensional Detonation: the Interaction of Edge Rarefactions with Finite-Length Reaction Zones," *J. Fluid Mech.* **171** 1 (1986).
60. J. B. Bdzil, T. D. Aslam, and D. S. Stewart, "Resolved 3D Detonation Reaction Zones: Memory and Time Requirements for DNS," Los Alamos National Laboratory report LA-UR-97-792 (1997).
61. J. B. Bdzil, T. D. Aslam, and D. S. Stewart, "Curved Detonation Fronts in Solid Explosives: Collisions and Boundary Interactions," Proc. 20th Int. Symp. on Shock Waves, B. Sturtevant, et. al., eds., World Scientific Pub. (1996) p. 97.
62. J. B. Bdzil, R. Engelke, and D. A. Christianson, "Kinetics Study of a Condensed Detonating Explosive," *J. Chem. Phys.* **74** 5694 (1981).
63. J. B. Bdzil, W. Fickett, and D. S. Stewart, "Detonation Shock Dynamics: A New Approach to Modeling Multi-Dimensional Detonation Waves," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 784.
64. A. V. Belik and V. A. Potemkin, "Predicting Shock Sensitivity of Explosives," *Combust., Explos., Shock Waves* **24** 601 (1988).

65. R. Belmas and J. P. Plotard, "*Physical Origin of Hot Spots in Pressed Explosive Compositions*," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III 5 Colloque C4, Suppl. to no. 5, p. 61 (1995).
66. R. Belmas, J. P. Plotard, and C. Bianchi, "*A Physical Model of Shock to Detonation Transition in Heterogeneous Explosives*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 724.
67. A. F. Belyaev, "*Transition from Deflagration to Detonation in Condensed Phases*," Israel Program for Scientific Translations, Springfield, Virginia, U.S. Department of Commerce report TT-74-50028 (1975).
68. A. F. Belyaev and R. K. Kurbangalina, "*Effect of Initial Temperature on Critical Diameter of Nitroglycerin and Trinitrotoluene*," Russian J. Phys. Chem. 34 285 (1960).
69. G. Ben-Dor and K. Takayama, "*The Phenomena of Shock Wave Reflection - A Review of Unsolved Problems and Future Research Needs*," Shock Waves 2 211 (1992).
70. B. I. Bennett, et al., "*Recent Developments in the Sesame Equation of State Library*," Los Alamos Scientific Laboratory report LA-7130 (1978).
71. J. Berger and J. Viard, "*Physique des Explosifs Solides*," [Physics of Solid Explosives] Dunod, Paris (1962).
72. E. Berlow, R. H. Barth, and J. E. Snow, "*The Pentaerythritols*," Reinhold Publishing Company, New York (1926).
73. R. R. Bernecker, "*Shock Initiation of Some Aqueous HMX Mixtures*," Shock Compression of Condensed Matter - 1991, Williamsburg, Virginia, Proc. APS Topical Conf., S. C. Schmidt, et al., eds., North-Holland, Amsterdam, Netherlands (1992), p. 695.
74. R. R. Bernecker and A. R. Clairmont, Jr., "*Shock Initiation (2-D) Study of Some Porous Plastic-Bonded Explosives: PBXW-108 and PBXN-109*," Naval Surface Warfare Center, Silver Spring, Maryland report NSWC TR 93-80 (1993).
75. R. R. Bernecker and A. R. Clairmont, Jr., "*Shock Initiation (2-D) Study of Two Cast, Elastomeric, Plastic-Bonded Explosives: PBXW-108 and PBXN-109*," Naval Surface Warfare Center, Silver Spring, Maryland report NSWC TR 93-82 (1993).
76. R. R. Bernecker and A. R. Clairmont, "*Shock Initiation Studies of Cast, Damaged, and Granulated PBXs*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 499.
77. R. R. Bernecker and A. R. Clairmont, Jr., "*Shock Initiation Studies of Cast Plastic-Bonded Explosives*," Combustion and Detonation Phenomena, 19th Int. Ann. Conf. of ICT, Karlsruhe, Germany, 1988 p. 41-1.
78. R. R. Bernecker and R. L. Simpson, "*Further Observations on HMX Particle Size and Buildup to Detonation*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 719.
79. R. B. Bernecker, et al., "*Deflagration to Detonation Transition Behavior of Tetryl*," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 426.

80. H. A. Bethe, "*The Theory of Shock Waves for an Arbitrary Equation of State*," NDRC, Washington, DC report OSRD-545 (1942).
81. G. S. Bascutti, "*History of Accidents in the Explosives Industry*," Dr. G. S. Bascutti, Vevey, Switzerland.
82. L. Bjorno and P. Levin, "*Underwater Explosion Research Using Small Amounts of Chemical Explosives*," *Ultrasonics* **14** 263 (1976).
83. N. C. Blais and J. R. Stine, "*A Model of Reactive Dynamics in a Detonation*," *J. Chem. Phys.* **93** 714 (1990).
84. G. H. Bloom, "*Gruneisen Parameter Measurements for High Explosives*," Shock Waves in Condensed Matter - 1981, Menlo Park, California, W. J. Nellis, L. Seaman, R. A. Graham, eds., Proc. AIP, New York, Conf. # 78, 1982, p. 588.
85. G. Bloom, R. Lee, and W. Von Holle, "*Thin Pulse Shock Initiation Characterization of Extrusion-Cast Explosives*," Third Int. Symp. on Behavior of Media under High Dynamic Pressures, La Grande Motte, France, 1989.
86. G. Bloom, et al., "*Changes in the Particle Size Distribution of LX-17 Samples Induced by 3.5 to 11 GPa Planar Shock Waves*," Shock Waves in Condensed Matter - 1987, Proc. APS Topical Conf., Monterey, California, S. C. Schmidt and N. C. Holmes, eds., North-Holland, Amsterdam, Netherlands (1988) p. 569.
87. G. Bloom, et al., "*Improvements in Thin-Pulse Shock Initiation Threshold Measurements*," Shock Waves in Condensed Matter - 1983, Proc. APS Topical Conf., Santa Fe, New Mexico, J. R. Asay, R. A. Graham, G. K. Straub, eds, North-Holland, Amsterdam, Netherlands (1984) p. 535.
88. G. Bocksteiner, "*Evaluation of Underwater Explosive Performance of PBXW-115*," Defence Science and Technology Organization, Canberra, Australia report DSTO-TR-0297, AD-A315 885 (1996).
89. J. Boileau, "*Microscopic and Macroscopic Detonations. Questions for the Future*," Microscopic and Macroscopic Approaches to Detonation, Megeve, France 1987, Proc. J. Physique **48** Colloque C4, Suppl. to no. 9, p. 99 (1987).
90. J. Boileau, "*Molecular Mechanisms of Energy Transfer in Energetic Materials*," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, J. Physique III **5** Colloque C4, Suppl. to no. 5, p. 300 (1995).
91. D. L. Bonnett and P. B. Butler, "*Hot-Spot Ignition of Condensed Phase Energetic Materials*," *J. Propulsion and Power* **12** 680 (1996).
92. F. Bonthoux, P. Deneuille, and Y. de Longueville, "*Diverging Detonations in RDX and PETN Based Cast-Cured PBX*," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 408.
93. S. A. Bordzilovskii and S. M. Karakhanov, "*Investigation of Shock Initiation of Desensitized RDX*," *Combust., Explos., Shock Waves* **31** 368 (1995).
94. S. A. Bordzilovskii and S. M. Karakhanov, "*Desensitization of Pressed RDX Paraffin and HMX Paraffin Compounds by Multiple Shock Waves*," *Combust., Explos., Shock Waves* **31** 227 (1995).
95. S. A. Bordzilovskii, S. M. Karakhanov, and V. F. Lobanov, "*Modeling the Shock Initiation of Detonation of Heterogeneous Explosives*," *Combust., Explos., Shock Waves* **23** 624 (1988).

96. R. A. Borg, G. Kemister, and D. A. Jones, "*Chemical Equilibrium Calculations for Detonation Products*," Defence Science and Technology Organization, Canberra, Australia report DSTO-TR-0226, AD-A307 323 (1995).
97. A. A. Borisov and V. N. Mikhalkin, "*Diffraction of a Multifront Detonation Wave*," Combust., Explos., Shock Waves 25 645 (1990).
98. L. Borne, "*Influence of Intragranular Cavities of RDX Particle Batches on the Sensitivity of Cast Wax Bonded Explosives*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p.286.
99. F. P. Bowden, "*The Development of Combustion and Explosion in Liquids and Solids*," Fourth Symp. (Int.) on Combustion - 1952, Williams & Wilkins, Baltimore (1953) p. 173.
100. F. P. Bowden "*The Initiation and Growth of Explosion in the Condensed Phase*," Ninth Symp. (Int.) on Combustion - 1962, Academic Press, New York (1963) p. 499.
101. F. P. Bowden, "*The Initiation of an Explosion and its Growth to Detonation*," Proc. Roy. Soc. (London) A204 20 (1950).
102. F. P. Bowden, Discussion Leader, "*A Discussion of the Initiation and Growth of Explosions in Solids*," Proc. Roy. Soc. (London) A246 145 (1958).
103. F. P. Bowden and A. D. Yoffe, "*Fast Reactions in Solids*," Butterworths, London (1958).
104. F. P. Bowden and A. D. Yoffe, "*Hot Spots and the Initiation of Explosives*," Third Symp. on Combustion and Flame and Explosion Phenomena - 1948, Williams & Wilkins, Baltimore (1949) p. 551.
105. F. P. Bowden and A. D. Yoffe, "*Initiation and Growth of Explosions in Liquids and Solids*," Cambridge University Press, Cambridge, England (1952).
106. F. P. Bowden, B. L. Evans, and A. D. Yoffe, "*The Combustion and Explosion of Crystals*," Sixth Symp. (Int.) on Combustion - 1956, Reinhold Pub. Corp., New York (1957) p. 609.
107. F. P. Bowden, et al., "*Detonation of Liquid Explosives by Impact*," Nature 157 105 (1946).
108. F. V. Bracco, "*Comments on the Equation of State of the Products of High Density Explosives*," Combust. Flame 22 9 (1974).
109. J. N. Bradley, "*Shock Waves in Chemistry and Physics*," Wiley, London (1962).
110. K. O. Brauer, "*Handbook of Pyrotechnics*," Chemical Publishing Co., Inc., New York (1974).
111. N. E. Brener, "*Detonations of Solid Explosives*," Louisiana State University final report AFOSR-TR-87-0874, AD-A182 934 (1987).
112. C. Brochet, et al., "*A Comparison of Spherical, Cylindrical and Plane Initiation Velocities in Some Condensed and Gaseous Explosives*," Proc. Fifth Symp. (Int.) on Detonation, Pasadena, California , 1970, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-184 p. 41.
113. J. Brown, J. P. Curtis, and P. R. Lee, "*Ab Initio Determination of the V of D of an Octol from the Statistics of its Crystal Structure*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 333.

114. W. B. Brown, Z. Feng, and M. Braithwaite, "*Williamsburg Equation of State for Modelling Non-Ideal Detonation*," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvillier, France, Proc. J. Physique III 5 Colloque C4, Suppl. to no. 5, p. 209 (1995).
115. J. D. Buckmaster, "*Combustion Theory and Related Questions*," Cornell University, Ithaca, New York, Final report AD-A189 160 (1987).
116. B. Bukiet, "*Solving Curved Detonation Riemann Problems*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 321.
117. B. G. Bukiet, "*Application of Front Tracking to Two Dimensional Curved Detonation Fronts*," SIAM J. Sci. Stat. Comp. 9 80 (1988).
118. B. G. Bukiet, "*Effect of Curvature on Detonation Speed*," DOE Energy Science and Technology Data Base report DOE/ER/03077-274 (1986).
119. B. G. Bukiet, "*Understanding Curved Detonation Waves*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 19.
120. B. G. Bukiet and J. Jones, "*The Competition Between Curvature and Chemistry in a Spherically Expanding Detonation*," Appl. Phys. Lett. 52 1921 (1988).
121. B. G. Bukiet and R. Menikoff, "*Detonation Waves and the Front Tracking Method*," Phys. Fluids 4 2070 (1965).
122. B. G. Bukiet and R. Menikoff, "*Sharp Shock Model for Propagating Detonation Waves*," Shock Compression of Condensed Matter - 1989, Albuquerque, New Mexico, Proc. APS Topical Conf., S. C. Schmidt, J. N. Johnson, L. W. Davison, eds., North-Holland, Amsterdam, Netherlands (1990) p. 259.
123. J. T. A. Burton, S. J. Hawkins, and G. Hooper, "*Detonation Temperature of Some Liquid Explosives*," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 759.
124. A. G. Butcher, et al., "*A Summary of the Mechanism of Delayed Detonation*," JANNAF Propulsion Systems Hazards Subcomm. Mtg., Army Ballistic Research Laboratory, Aberdeen Proving Ground, Maryland, 1984, report AD-A148 865 vol. I p. 81.
125. W. Byers Brown and M. Braithwaite, "*Analytical Representation of the Adiabatic Equation for Detonation Products Based on Statistical Mechanics and Intermolecular Forces*," Phil. Trans. Roy. Soc. (London) A339 345 (1992).
126. W. Byers Brown and M. Braithwaite, "*Development of the Williamsburg Equation of State to Model Non-Ideal Detonation*," Proc. Tenth Int. Detonation Symp., 1993, Boston, Massachusetts, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 377.
127. W. Byers Brown and M. Braithwaite, "*Sensitivities of Adiabatic and Gruneisen Gammas to Errors in Molecular Properties of Detonation Products*," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 271.
128. W. Byers Brown and M. Braithwaite, "*Williamsburg Equation of State for Detonation Products*," High-Pressure Science and Technology - 1993, Proc. Joint Int. Assoc. for Research and Advancement of High

129. G. P. Cachia and E. G. Whitbread, "*The Initiation of Explosives by Shock*," Proc. Roy. Soc. (London) **A246** 268 (1958).
130. A. W. Campbell, "*Diameter Effect and Failure Diameter of a TATB-Based Explosive*," Propellants, Explos., Pyrotech. **9** 183 (1984).
131. A. W. Campbell and R. Engelke, "*The Diameter Effect in High-Density Heterogeneous Explosives*," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 642.
132. A. W. Campbell and J. R. Travis, "*The Shock Desensitization of PBX 9404 and Composition B-3*," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 1057.
133. A. W. Campbell, W. C. Davis, and J. R. Travis, "*Shock Initiation of Detonation in Liquid Explosives*," Phys. Fluids **4** 498 (1961).
134. A. W. Campbell, et al., "*Shock Initiation of Solid Explosives*," Phys. Fluids **4** 511 (1961).
135. R. F. Chaiken, "*Comments on Hypervelocity Wave Phenomena in Condensed Explosives*," J. Chem. Phys. **33** 760 (1960).
136. R. F. Chaiken, "*On the Mechanism of Low-Velocity Detonation (LVD) in Liquid Explosives*," Astron. Acta **17** 575 (1972).
137. F. Chaisse, "*Some Important Points in Classical Detonation Science*," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III **5** Colloque C4, Suppl. to no. 5, p. 57 (1995).
138. F. Chaisse and J. N. Oeconomos, "*The Shape Analysis of a Steady Detonation Front in Right Circular Cylinders of High Density Explosive. Some Theoretical and Numerical Aspects*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 50.
139. S. K. Chan, "*A Model for Predicting the Critical Diameter of Bubble Sensitized Explosives*," Behavior of Dense Media under High Dynamic Pressures, Proc. CEA, Paris, France 1978 p. 233.
140. P. Y. Chanteret, "*An Analytical Model for Metal Acceleration by Grazing Detonation*," Proc. Seventh Int. Symp. on Ballistics, The Hague, Netherlands April 1983.
141. C.-Y. Chen, et al., "*Equation of State of Detonation Products Obtained from Cylinder Expansion Test*," Propellants, Explos., Pyrotech. **19** 9 (1994).
142. J. C. Cheng, "*Shock Initiation of PETN*," Proc. 12th Symp. on Explosives and Pyrotechnics, 1984, Franklin Research Center, Philadelphia, Pennsylvania p. 1. 31-1.
143. R. Cheret, "*Critical Propagation Velocities of a Steady Autonomous Detonation*" Shock Waves in Condensed Matter - 1987, Proc. APS Topical Conf., Monterey, California, S. C. Schmidt, N. C. Holmes, eds., North Holland, Amsterdam, Netherlands (1988) p. 511.
144. R. Cheret, "*Detonation of Condensed Explosives*," Springer Verlag, New York (1993).

145. R. Cheret, "*Emergence of a Quasi C-J Detonation on the Free Boundary of an Explosive Domain*," CR II 301 657 (1985).
146. R. Cheret, "*Extinction or Bifurcation of an Autonomous Detonation*," CR II 301 961 (1985).
147. R. Cheret, "*On the Case for the Unicity of the Chapman-Jouguet Detonation Being in Default*," CR B 274 1347 (1972).
148. R. Cheret, "*Quasi-Polytropic Representation of the Equation of State of the Detonation Products of a Condensed Explosive*," CR II 305 1337 (1987).
149. R. Cheret, F. Chaisse, and J. Zoe, "*Some Results on the Converging Spherical Detonation in a Solid Explosive*," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 602.
150. J. M. Chevalier, "*On the Detonation Wave Propagation*," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III 5 Colloque C4, Suppl. to no. 5, p. 25 (1995).
151. J. M. Chevalier and N. Carion, "*Propagation Phenomena on the Detonation Wave Front*," Proc. Tenth Int. Symp. on Detonation, Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 37.
152. J. M. Chevalier, et al., "*Propagation Phenomena on the Detonation Wave Front*," Phys. Rev. Lett. 71 712 (1993).
153. M. Chick, T. J. Bussell, and R. B. Frey, "*Some Characteristics of Bow Wave Initiation and Desensitization*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 69.
154. M. C. Chick and L. A. Learmonth, "*Determination of Shock Initiation and Detonation Characteristics of PE4 in Proof Test Geometries*," Materials Research Labs, Ascot Vale, Australia report MRL-R-979, AD-A164 484 (1985).
155. R. Chirat and J. Baute, "*An Extensive Application of WCA4 Equation of State for Explosives*," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 751.
156. R. Chirat and G. Pittion-Rossillon, "*Detonation Properties of Condensed Explosives Calculated With an Equation of State Based on Intermolecular Potential*," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 703.
157. R. Chirat and G. Pittion-Rossillon, "*A New Equation of State for Detonation Products*," J. Chem. Phys. 74 4634 (1981).
158. E. N. Clark and F. R. Schwartz, "*Some Studies on the Shock Initiation of Explosives*," Proc. Third Symp. on Detonation, Princeton, New Jersey, 1960, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-52 p. 833.
159. J. F. Clarke, et al., "*Numerical Computation of Two-Dimensional Unsteady Detonation Waves in High Energy Solids*," J. Comput. Phys. 106 215 (1993).

160. S. G. Cochran, "A Statistical Treatment of Heterogeneous Chemical Reaction in Shock-Initiated Explosives," Shock Waves in Condensed Matter - 1979, Pullman, Washington, Am. Phys. Soc. Bull. 24 719 (1979).
161. S. G. Cochran and J. Chan, "Shock Initiation and Detonation Models in One and Two Dimensions," Lawrence Livermore National Laboratory, Livermore report UCID-18024 (1979).
162. S. G. Cochran and C. M. Tarver, "Modeling Particle Size and Initial Temperature Effects on Shock Initiation of TATB-Based Explosives," Shock Waves in Condensed Matter - 1983, Proc. APS Topical Conf., Santa Fe, New Mexico, J. R. Asay, R. A. Graham, G. K. Straub, eds., North-Holland, Amsterdam, Netherlands, p. 593.
163. S. G. Cochran, et al. "Shock Initiation of TATB," Lawrence Livermore National Laboratory report UCRL-80441 Abstract (1978).
164. C. S. Coffey, "Energy Localization and the Initiation of Explosive Crystals by Shock or Impact," Structure and Properties of Energetic Materials, Boston, Massachusetts, 1992, Materials Research Society, Pittsburgh, Pennsylvania, vol. 296, D. H. Liebenberg, R. W. Armstrong, J. J. Gilman, eds., (1993) p. 63.
165. C. S. Coffey, "The Formation of Hot Spots and the Initiation of Explosive Crystals by Shock and Impact," Proc. Atelier sur la Detonation, Megeve, France, p.235 (1987).
166. C. S. Coffey, "The Initiation of Crystalline Explosives by Shock or Impact," Decomposition, Combustion, and Detonation Chemistry of Energetic Materials, Boston, Massachusetts, 1995, Proc. Materials Research Society vol. 418, T. B. Brill, et al., eds., Pittsburgh, Pennsylvania (1996) p. 331.
167. C. S. Coffey, "The Initiation of Explosive Crystals by Shock or Impact," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 824.
168. C. S. Coffey, "The Localization of Energy and Plastic Deformation in Crystalline Solids During Shock or Impact," J. Appl. Phys. 70 4248 (1991).
169. C. S. Coffey, "A Transition from Microscopic to a Macroscopic Approach to Steady State Detonation," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III 5 Colloque C4, Suppl. to no. 5, p. 477 (1995).
170. C. S. Coffey, et al., "Experimental Investigation of Hot Spots Produced by High Rate Deformation and Shocks," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 970.
171. C. S. Coffey, et al., "Initiation of Crystalline Explosives by Shock or Impact," Decomposition, Combustion, and Detonation Chemistry of Energetic Materials, Boston, Massachusetts, 1995, Proc. Materials Research Society vol. 418, T. B. Brill, et al., eds., Pittsburgh, Pennsylvania (1996) p. 331.
172. R. H. Cole, "Underwater Explosives," Princeton University Press, Princeton, New Jersey (1948).
173. N. L. Coleburn, B. E. Drimmer, and T. P. Liddiard, Jr., "The Detonation Properties of DATB (1,3-Diamino-2,4,6-Trinitrobenzene)," Third Symp. on Detonation, Princeton, New Jersey, 1960, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-52 p. 761.
174. G. B. Cook, "The Initiation of Explosion in Solid Secondary Explosives," Proc. Roy. Soc. (London) A246 154 (1958).
175. M. A. Cook, "Detonation Wave Fronts in Ideal and Non-Ideal Detonation," Second ONR Symp. on Detonation, National Academy of Sciences, Washington, D. C., 1955, p. 500.

176. M. A. Cook, "*The Science of High Explosives*," Reinhold, New York (1958).
177. M. A. Cook, "*The Science of Industrial Explosives*," IRECO Chemicals, Salt Lake City, Utah (1974).
178. M. A. Cook, R. T. Keyes, and W. O. Ursenbach, "*Measurements of Detonation, Shock, and Impact Pressures*," Proc. Third Symp. on Detonation, Princeton, New Jersey, 1960, Office of Naval Research - Department of the Navy report ACR-52 p. 357.
179. M. A. Cook, D. H. Pack and W. A. Gey, "*Deflagration to Detonation Transition in Solid and Liquid Explosives*," Proc. Roy. Soc. (London) **A246** 281 (1958).
180. M. A. Cook, et al., "*Velocity-Diameter Curves, Velocity Transients and Reaction Rates in PETN, RDX, EDNA and Tetryl*," J. Amer. Chem. Soc. **79** 32 (1957).
181. M. D. Cook, "*A Theoretical Approach to Energetic Materials*," Microscopic and Macroscopic Approaches to Detonation, 2nd. Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III **5** Colloque C4, Suppl. to no. 5, p. 501 (1995).
182. M. D. Cook and P. J. Haskins, "*The Development of a New Arrhenius-Based Burn Model for Both Homogeneous and Heterogeneous Explosives*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury Park, New York, Conf. Proc. #429 p. 337.
183. M. D. Cook, P. J. Haskins, and H. R. James, "*Projectile Impact Initiation of Explosive Charges*," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research report OCNR 113291-7 vol. II p. 1441.
184. P. W. Cooper, "*Estimation of the C-J Pressure of Explosives*," 14th Int. Pyrotechnics Seminar, Jersey, CI 1989, p. 569.
185. P. W. Cooper, "*Explosives Engineering*," VCH Publishers, Inc., New York (1996).
186. P. W. Cooper, "*Extending Estimation of C-J Pressure of Explosives to the Very Low Density Region*," Proc. 18th Pyrotechnic Seminar, Breckenridge, Colorado (1992) p. 187.
187. P. W. Cooper, "*A New Look at the Run Distance Correlation and its Relationship to other Non-Steady-State Phenomena*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 690.
188. P. W. Cooper, "*Shock Behavior of Explosives about the C-J Point*," Proc. Ninth Symp. (Int.) on Detonation, 1993, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7, vol. I, p. 379.
189. P. W. Cooper and S. R. Kurowski, "*Introduction to the Technology of Explosives*," VCH Publishers, Inc., New York (1996).
190. P. W. Cooper and G. A. Leiper, "*The Kinetics of Detonation of TNT*," Proc. 22nd Int. Pyrotechnics Seminar, Fort Collins, Colorado (1996) p. 299.
191. R. Courchinoux and P. Lalle, "*Unreacted Hugoniot of Ammonium Nitrate*," High-Pressure Science - 1993, Colorado Springs, Colorado, Joint Int. Assoc. for Research and Advancement of High Pressure Science and Technology and APS Topical Group on Shock Compression of Condensed Matter, S. C. Schmidt, et al., eds., AIP Press, New York, Conf. Proc. #309 Pt. 2 p. 1397.
192. R. D. Cowan, "*Properties of the Hugoniot Function*," J. Fluid Mech. **3** 531 (1958).

193. R. D. Cowan and W. Fickett, "Calculation of the Detonation Properties of Solid Explosives with the Kistiakowsky-Wilson Equation of State," J. Chem. Phys. **24** 932 (1956).
194. M. Cowperthwaite, "An Exact Solution for Axial Flow in Cylindrically Symmetric, Steady-State Detonation in Polytropic Explosive with an Arbitrary Rate of Decomposition," Phys. Fluids **6** 1357 (1994).
195. M. Cowperthwaite, "Model Similarity Solutions for Shock Initiation Containing a Realistic Constitutive Relationship for Condensed Explosives," Dynamics of Shock Waves, Explosions, and Detonations, Ninth Int. Colloq. on Gasdynamics of Explosions and Reactive Systems, Poitiers, France, 1983, J. R. Brown, et al., eds., Progress Astron. Aeronaut. **94** p. 387 (1984).
196. M. Cowperthwaite, "Model Solutions for the Shock Initiation of Condensed Explosives," Behavior of Dense Media under High Dynamic Pressures, Proc. CEA, Paris, France 1978 p. 201.
197. M. Cowperthwaite, "Nonideal Detonation in a Composite CHNO Explosive Containing Aluminum," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 656.
198. M. Cowperthwaite, "Two-Dimensional Steady-State Detonation Waves," Thirteenth Symp. (Int.) on Combustion - 1970, The Combustion Institute, Pittsburgh, Pennsylvania (1971) p. 1111.
199. M. Cowperthwaite and J. T. Rosenberg, "Lagrange Gauge Studies of Detonation in Some Intermolecular EA Based Explosives," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 111.
200. M. Cowperthwaite and J. T. Rosenberg, "A Multiple Lagrange Gage Study of the Shock Initiation Process in Cast TNT," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 786.
201. M. Cowperthwaite and W. H. Zwisler, "The JCZ Equation of State for Detonation Products and Their Incorporation into the Tiger Code," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 162.
202. M. Cowperthwaite, D. J. Pastine, and J. W. Enig, "Energetics of Late Chemical Reactions in Nonideal Underwater Detonation: Phase I, Preliminary Theoretical Model Development," Enig Associates, Inc., Silver Spring, Maryland report ENIG-TR-95-1, AD-A309 088 (1995).
203. M. Cox and A. W. Campbell, "Corner Turning in TATB," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 624.
204. B. G. Craig, "Measurements of the Detonation Front Structure in Condensed-Phase Explosives," Tenth Symp. (Int.) on Combustion - 1964, The Combustion Institute, Pittsburgh, Pennsylvania (1965) p.863.
205. B. G. Craig and E. F. Marshall, "Behavior of a Heterogeneous Explosive when Shocked but not Detonated," Proc. Fifth Symp. (Int.) on Detonation, 1970, Pasadena, California, Office of Naval Research, Arlington, Virginia report ACR-184, p. 321.
206. M. R. Crouch and N. E. Hoskin, "Detonation of Explosive Slabs of Finite Dimensions," J. Appl. Phys. **42** 264 (1971).
207. S. Cudzilo, et al., "Shock Initiation Studies of Ammonium Nitrate Explosives," Combust. Flame **102** 64 (1995).

208. C. J. Dahn, "Electrostatic Hazards of Explosive, Propellant and Pyrotechnic Powders," Proc. 15th Int. Pyrotechnics Seminar, Boulder, Colorado (1990) p. 801.
209. J. C. Dallman and J. Wackerle, "Temperature-Dependent Shock Initiation of TATB-Based High Explosives," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 130.
210. G. Damamme and M. Missonnier, "Simulation of the Reaction Zone of Heterogeneous Explosives," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 641.
211. V. A. Danilenko and A. N. Afanasenkov, "Spin Detonation of Heterogeneous Solid Explosives," Pisma v Zh. Tekh. Fiz. 4 35 (1978).
212. V. A. Danilenko and V. M. Kudinov, "Structure of Detonation Waves with Unsteady Wave Fronts in Condensed Media," Dokl. Akad. Nauk SSSR 267 841 (1982).
213. V. V. Danilenko and Y. M. Pachurin, "Effects of Nonideal Detonation on Impelled Plate Energy," Combust., Explos., Shock Waves 23 41 (1987).
214. T. L. Davis, "The Chemistry of Powder and Explosives," Wiley, New York (1953).
215. W. C. Davis, "The Detonation of Explosives," Sci. Amer. 256 98 (1987).
216. W. C. Davis, "Detonation Phenomena," 12th Ann. Symp. on Behaviour and Utilization of Explosives in Engineering Design, 1972, University of New Mexico, Albuquerque, New Mexico p. 5.
217. W. C. Davis, "Detonation Velocity Transient of Composition B-3 and PBX 9404," Phys. Fluids 22 1407 (1979).
218. W. C. Davis, "Equation of State for Detonation Products," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 785.
219. W. C. Davis, "Equation of State for Detonation Products," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 369.
220. W. C. Davis, "Equation of State from Detonation Velocity Measurements," Combust. Flame 41 171 (1981).
221. W. C. Davis and C. Fauquignon, "Classical Theory of Detonation," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III 5 Colloque C4, Suppl. to no. 5, p. 3 (1995).
222. W. C. Davis and D. Venable, "Pressure Measurements for Composition B-3," Proc. Fifth Symp. (Int.) on Detonation, 1970, Pasadena, California, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-184 p. 13.
223. W. C. Davis, B. G. Craig, and J. B. Ramsay, "Failure of the Chapman-Jouguet Theory for Solid and Liquid Explosives," Phys. Fluids 8 2169 (1965).
224. W. E. Deal, "Low Pressure Points on the Isentropes of Several Explosives," Third Symp. on Detonation, 1960, Princeton, New Jersey, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-52, p. 386.

225. W. E. Deal, "Measurement of Chapman-Jouguet Pressure for Explosives," J. Chem. Phys. **27** 796 (1957).
226. W. E. Deal, "Measurement of the Reflected Shock Hugoniot and Isentrope for Explosive Reaction Products," Phys. Fluids **1** 523 (1958).
227. M. Defourneaux, "About the Misuse of the Detonation Velocity for the Characterization of High Explosives," NATO Insensitive Munitions Information Center, Brussels, Belgium report NIMIC-TR- 94-0060, AD-A293 530 (1994).
228. M. Defourneaux, "Energy Transfer in Confined Combustions and Detonations," Astron. Acta **17** 609 (1972).
229. Y. de Longueville, C. Fauquignon, and H. Moulard, "Initiation of Several Condensed Explosives by a Given Duration Shock Wave," Proc., Sixth Symp. (Int.) Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 105.
230. A. Delpuech, "Application of Theoretical Chemistry to Research on a Sensitivity Criterion for Explosives," Behavior of Dense Media under High Dynamic Pressures, Proc. CEA, Paris, France 1978 p. 21.
231. G. Demol, J. C. Goutelle, and P. Mazel, "Charme: A Reactive Model for Pressed Explosives Using Pore and Grain Size Distributions as Parameters," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 353.
232. L. deYong, T. Nguyen, and J. Waschl, "Laser Ignition of Explosives, Pyrotechnics, and Propellants: A Review," Defence Science and Technology Organization, Canberra, Australia report DSTO-TR-0068 (1995).
233. J. J. Dick, "Buildup to Detonation in Solid High Explosives During Plane Shock Initiation: Some Comparisons," Eighteenth Symp. (Int.) on Combustion - 1980, The Combustion Institute, Philadelphia, Pennsylvania (1981) p. 1623.
234. J. J. Dick, "Effect of Crystal Orientation on Shock Initiation Sensitivity of Pentaerythritol Tetranitrate Explosive," Appl. Phys. Lett. **44** 859 (1984).
235. J. J. Dick, "The Importance of Sterically Hindered Shear in Determining the Sensitivity of Explosive Crystals," Structure and Properties of Energetic Materials, Boston, Massachusetts, 1992, Proc. Materials Research Society, Pittsburgh, Pennsylvania, vol. 296, D. H. Liebenberg, R. W. Armstrong, J. J. Gilman, eds., (1993) p. 75.
236. J. J. Dick, "Plane Shock Initiation of Detonation in Gamma-Irradiated Pentaerythritol Tetranitrate," J. Appl. Phys. **53** 6161 (1982).
237. J. J. Dick, "Pop Plot and Arrhenius Parameters for $\langle 110 \rangle$ Pentaerythritol Tetranitrate Single Crystals," Shock Waves in Condensed Matter - 1985, Spokane, Washington, APS Topical Conf., Y. M. Gupta, ed., Plenum Press (1986) p. 903.
238. J. J. Dick, "Shock-Wave Behavior in Explosive Monocrystals," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III **5** Colloque C4, suppl. to no. 5, p. 103 (1995).
239. J. J. Dick, "Short Pulse Initiation of a Plastic-Bonded TATB Explosive," J. Energ. Mater. **5** 267 (1987).
240. J. J. Dick, "Supercritical Shear in Shocked Pentaerythritol Tetranitrate," Appl. Phys. Lett. **60** 2494 (1992).

241. J. J. Dick and R. Engelke, "Reproducibility of Planewave Transit Times in Three Explosives During Initiation," Shock Waves in Condensed Matter - 1979, Pullman, Washington, Am. Phys. Soc. Bull. 24 733 (1979).
242. J. J. Dick, E. Garcia, and D. C. Shaw, "Shock Initiation of Pentaerythritol Tetranitrate Crystals: Steric Effects Due to Plastic Flow," Shock Compression of Condensed Matter - 1991, Williamsburg, Virginia, Proc. APS Topical Conf., S. C. Schmidt, et al., eds., North-Holland, Amsterdam, Netherlands (1992), p. 349.
243. J. J. Dick, D. R. Pettit, and W. J. Spencer, "Crystal Orientation Effects in PETN Explosive with 4 GPa Shocks," Shock Compression of Condensed Matter - 1989, Albuquerque, New Mexico, Proc. APS Topical Conf., S. C. Schmidt, J. N. Johnson, L. W. Davison, eds., North-Holland, Amsterdam, Netherlands (1990) p. 713.
244. J. J. Dick, et al., "The Hugoniot and Shock Sensitivity of a Plastic-Bonded TATB Explosive PBX 9502," J. Appl. Phys. 63 4881 (1988).
245. J. J. Dick, et al., "Shock Response of Pentaerythritol Tetranitrate Single Crystals," J. Appl. Phys. 70 3572 (1991).
246. P. M. Dickson, M. A. Parry, and J. E. Field, "Initiation and Propagation in Primary Explosives," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, -Arlington, Virginia report OCNR 113291-7 vol. II p. 1100.
247. G. V. Dimza, "On Detonation of Filled Explosives in Charges of Small Diameter," Combust., Explos., Shock Waves 8 247 (1972).
248. J. P. Dionne and J. H. S. Lee, "Modeling the Detonation Structure of Heterogeneous Explosives," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woosbury, New York, Conf. Proc. #429 p. 317.
249. D. D. Dlott, "Picosecond Dynamics Behind the Shock Front," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III 5 Colloque C4, Suppl. to no. 5, p. 337 (1995).
250. D. D. Dlott, "Response of Energetic Solids to Heat and Shock Pulses," University of Illinois, Urbana, Illinois final report AD-A308 663 (1996).
251. B. M. Dobratz and P. C. Crawford, "LLNL Explosives Handbook," Lawrence Livermore National Laboratory report UCRL-52997 Rev. 1 (1985).
252. P. Donguy and N. Legard, "Numerical Simulations of Non-Ideal Detonations of a Heterogeneous Explosive with the Two-Dimensional Eulerian Code C. E. E.," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC 86-194, p. 695.
253. V. V. Dorokhin, et al., "Motion of Explosion Products Behind a Detonation Wave Front," Combust., Explos., Shock Waves 21 471 (1985).
254. A. N. Dremin, "On Condensed Explosives Detonation Decomposition Mechanism," Behavior of Dense Media under High Dynamic Pressures, Proc. CEA, Paris, France 1978 p. 175.
255. A. N. Dremin, "Critical Phenomena in the Detonation of Liquid Explosives," Twelfth Symp. (Int.) on Combustion - 1968, The Combustion Institute, Pittsburgh, Pennsylvania (1969) p. 691.

256. A. N. Dremin, "*Novelties of Detonation Phenomenon Study*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 704.
257. A. N. Dremin, "*On Failure Diameter of Detonation*," Dokl. Akad. Nauk SSSR **147** 870 (1962).
258. A. N. Dremin, "*On the Reality of Chemical Changes in Molecular Condensed Explosives During their Loading within the Shock Front of Detonation Waves*," Russ. Acad. Sci., Moscow, Russia, Chem. Phys. Reports **16** 1667 (1997).
259. A. N. Dremin, "*Pulsating Detonation Fronts*," Combust., Explos., Shock Waves **19** 571 (1983).
260. A. N. Dremin, "*The Strongly Unstable Detonation Front*," Behavior of Dense Media under High Dynamic Pressures, Proc. CEA, Paris, France 1978 p. 265.
261. A. N. Dremin, "*Towards Detonation Theory*," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III **5** Colloque C4, suppl. to no. 5, p. 259 (1995).
262. A. N. Dremin and S. A. Koldunov, "*Initiation of Detonation by Shock Waves in Cast and Pressed TNT*," Vzry. Delo **63** 37 (1967) transl. UCRL-10408.
263. A. N. Dremin and P. A. Persson, "*Dark Waves in Liquid Homogeneous Explosives with Unstable Detonation Front*," Acta Astron. **6** 795 (1979).
264. A. N. Dremin and O. K. Rozanov, "*Similarity of Detonation of Gaseous and Liquid Explosives*," Combust., Explos., Shock Waves **1** (2) 63 (1965).
265. A. N. Dremin and S. D. Savrov, "*Stability of the Detonation Front in Liquid Explosives*," Combust., Explos., Shock Waves **2** (1) 19 (1966).
266. A. N. Dremin and K. K. Shvedov, "*On Shock Wave Explosive Decomposition*," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 29.
267. A. N. Dremin and V. S. Trofimov, "*On the Nature of the Critical Diameter*," Tenth Symp. (Int.) on Combustion - 1964, The Combustion Institute, Pittsburgh, Pennsylvania (1965) p. 839.
268. A. N. Dremin and V. S. Trofimov, "*Nature of the Critical Detonation Diameter of Condensed Explosives*," Combust., Explos., Shock Waves **5** 208 (1969).
269. A. N. Dremin, S. A. Koldunov, and K. K. Shvedov, "*The Electrical Conductivity of Explosive Substances During Detonations Induced by Shock Waves*," Combust., Explos., Shock Waves **8** 123 (1972).
270. A. N. Dremin, S. A. Koldunov, and K. K. Shvedov, "*Shock Wave Initiation of Detonation in Low Density Explosive Charges*," Combust., Explos., Shock Waves **7** 87 (1971).
271. A. N. Dremin, et al., "*Detonation Waves in Condensed Media*," Nauka, Moscow (1970) (Russian) and transl. National Technical Information Service, Springfield, Virginia report AD-751 417.
272. A. N. Dremin, et al., "*On the Nature of the Condensed Explosives Critical Diameter*," Proc. Colloque Int. Berthelot-Vieille-Mallard-Le Chatelier, Bordeaux, France 1981, vol. II, p. 523.
273. W. E. Drummond, "*Explosive Induced Shock Waves. Part II. Oblique Shock Waves*," J. Appl. Phys. **29** 167 (1958).

274. A. V. Dubovik, "Method for Describing Shock Wave Sensitivity of Solid Explosives," *Combust., Explos., Shock Waves* **26** 461 (1991).
275. A. V. Dubovik, "Viscous-Plastic Model for Initiation of Solid Explosives by a Shock," *Combust., Explos., Shock Waves* **29** 204 (1993).
276. R. E. Duff and E. Houston, "Measurement of the Chapman-Jouguet Pressure and Reaction Zone in a Detonating High Explosive," *J. Chem. Phys.* **23** 1268 (1955).
277. E. I. DuPont de Nemours and Company, "Blasters' Handbook," 16th ed., E. I. DuPont de Nemours and Co., Inc., Wilmington Delaware (1980).
278. W. S. Dutton, "One Thousand Years of Explosives from Wildfire to the H Bomb," Winston, Philadelphia, Pennsylvania (1960).
279. J. C. Edwards and R. F. Chaiken, "Detonation Calculations with Percus-Yevick Equation of State," *Combust. Flame* **22** 269 (1974).
280. R. J. Eichelberger and M. Sultanoff, "Sympathetic Detonation and Initiation by Impact," *Proc. Roy. Soc. (London)* **A246** 274 (1958).
281. H. Ellern, "Military and Civilian Pyrotechnics," Chemical Publishing Company, New York (1968).
282. H. Ellern, "Modern Pyrotechnics," Chemical Publishing Company, New York (1961).
283. R. Engelke, "Effect of a Chemical Inhomogeneity on Steady-State Detonation Velocity," *Phys. Fluids* **23** 875 (1980).
284. R. Engelke, "Effect of a Physical Inhomogeneity on Steady-State Detonation Velocity," *Phys. Fluids* **22** 1623 (1979).
285. R. Engelke, "Effect of the Number Density of Heterogeneities on the Critical Diameter of Condensed Explosives," *Phys. Fluids* **26** 2420 (1983).
286. R. Engelke and J. B. Bdzil, "A Study of the Steady-State Reaction-Zone Structure of a Homogeneous and a Heterogeneous Explosive," *Phys. Fluids* **26** 1210 (1983).
287. R. Engelke and S. A. Sheffield, "Initiation and Propagation of Detonation in Condensed-Phase High Explosives," *High-Pressure Shock Compression of Solids III*, L. Danison, M. Shahinpoor, eds., Springer Verlag, New York (1998) Ch. 2 p. 171.
288. J. W. Enig and F. T. Metcalf, "Theoretical Calculations on the Shock Initiation of Liquid TNT," U. S. Naval Surface Weapons Center, Silver Spring, Maryland report NOLTR 62-159 (1962).
289. J. W. Enig and F. Petrone, "The Failure Diameter Theory of Dremin," *Proc. Fifth Symp. (Int.) on Detonation*, Pasadena, California, 1970, Office of Naval Research, Arlington, Virginia report ACR-184 p. 99.
290. L. M. Erickson, et al., "Free-Surface Velocity Measurements of Plates Driven by Reacting and Detonating RX-03- BB and PBX 9404," *Shock Waves in Condensed Matter - 1981*, W. J. Nellis, L. Seaman, and R. A. Graham, Eds., AIP, New York, 1982 p. 553.

291. J. O. Erkman and D. Price, "Comparison of Curvature of the Detonation Front in AP With That Found in Some Conventional Explosives," U. S. Naval Ordnance Laboratory, Silver Spring, Maryland report NOLTR 69-235 (1970).
292. B. S. Ermolaev, et al., "Mechanism for Transition of Porous Explosive System Combustion into Detonation," Combust., Explos., Shock Waves 24 65 (1988).
293. J. J. Erpenbeck, "Detonation Stability for Disturbances of Small Transverse Wavelength," Phys. Fluids 9 1293 (1966).
294. J. J. Erpenbeck, "Nonlinear Theory of Unstable Two-Dimensional Detonation," Phys. Fluids 13 2007 (1970).
295. J. J. Erpenbeck, "Stability of Idealized One-Reaction Detonations," Phys. Fluids 7 684 (1964), 8 1192 (1965), 9 1293 (1966).
296. A. P. Ershov and A. L. Kupershtokh, "Temperature of Detonation Products with Explosion in a Chamber," Combust., Explos., Shock Waves 22 368 (1986).
297. A. P. Ershov, P. I. Ivanov, and V. V. Andreev, "Detonation of a Strongly Diluted Explosive," Combust., Explos., Shock Waves 30 377 (1994).
298. B. L. Evans, A. D. Yoffe, and P. Gray, "Physics and Chemistry of the Organic Azides," Chem. Rev. 59 515 (1959).
299. M. W. Evans, "Some Characteristics of Detonation," Proc. Roy. Soc. (London) A204 12 (1950).
300. M. W. Evans and C. M. Ablow, "Theories of Detonation," Chem. Rev. 61 129 (1961).
301. H. Eyring, et al., "Similarity Differences Between Conditions for Initiation and Failure of Detonation," Proc. Natl. Acad. Sci. USA 77 2358 (1980).
302. H. Eyring, et al., "The Stability of Detonation," Chem. Rev. 45 69 (1949).
303. H. D. Fair and R. F. Walker, eds., "Energetic Materials," 2 volumes, Plenum Press, New York (1977).
304. C. Fauquignon, "Theory of Ideal Detonation. Nonideal Explosives and the Nonideal Detonation Regime," Microscopic and Macroscopic Approaches to Detonation, Megeve, France, Proc. J. Physique 48 Colloque C4, Suppl. to No. 9 p. 39 (1987).
305. C. Fauquignon, "The Two-Steps Reaction Zone Structure: A Way to Interpret Non-Ideal Detonations Observations," Propellants, Explos., Pyrotech. 20 123 (1995).
306. C. Fauquignon and R. Cheret, "Generation of Detonation in Solid Explosives," Proc. 12th Symp. (Int.) on Combustion - 1968, The Combustion Institute, Pittsburgh, Pennsylvania (1969) p. 745.
307. A. V. Fedorov, A. V. Menshikh, and N. B. Yagodin, "On Detonation Wave Front Structure of Condensed High Explosives," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 735.
308. T. Fedoroff and S. Kaye, "Encyclopedia of Explosives and Related Items," U. S. Army Armament Research and Development Command, Dover, New Jersey report 2700 (1960+), 10 vols.

309. K. K. Feng, D. E. G. Jones, and S. K. Chan, "*Shock Initiation of Bubble Sensitized Commercial Explosives*," Shock Compression of Condensed Matter - 1991, Williamsburg, Virginia, Proc. APS Topical Conf., S. C. Schmidt, et al., eds., North-Holland, Amsterdam, Netherlands (1992), p. 691.
310. E. N. Ferm and L. M. Hull "*Reflected-Shock Initiation of Explosives*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 78.
311. W. Fickett, "*Calculation of the Detonation Properties of Condensed Explosives*," Phys. Fluids 6 997 (1962).
312. W. Fickett, "*Detonation in Miniature*," Am. J. Phys. 47 1050 (1980).
313. Fickett, "*Detonation Properties of Condensed Explosives Calculated with an Equation of State Based on Intermolecular Potentials*," Los Alamos Scientific Laboratory report LA-2712 (1962).
314. W. Fickett, "*Introduction to Detonation Theory*," University of California Press, Berkeley, California (1985)
315. W. Fickett, "*Motion of an Explosive-Induced Plane Shock Wave*," Quart. Appl. Math. 32 71 (1974).
316. W. Fickett, "*Motion of a Plate Driven by an Explosive*," J. Appl. Phys. 62 4945 (1987).
317. W. Fickett, "*Shock Initiation of Detonation in a Dilute Explosive*," Phys. Fluids 27 94 (1984).
318. W. Fickett and W. C. Davis, "*Detonation*," University of California Press, Berkeley, California (1979).
319. W. Fickett and L. M. Scherr, "*Numerical Calculation of the Cylinder Test*," Los Alamos Scientific Laboratory report LA-5479 (1974).
320. W. Fickett and W. W. Wood, "*A Detonation Products Equation of State Obtained from Hydrodynamic Data*," Phys. Fluids 1 528 (1958).
321. W. Fickett and W. W. Wood, "*Flow Calculations for Pulsating One-Dimensional Detonations*," Phys. Fluids 9 903 (1966).
322. W. Fickett, J. D. Jacobson, and G. L. Schott, "*Calculated Pulsating One-Dimensional Detonations with Induction-Zone Kinetics*," AIAA Journal 10 514 (1972).
323. M. Finger, et al., "*The Effect of Elemental Composition on the Detonation Behavior of Explosives*," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 710.
324. W. J. Flis, "*A Lagrangian Approach to Modeling the Acceleration of Metal by Explosives*," Developments in Theoretical and Applied Mechanics vol. XVII p. 190 (1994).
325. G. C. W. Foan and G. D. Coley, "*Shock Initiation in Gap Test Configuration*," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 263.
326. J. W. Forbes and W. L. Elban, "*Comparison of Axial Longitudinal Velocity Measurements Determined Ultrasonically and by a Weak Shock Velocity Technique on an Aluminized Melt Cast Explosive*," Shock Waves in Condensed Matter - 1981, Menlo Park, California, W. J. Nellis, L. Seaman, R. A. Graham, eds., Proc. AIP, New York (1982), Conf. Proc. #78 p. 583.
327. J. W. Forbes, E. R. Lemar, and R. N. Baker, "*Detonation Wave Curvature of PBXN-111*," High-Pressure Science - 1993, Colorado Springs, Colorado, Joint Int. Assoc. for Research and Advancement of High

- Pressure Science and Technology and APS Topical Group on Shock Compression of Condensed Matter, S. C. Schmidt, et al., eds., AIP Press, New York, Conf. Proc. #309 Pt. 2 p. 1389.
328. J. W. Forbes, E. R. Lemar, and R. N. Baker, "*Detonation Wave Propagation in PBXW-115*," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 806.
 329. J. W. Forbes, et al., "*Detonation Wave Curvature, Corner Turning, and Unreacted Hugoniot of PBXN-111*," Naval Surface Warfare Center, Silver Spring, Maryland report NSWCDD /TR-92/164 (1992).
 330. C. A. Forest, "*Burning and Detonation*," Los Alamos Scientific Laboratory, New Mexico report LA-7245 (1978).
 331. C. A. Forest, "*Lagrangian Analysis, Data Covariance, and the Impulse Time Integral*," Shock Compression of Condensed Matter - 1991, Williamsburg, Virginia, Proc. APS Topical Conf., S. C. Schmidt, et al., eds., North-Holland, Amsterdam, Netherlands (1992), p. 325.
 332. V. E. Fortov, et al., "*Numerical Simulations of Detonation in High Explosive Charges of Finite Diameter*," Proc. Tenth Int. Symp. on Detonation, Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 59.
 333. J. C. Foster, Jr., et al., "*Mechanical Ignition of Combustion in Condensed Phase High Explosives*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 389.
 334. L. E. Fried and P. C. Souers, "*BKWC: An Empirical BKW Parameterization Based on Cylinder Test Data*," Propellants, Explos., Pyrotech. 21 215 (1996).
 335. J. N. Fritz and J. E. Kennedy, "*Air Cushion Effect in the Short-Pulse Initiation of Explosives*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woosbury, New York, Conf. Proc. #429 p. 393.
 336. J. N. Fritz, et al., "*Overdriven-Detonation and Sound-Speed Measurements in PBX 9501 and the "Thermodynamic" Chapman-Jouguet Pressure*," J. Appl. Phys. 80 6129 (1996).
 337. Y. V. Frolov, et al., "*Convective Combustion of Porous Explosives*," Combust., Explos., Shock Waves 8 368 (1972).
 338. Y. V. Frolov, "*Detonation of Condensed and Gas Systems*," USSR Izdatel'stvo Nauka, Moscow (1986).
 339. K. Fujiwara, T. Hiroe, and H. Matsuo, "New Method of Generating Cylindrically Imploding Shocks Using a Flyer Disk," Appl. Phys. Lett. 61 3110 (1992).
 340. S. D. Gardner and J. Wackerle, "*Interactions of Detonation Waves in Condensed Explosives*," Proc. Fourth Symp. (Int.) on Detonation, Silver Spring, Maryland, 1965, Office of Naval Research -Department of the Navy, Washington, D. C. report ACR-126 p. 154.
 341. W. B. Garn, "*Determination of the Unreacted Hugoniot for Liquid TNT*," J. Chem. Phys. 30 819 (1959).
 342. L. A. Gatilov, R. A. Ibragimov, and A. V. Kudashov, "*Structure of a Detonation Wave in Cast TNT*," Combust., Explos., Shock Waves 25 206 (1989).
 343. B. E. Gelfand, S. M. Frolov, and S. A. Tsyganov, "*Origination of Detonation During Multistage Self-Ignition*," Combust., Explos., Shock Waves 25 466 (1990).

344. V. M. Gendugov, "Conditions for Steady-State Propagation of Detonation in Heterogeneous Systems," Combust., Explos., Shock Waves 22, 372 (1986).
345. T. R. Gibbs and A. Popolato, "LASL Explosive Property Data," University of California Press, Berkeley, California (1980).
346. J. J. Gilman, "Dynamics at Detonation Fronts in Solids," Shock Compression of Condensed Matter - 1989, Proc. APS Topical Conf., Albuquerque, New Mexico, S. C. Schmidt, J. N. Johnson, L. W. Davison, eds., North-Holland, Amsterdam, Netherlands (1990) p. 267.
347. P. Gimenez, et al., "F. P. I. Velocimetry Techniques Applied to Various Problems in Detonics," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 608.
348. M. J. Ginsberg and J. Wackerle, "Shock-Induced Decomposition of Triaminotrinitrobenzene (TATB)," Shock Waves in Condensed Matter - 1979, Pullman, Washington, Am. Phys. Soc. Bull. 24 722 (1979).
349. E. F. Gittings, "Initiation of a Solid Explosive by a Short-Duration Shock," Proc. Fourth Symp. (Int.) on Detonation, Silver Spring, Maryland, October 12-15, 1965, Office of Naval Research - Department of the Navy, Washington, DC report ACR-126 p. 373 .
350. I. Glassman, "Combustion," Academic Press, San Diego, California (1996).
351. B. L. Glushak, S. A. Novikov, and A. P. Pogorelov, "Shock-Wave Initiation of Solid Heterogeneous Explosives," Combust., Explos., Shock Waves 20 429 (1984).
352. B. L. Glushak, et al., "Investigation of TNT and TH 50 50 Initiation by Short-Duration Shocks," Combust., Explos., Shock Waves 17 660 (1981).
353. A. L. Gonor, "Heterogeneous Detonation of Condensed Explosives with Metallic Particles," Global Consultants, Inc. (1994).
354. K. A. Gonthier, et al., "Modeling Energy Dissipation Induced by Quasi-Static Compaction of Granular HMX," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 289.
355. R. W. Goranson, "Method for Determining Equations of State and Reaction Zones in the Detonation of High Explosives and its Application to Pentolite, Composition B, Baratol, and TNT," Los Alamos Scientific Laboratory report LA-487 (1946).
356. W. E. Gordon, "Detonation Limits in Condensed Explosives," Proc. Fourth Symp. (Int.) on Detonation, Silver Spring, Maryland, 1965, Office of Naval Research - Department of the Navy, Washington, D. C. report ACR-126 p. 179.
357. L. Green, et al., "Detonation E. O. S. Patterns for Several Explosives," High Pressure Science and Technology, Proc. 9th AIRAPT Int. High Pressure Conf., Albany, New York, 1983, Proc. Materials Research Society Symp. vol. 22 Pt. III -General Topics, C. Homan, R. K. MacCrone, E. Whalley, eds., North-Holland, Amsterdam, Netherlands (1984) p. 293.
358. L. G. Green and E. James, Jr., "Radius of Curvature Effect on Detonation Velocity," Proc. Fourth Symp. (Int.) on Detonation, Silver Spring, Maryland, 1965, Office of Naval Research - Department of the Navy, Washington, DC report ACR-126 p. 86.

359. L. G. Green, N. Holmes, and J. Kury, "*Shock Measurements on Explosives in the Supra-Compression Region*," Lawrence Livermore National Laboratory report UCRL-95461 (1987) and Int. Symp. on Pyrotechnics and Explosives, Beijing, China, October 12-15, 1987.
360. L. G. Green, R. J. Wasley, and P. E. Kramer, "*Shock Initiation of LX-04-1 and LX-09-0*," Lawrence Livermore National Laboratory report UCRL-50672 (1969).
361. L. G. Green, R. J. Wasley, and P. E. Kramer, "*Shock Initiation of LX-07-2 and LX-10-0*," Lawrence Livermore National Laboratory report UCRL-50851 (1970).
362. L. G. Green, C. M. Tarver, and D. J. Erskine, "*Reaction Zone Structure in Supracompressed Detonating Explosive*," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 670.
363. L. G. Green, et al., "*The Equation of State of PETN Detonation Products*," Shock Compression in Condensed Matter - 1987, Monterey, California, Proc. APS Topical Conf., S. C. Schmidt, N. C. Holmes, eds., North-Holland, Amsterdam, Netherlands (1988) p. 507.
364. L. G. Green, et al., "*The Supra-Compression of LX-07, LX-17, PBX 9404, and RX-26-AF and the Equations of State of the Detonation Products*," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 587.
365. D. Grief, S. H. Ward, and G. D. Coley, "*Run to Detonation in TATB*," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 380.
366. N. Griffiths and J. M. Groocock, "*The Burning to Detonation of Solid Explosives*," J. Chem. Soc. London **814** 4154 (1960).
367. H. D. Grushka and F. Wecken, "*Gas Dynamic Theory of Detonation*," Gordon & Breach, London, UK (1971).
368. S. A. Gubin, V. V. Odintsov, and V. I. Pepekin, "*Thermodynamic Calculation of Ideal and Nonideal Detonation*," Combust., Explos., Shock Waves **23** 446 (1987).
369. S. A. Gubin, et al., "*Calculation of the Detonation Velocity of Condensed Explosives with Solid Products*," Dokl. Akad. Nauk SSSR **261** 592 (1981).
370. R. H. Guirguis, "*Streamline Dynamics Method for Highly Curved Detonation Waves*," Proc. Tenth Int. Symp. on Detonation, Boston, Massachusetts, 1993, Office of Naval Research report ONR 33395-12 p. 27.
371. O. A. J. Gurton, "*The Role of Gas Pockets in the Propagation of Low Velocity Detonation*," Second ONR Symp. on Detonation, 1955, Washington, DC, Naval Surface Warfare Center report NSWC MP 87-194 p. 464.
372. R. L. Gustavsen and S. A. Sheffield, "*Unreacted Hugoniot for Porous and Liquid Explosives*," High-Pressure Science - 1993, Colorado Springs, Colorado, Joint Int. Assoc. for Research and Advancement of High Pressure Science and Technology and APS Topical Group on Shock Compression of Condensed Matter, S. C. Schmidt, et al., eds., AIP Press, New York, Conf. Proc. #309 Pt. 2 p.1393.
373. R. L. Gustavsen, R. R. Alcon, and S. S. Sheffield, "*Detonation Wave Profiles in HMX Based Explosives*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP Press, Woodbury, NY, Conf. Proc. # 429, p. 739, and Los Alamos National Laboratory report LA-UR-97-2992 (1997).

374. R. L. Gustavsen, S. A. Sheffield, and R. R. Alcon, "Detonation Wave Profiles in HMX Based Explosives," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Sanswkae, J. W. Forbes, eds., AIP, Woosbury, New York, Conf. Proc. #429 p. 739.
375. M. Gvishi and A. Solomonovici, "Initiation Threshold Sensitivity of LX-15 Explosive as a Function of its Grain Size," Propellants, Explos., Pyrotech. **14** 190 (1989).
376. A. Haid, "Detonation Effects," Explosivstoffe **3** 139 (1955).
377. T. N. Hall and J. R. Holden, "Navy Explosives Handbook - Explosion Effects and Properties, Part III. Properties of Explosives and Explosive Compositions," Naval Surface Warfare Center, Silver Spring, Maryland report NSWC MP-88-116 (1988).
378. D. R. Hardesty, "Shock Initiation of Homogeneous Explosives," Am. Phys. Soc. Bull. **20** 21 (1975).
379. J. Haskins and M. D. Cook, "Molecular Dynamics Studies of Shock Initiation in a Model Energetic Material," High-Pressure Science and Technology - 1993, Colorado Springs, Colorado, Proc. Joint Int. Assoc. for Research and Advancement of High Pressure Science and Technology and APS Topical Group on Shock Compression of Condensed Matter, S. C. Schmidt, et al., eds., AIP Press, New York, Conf. Proc. #309 Pt. 2 p. 1341.
380. P. J. Haskins and M. D. Cook, "Molecular Dynamics Studies of Thermal and Shock Initiation in Energetic Materials," Shock Compression of Condensed Matter - 1995, Seattle, Washington, Proc. APS Topical Conf., S. C. Schmidt, W. C. Tao, eds., AIP Press, Woodbury, NY, Conf. Proc. #370 Pt. 1 p. 195.
381. P. J. Haskins, M. D. Cook, and P. J. Cheese, "An Investigation of XDT Events in the Projectile Impact of Secondary Explosives," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research report ONR 33395-12 p. 148.
382. E. Hasman, M. Gvishi, and Y. Carmel, "Measurement of Shock Initiation Threshold of HNAB by Flyer Plate Impact," Propellants, Explos., Pyrotech. **11** 144 (1986).
383. J. E. Hay and R. W. Watson, "Initiation of Detonation in Insensitive Liquid Explosives by Low Amplitude Compression Waves," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 115.
384. B. Hayes and R. R. McGuire, "The Effect of State Variable Gradients in Reaction-Zone Regions," Behavior of Dense Media under High Dynamic Pressures, Proc. CEA, Paris, France 1978 p. 245.
385. B. Hayes and C. M. Tarver, "Interpolation of Detonation Parameters from Experimental Particle Velocity Records," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 1029.
386. D. B. Hayes, "Optimizing the Initiation of Detonation by Flying Plates," Sandia National Laboratories, Albuquerque, New Mexico report SAND 77-0268 (1977).
387. D. B. Hayes, "A p^{τ} Detonation Criterion from Thermal Explosion Theory," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 76.
388. D. B. Hayes and D. E. Mitchell, "A Constitutive Equation for the Shock Response of Porous Hexanitrostilbene (HNS) Explosive," Behavior of Dense Media under High Dynamic Pressures, Proc. CEA, Paris, France 1978 p. 161.

389. D. B. Hayes, M. E. Kipp, and J. W. Nunziato, "*Application of Mixture Theory to Shock Initiation of Porous HNS Explosive*," Shock Waves in Condensed Matter - 1983, Santa Fe, New Mexico, Proc. APS Topical Conf., J. R. Asay, R. A. Graham, G. K. Straub, eds., North-Holland, Amsterdam, Netherlands (1984) p. 589.
390. M. Held, "*Corner Turning Distance and Detonation Radius*," Propellants, Explos., Pyrotech. **14** 153 (1989).
391. M. Held, "*Corner Turning Research Test*," Propellants, Explos., Pyrotech. **21** 177 (1996).
392. M. Held, "*Critical Area for the Initiation of High Explosive Charges*," Shock Waves in Condensed Matter - 1983, Santa Fe, New Mexico, Proc. APS Topical Conf., J. R. Asay, R. A. Graham, G. K. Straub, eds., North-Holland, Amsterdam, Netherlands (1984) p. 555.
393. M. Held, "*Determination of the Chapman-Jouguet Pressure of a High Explosive from One Single Test*," Defense Sci. J. **37** 1 (1987).
394. M. Held, "*Initiating of Explosives, a Multiple Problem of the Physics of Detonation*," Explosivstoffe **5** 98 (1968).
395. M. Held, "*Method of Measuring the Fine Structure of Detonation Fronts in Solid Explosives*," Astronaut. Acta **17** 599 (1972).
396. M. Held, "*Profile of Detonation Front by Longitudinal Gaps in HE Charges*," Shock Compression of Condensed Matter - 1991, Williamsburg, Virginia, Proc. APS Topical Conf., S. C. Schmidt, et al., eds., North-Holland, Amsterdam, Netherlands (1992), p. 667.
397. M. Held, "*Similarities of Shock Wave Damage in Air and in Water*," Propellants, Explos., Pyrotech. **15** 149 (1990).
398. M. Held, "*Steady Detonation Velocity D_x of Infinite Radius Derived from Small Samples*," Propellants, Explos., Pyrotech. **17** 275 (1992).
399. I. G. Henry, "*The Gurney Formula and Related Approximations for High-Explosive Deployment of Fragments*," Hughes Aircraft Company report PBU-189, AD-813398 (1967).
400. J. Hershkowitz and J. Rigdon, "*Evaluation of a Modified Cylinder Test of Metal Acceleration of Nonideal Explosives Containing Ammonium Nitrate*," Picatinny Arsenal, Dover, New Jersey, report PATR 4611 (1974).
401. L. G. Hill, et al., "*High Explosive Corner Turning Performance and the LANL Mushroom Test*," Shock Compression - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Danekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 751.
402. W. Hintze, "*Research Reports: 1. Two-Component Black Powder. 2. Influence of Carbon Content on the Properties of Black Powder*," Explosivstoffe **16** 25 (1968).
403. E. Hirsch, "*Simplified and Extended Gurney Formulas for Imploding Cylinders and Spheres*," Propellants, Explos., Pyrotech. **11** 6 (1986).
404. M. L. Hobbs and M. R. Baer, "*Calibrating the BKW-EOS With a Large Product Species Data Base and Measured C-J Properties*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 409.
405. T. E. Holland, A. W. Campbell, and M. E. Malin, "*Phenomena Associated with Detonation in Large Single Crystals*," J. Appl. Phys. **28** 1217 (1957).

406. K. Høllenberg, H.-R. Kleinhanss, and G. Reiling, "*Chapman-Jouguet Pressure Measured by X-Ray Absorption*," Z. Naturf. **36A** 437 (1981).
407. C. A. Honodel et al., "*The Effect of Temperature on TATB Shock Initiation*," Am. Phys. Soc. Bull. **27** 485 (1982).
408. C. A. Honodel, et al., "*Shock Initiation of TATB Formulations*," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 425.
409. H. C. Hornig, et al., "*Equation of State of Detonation Products*," Proc. Fifth Symp. (Int.) on Detonation, Pasadena, California, 1970, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-184 p. 503.
410. N. E. Hoskin, et al., "*The Motion of Plates and Cylinders Driven by Detonation Waves at Tangential Incidence*," Proc. Fourth Symp. (Int.) on Detonation, Silver Spring, Maryland, 1965, Office of Naval Research - Department of the Navy, Washington, D. C. report ACR-126 p. 14 (1965).
411. P. Howe, R. Frey, R. Taylor, and V. Boyle, "*Shock Initiation and the Critical Energy Concept*," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 11.
412. L. M. Hull, "*Mach Reflection of Spherical Detonation Waves*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 11.
413. P. J. Humphreys and L. C. R. Thompson, "*Flexible Explosives with Low Velocities of Detonation*," Australian Defence Standards Laboratories, Canberra, Australia report T-27 (1969).
414. H. Hurwitz and M. J. Kamlet, "*The Chemistry of Detonations. V. A Simplified Method for Calculation of Pressures of C-H-N-O Explosives on K-W Isentropes*," Israel J. Technol. **7** 431 (1969).
415. C. D. Hutchinson et al., "*Initiation and Detonation Properties of the Insensitive High Explosive TATB KEL-F 800 95 5*," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research - Department of the Navy, Arlington, Virginia report OCNR 113291-7 vol. 1 p. 123.
416. E. A. Igel and L. B. Seely, Jr., "*The Detonation Behavior of Liquid TNT*," Second ONR Symp. on Detonation, Silver Spring, Maryland, 1955, report AD-52144 p.439.
417. R. R. Ijsselstein, "*Reaction Zone Measurements in High Explosive Detonation Waves by Means of Shock-Induced Polarization*," Combust. Flame **66** 27 (1986).
418. The International Pyrotechnics Society, "*Annual Seminars*," J. L. Austing, IIT Research Institute, Chicago, Illinois.
419. S. Itoh, et al., "*Fundamental Characteristics of Underwater Shock Wave Due to Underwater Explosion of High Explosives*," Nippon Kikai Gakkai Ronbunshu (Trans. Japan Soc. Mech. Eng.) **B62** 3278 (1996).
420. S. Itoh, et al., "*Investigation on the Properties of Underwater Shock Waves Generated in Underwater Explosions of High Explosives*," Proc. 1995 Joint ASME/JSME Pressure Vessels and Piping Conf., Honolulu, Hawaii, PVP **299** 39 (1995).
421. S. Itoh, et al., "*On Underwater Shock Wave Generated by Underwater Explosion of High Explosives. I. Equation of State of Detonating Products and Underwater Shock Wave. II. Underwater Shock Wave Generated by Slab Explosive*," Kayaku Gakkaishi (J. Japan Explosives Soc.) **55** 202 (1994), **56** 188 (1995).

422. S. Itoh, et al., "*Optical Study of Underwater Explosion of High Explosive*," Kayaku Gakkaishi (J. Japan Explosives Soc.) 56 181 (1995).
423. R. K. Jackson and R. C. Weingart, "*Detonation Properties of the Insensitive Explosive TATB*," Lawrence Livermore Laboratory report UCRL-77755 Summary (1976) and Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 P. 755.
424. R. K. Jackson, et al., "*Initiation and Detonation Characteristics of TATB*," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 755.
425. S. J. Jacobs, "*Recent Advances in Condensed Media Detonations*," ARS J. 30 151 (1960).
426. S. J. Jacobs, "*Non-Steady Detonation - A Review of Past Work*," Proc. Third Symp. on Detonation, Princeton, New Jersey, 1960, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR 52, p. 784.
427. S. Jacobs, "*On the Equation of State for Detonation Products at High Density*," Twelfth Symp. (Int.) on Combustion - 1968, The Combustion Institute, Pittsburgh, Pennsylvania (1969) p. 501.
428. S. J. Jacobs, P. T. Liddiard, and B. E. Drimmer, "*The Shock-to-Detonation Transition in Explosives*," Ninth Symp. (Int.) on Combustion, 1962, Academic Press, New York (1963) p. 517.
429. M. Jaeger, D. Tzidony, and A. Zehavi, "*Identifying Sensitivity Changes Between Explosive Batches*," Reliab. Eng. & System Safety 41 115 (1993).
430. J. Jaffe and D. Price, "*Determination of the Critical Diameter of Explosive Materials*," ARS J. 32 1060 (1962).
431. H. R. James, "*Critical Energy Criterion for the Shock Initiation of Explosives by Projectile Impact*," Propellants, Explos., Pyrotech. 13 35 (1988).
432. H. R. James, "*An Extension to the Critical Energy Criterion Used to Predict Shock Initiation Thresholds*," Propellants, Explos., Pyrotech. 21 8 (1996).
433. H. R. James and D. B. Hewitt, "*Critical Energy Criterion for the Initiation of Explosives by Spherical Projectiles*," Propellants, Explos., Pyrotech. 14 123 (1989).
434. D. Jing, "*Reactive Flow Lagrange Analysis of Combustion Behind Shock Wave Front*," Arch. Combust. 5 257 (1985).
435. C. H. Johansson and P. A. Persson, "*Detonics of High Explosives*," Academic Press, New York (1970).
436. C. H. Johansson et al., "*The Initiation of Liquid Explosives by Shock and the Importance of Liquid Build-up*," Proc. Roy. Soc. (London) A246 160 (1958).
437. J. N. Johnson, "*Calculated Shock Pressures in the Aquarium Test*," Shock Waves in Condensed Matter - 1981, Menlo Park, California, W. J. Nellis, L. Seaman, R. A. Graham, eds., AIP, New York (1982) Conf. Proc. #78 p. 568.
438. J. N. Johnson, C. Mader, and S. Crane, "*Los Alamos Explosive Performance Data*," University of California Press, Berkeley, California (1983).

- 439 J. N. Johnson, P. K. Tang, and C. A. Forest, "Shock Wave Initiation of Heterogeneous Reactive Solids," J. Appl. Phys. 57 4323 (1985).
- 440 D. A. Jones, "A Critical Assessment of Burn Models Available for Implementation into a Computer Code to Model Shock Initiation of Heterogeneous Explosives," Materials Research Labs., Ascot Vale, Australia report MRL-TR-89-17, AD-A215 064 (1989).
- 441 D. A. Jones and D. L. Kennedy, "Application of the CPEX Non-Ideal Explosive Model to PBXW-115," Materials Research Labs, Ascot Vale, Australia report MRL-TR-91-40, AD-A246 357 (1991).
- 442 E. Jones and I. G. Cumming, "Sensitiveness to Detonation," Second ONR Symp. on Detonation, 1955, Washington, DC, Office of Naval Research - Department of the Navy p. 483.
- 443 E. Jones and D. Mitchell, "Spread of Detonation in High Explosives," Nature 161 no. 4081 p. 98 (1948).
- 444 H. Jones, "A Theory of the Dependence of the Rate of Detonation of Solid Explosives on the Diameter of the Charge," Proc. Roy. Soc. (London) A189 415 (1947).
- 445 H. D. Jones, "Theoretical Equation of State for Explosion Reaction Products," Shock Waves in Condensed Matter - 1979, Pullman, Washington, Am. Phys. Soc. Bull. 24 713 (1979).
- 446 H. D. Jones and F. J. Zerilli, "Analytic Equation of State for H₆," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury Park, New York, Conf. Proc. #429 p. 65.
- 447 H. D. Jones and F. Z. Zerilli, "Multipole Effects on the Equation of State for Reaction Products of Explosives," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993 p. 449.
- 448 J. Jones, "The Spherical Detonation," Adv. Appl. Math. 12 147 (1991).
- 449 N. N. Kalitkin and V. M. Sinenko, "Detonation-Generated Shock Wave," Z. Prikl. Mekh. I Tehn. Fiz. (English) 21 267 (1980).
- 450 M. J. Kamlet and M. Finger, "An Alternative Method for Calculating Gurney Velocities," Combust. Flame 34 213 (1979).
- 451 M. J. Kamlet and S. J. Jacobs, "Chemistry of Detonations. I. A Simple Method for Calculating Detonation Properties of C-H-N-O Explosives," J. Chem. Phys. 48 23 (1968).
- 452 M. J. Kamlet and J. M. Short, "Simplified Chemistry of Detonations," Shock Waves in Condensed Matter - 1979, Pullman, Washington, Am. Phys. Soc. Bull. 24 713 (1979).
- 453 G. I. Kanel and A. N. Dremin, "Decomposition of Cast Trotyl in Shock Waves," Combust., Explos., Shock Waves 13 71 (1977).
- 454 X. Kang, et al. "Effect of Charge Diameter on Detonation Pressure Measured by the Aquarium Technique," AIP Conf. Proc. 1981, p. 573.
- 455 A. K. Kapila, et al., "Two-Phase Modeling of DDT: Structure of the Velocity-Relaxation Zone," Phys. Fluids 9 3885 (1997).
- 456 S. M. Karakhanov and S. A. Bordzilovskii, "Dynamics of Pressure Changes Accompanying the Initiation of Tg 50 50 by a Diverging Shock Wave," Combust., Explos., and Shock Waves 21 604 (1986).

457. T. I. Karmanova and G. B. Loboika, "Extraction of Energy by a Variable Mass Plate from an Explosive Charge," *Combust., Explos., and Shock Waves* **23** 77 (1987).
458. A. M. Karo, J. R. Hardy, and F. E. Walker, "Theoretical Studies of Shock-Initiated Detonations," *Acta Astron.* **5** 1041 (1978).
459. Y. Kato, et al., "Detonation Temperature of Nitromethane and Some Solid High Explosives," *Proc. Eighth Symp. (Int.) on Detonation*, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 558.
460. K. F. Keirstead and D. De Kee, "Effect of Bubble Dimensions on Shock Sensitivity in Gelled Slurry Explosives," *I & EC - Prod. Res. Dev.* **24** 134 (1985).
461. D. L. Kennedy, "The Challenge of Non-Ideal Detonation," *Microscopic and Macroscopic Approaches to Detonation*, 2nd Int. Workshop, Vaujours-Moronvilliers, France, *Proc. J. Physique III* **5** Colloque C4, Suppl. to no. 5, (1995) p. 191.
462. D. L. Kennedy and D. A. Jones, "Modelling Shock Initiation and Detonation in the Non-Ideal Explosive PBXW-115," Defence Science and Technology Organization, Canberra, Australia report AD-A274 756 (1993), and *Proc. Tenth Int. Detonation Symp.*, Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 665.
463. J. E. Kennedy, "Gurney Energy of Explosives: Estimation of the Velocity and Impulse Imparted to Driven Metal," Sandia National Laboratories, Albuquerque, New Mexico report SC-RR-70-90 (1970).
464. J. E. Kennedy, "Pressure Field in a Shock-Compressed High Explosive," *Fourteenth Symp. (Int.) on Combustion 1972*, The Combustion Institute, Pittsburgh, Pennsylvania (1973) p. 125.
465. J. E. Kennedy, "Quartz Gauge Study of Upstream Reaction in a Shocked Explosive," *Proc. Fifth Symp. (Int.) on Detonation*, 1970, Pasadena, California, Office of Naval Research, Arlington, Virginia report ACR-184, p. 435.
466. J. E. Kennedy and J. W. Nunziato, "Shock-Wave Evolution in a Chemically Reacting Solid," *J. Mech. Phys. Solids* **24** 107 (1976).
467. J. E. Kennedy and J. W. Nunziato, "Shock Wave Evolution in PBX 9404," *Am. Phys. Soc. Bull.* **18** 1593 (1973).
468. J. E. Kennedy and A. C. Schwarz, "Detonation Transfer by Flyer Plate Impact," *Proc. Eighth Symp. on Explosives and Pyrotechnics*, The Franklin Institute, Philadelphia, Pennsylvania, 1974, and Sandia National Laboratories, Albuquerque, New Mexico report SLA 74-5073 (1974).
469. G. I. Kerley, "Theoretical Equations of State for the Detonation Products of Explosives," *Proc. Eighth Symp. (Int.) on Detonation*, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 540.
470. G. I. Kerley and T. L. Christian-Frear, "Prediction of Explosive Cylinder Tests Using Equations of State from the PANDA Code," Lawrence Livermore National Laboratory Preprint UCRL-ID-116113 (1993).
471. B. A. Khasainov, B. S. Ermolaev, and H. N. Presles, "Effect of Glass Microballoons on Shock Wave Sensitivity and Detonation Critical Diameter of Condensed Explosives," *Proc. Tenth Int. Detonation Symp.*, Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 749.

472. B. A. Khasainov, A. A. Borisov, and B. S. Ermolayev, "*Shock Wave Predetonation Processes in Porous High Explosives*," Shock Waves, Explosions, and Detonations, Proc. Eighth Int. Colloq. on Gasdynamics of Explosions and Reactive Systems, Minsk, USSR, 1981, J. R. Bowen, et al., eds., Progress in Astronautics and Aeronautics 87, M. Summerfield, ed., AIAA, Washington, DC (1983) p. 492.
473. B. A. Khasainov, et al., "*Critical Conditions for Hot Spot Evolution in Porous Explosives*," Dynamics of Explosions, Proc. 11th Int. Colloq. on Dynamics of Explosions and Reactive Systems, Warsaw, Poland, 1987, A. L. Kuhl, et al., eds., Progress in Astronautics and Aeronautics 114 M. Summerfield, ed., AIAA, Washington, DC (1988) p. 303.
474. B. A. Khasainov, et al., "*Two-Phase Visco-Plastic Model of Shock Initiation of Detonation in High Density Pressed Explosives*," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, White Oak, Maryland report NSWC MP 82-334 p. 435.
475. L. N. Khitrin, "*Physics of Combustion and Explosion*," National Science Foundation, Washington, D. C. (1962).
476. K. Kim, "*Particle-Size Dependent Reaction Rate in Shocked Explosives*," Shock Waves in Condensed Matter - 1987, Monterey, California, APS Topical Conf., S. C. Schmidt, N. C. Holmes, eds., North-Holland, Amsterdam, Netherlands (1988) p. 531.
477. K. Kim, "*Development of a Model of Reaction Rates in Shocked Multicomponent Explosives*," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 593.
478. K. Kim, "*Numerical Modeling of Deflagration-to-Detonation Transition in Porous Explosives*," Shock Waves in Condensed Matter - 1979, Pullman, Washington, Am. Phys. Soc. Bull. 24 722 (1979).
479. J. H. Kineke, Jr. and C. E. West, Jr., "*Shocked States of Four Overdriven Explosives*," Proc. Fifth Symp. (Int.) on Detonation, Pasadena, California, 1970, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-184, p. 533.
480. G. F. Kinney and K. J. Graham, "*Explosive Shocks in Air*," Springer Verlag, New York (1985).
481. M. E. Kipp, "*Modeling Granular Explosive Detonation with Shear Band Concepts*," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 35.
482. J. G. Kirkwood and W. W. Wood, "*Structure of a Steady-State Plane Detonation Wave with Finite Reaction Rate*," J. Chem. Phys. 22 1915 (1954).
483. A. N. Kiryushkin and Y. N. Gostintsev, "*Theory of Nonsteady Combustion in the Prediction of Critical Explosion Parameters*," Combust., Explos., Shock Waves 26 67 (1990).
484. G. B. Kistiakowsky, "*Initiation of Detonation of Explosives*," Third Symp. on Combustion and Flame and Explosion Phenomena - 1948, Williams & Wilkins, Baltimore, p. 560.
485. G. B. Kistiakowsky and E. B. Wilson, "*The Hydrodynamic Theory of Detonation and Shock Waves*," O.S.R.D. report 114 (1941).
486. G. B. Kistiakowsky and E. B. Wilson, "*Report on the Prediction of Detonation Velocities of Solid Explosives*," O.S.R.D. report 69 (1941).

487. P. Klevert, "*Shock to Detonation Transition in Homogeneous Explosives*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 703.
488. E. M. Kober, J. B. Bdzil, and S. F. Son, "*Modeling DDT in Granular Explosives with a Multi-Dimensional Hydrocode*," Shock Compression of Condensed Matter - 1995, Seattle, Washington, Proc. APS Topical Conf., S. C. Schmidt, W. C. Tao, eds., AIP, Woodbury, New York, Conf. Proc. #370 Pt. 1 p. 437.
489. I. F. Kobylkin, N. I. Nosenko, and V. S. Solovlev, "*Experimental Investigation of the Change of the Shock-Wave Sensitivity of Explosives Due to Weak Precursor Waves*," Combust., Explos., Shock Waves 28 636 (1992).
490. B. N. Kondrikov, "*General Regularities of Explosion Initiation in Determining the Shock and Friction Sensitivity of an Explosive*," Combust., Explos., Shock Waves 31 198 (1995).
491. B. N. Kondrikov, "*The Limits of Applicability of Usual Kinetic Relations to the Detonation Waves Chemistry. Homogeneous Explosives*," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III 5 Colloque C4, Suppl. to no. 5, p. 163 (1995).
492. B. N. Kondrikov, "*Shock Response of Condensed Energetic Materials - Experiments*," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III 5 Colloque C4, Suppl. to no. 5, p. 334 (1995).
493. B. N. Kondrikov and A. S. Karnov, "*Transition from Combustion to Detonation in Charges with a Longitudinal Cylindrical Channel*," Combust., Explos., Shock Waves 28 263 (1992).
494. B. N. Kondrikov and B. V. Novozhilov, "*Critical Combustion Diameter of Condensed Substances*," Combust., Explos., Shock Waves 10 580 (1974).
495. B. N. Kondrikov, V. M. Raikova, and B. S. Samsonov, "*Kinetics of the Combustion of Nitro Compounds at High Pressures*," Combust., Explos., Shock Waves 9 84 (1973).
496. A. I. Korotkov, et al., "*Transition from Combustion to Detonation in Porous Explosives*," Combust., Explos., Shock Waves 5 317 (1969).
497. Y. M. Kovalev, "*Equation of State and Shock Compression Temperature of Crystalline Explosives*," Combust., Explos., Shock Waves 20 219 (1984).
498. F. R. Kovar, et al., "*High Explosive Detonation in Varying Oxygen Atmospheres*," Shock Waves in Condensed Matter - 1981, Menlo Park, California, W. J. Nellis, L. Seaman, R. A. Graham, eds., AIP, New York (1982) Conf. Proc. #78 p. 563.
499. G. D. Kozack, B. N. Kondrikov, and V. B. Oblomskii, "*Spinning Detonation in Solid Explosives*," Combust., Explos., Shock Waves 25 459 (1989).
500. G. D. Kozack, B. N. Kondrikov, and V. B. Oblomskii, "*Spin Wave and Attenuation of Liquid Explosive Detonation*," Combust., Explos., Shock Waves 28 195 (1992).
501. S. Krishnan, C. Brochet, and R. Cheret, "*Mach Reflexion in Condensed Explosives*," Propellants and Explosives 6 170 (1981).
502. A. L. Krivchenko, "*Method of Computing the Detonation Parameters of Condensed High Explosives*," Combust., Explos., Shock Waves 20 324 (1984).

503. A. Krivchenko, et al., "*Detonation Characteristics of RDX-Filler Systems*," Combust., Explos., Shock Waves **8** 463 (1972).
504. M. Kroh, "*Detonation Properties of Some Plastic Bonded Aluminum Containing High Explosives*," Proc. 12th Symp. on Explosives and Pyrotechnics, San Diego, California, 1984, Franklin Res. Center, Philadelphia, Pennsylvania p. 1. 17-1.
505. J. H. Kuk, et al., "*Numerical Modeling of an Underwater Explosion for an Aluminized Explosive*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 401.
506. V. M. Kudinov, et al., "*Parameters of Shock Waves in the Detonation of Explosive Charges in Foam*," Dokl. Akad. Nauk SSSR **228** 555 (1976).
507. V. F. Kuropatenko, "*Equation of State of Detonation Products of Compact Explosives*," Combust., Explos., Shock Waves **25** 762 (1990).
508. J. W. Kury and H. C. Hornig, "*Low Velocity Detonation - High Energy Explosives*," Behavior of Media under High Dynamic Pressures, Proc. CEA, Paris, France (1978) p. 309.
509. J. W. Kury, et al., "*Metal Acceleration by Chemical Explosives*," Proc. Fourth Symp. (Int.) on Detonation, Silver Spring, Maryland, 1965, Office of Naval Research - Department of the Navy, Washington, D. C. report ACR-126 p. 3.
510. N. N. Kuznetsov, "*Theory of Detonation for Weakly Condensed Explosives*," Z. Prikl. Mekh. i Tehk. (English) **16** 55 (1975).
511. B. D. Lambourn and D. C. Swift, "*Application of Whitham's Shock Dynamics Theory to the Propagation of Divergent Detonation Waves*," Proc. Ninth Symp. (Int.) on Detonation, Portland Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p.784.
512. B. D. Lambourn and P. W. Wright, "*Mach Interaction of Two Plane Detonation Waves*," Proc. Fourth Symp. (Int.) on Detonation, Silver Spring, Maryland, 1965, Office of Naval Research - Department of the Navy, Washington, DC report ACR-126 p. 142.
513. S. G. Lambrakos, et al., "*Molecular Dynamics Simulation of Shock-Induced Detonations in Energetic Solids*," Shock Waves in Condensed Matter - 1987, Monterey, California, Proc. APS Topical Conf., S. C. Schmidt, N. C. Holmes, eds., North-Holland, Amsterdam, Netherlands (1988) p.499.
514. I.-F. Lan, et al., "*Improved Simple Method of Deducing JWL Parameters from Cylinder Expansion Test*," Propellants, Explos., Pyrotech. **18** 18 (1993).
515. I.-F. Lan, et al., "*Simple Method of Deducing JWL Parameters from Cylinder Expansion Test*," Explosives and Explosion **53** 149 (1992).
516. E. L. Lee and H. Pfeifer, "*Velocities of Fragments from Exploding Metal Cylinders*," Lawrence Livermore National Laboratory report UCRL-50545 (1969).
517. E. L. Lee and C. M. Tarver, "*Phenomenological Model of Shock Initiation in Heterogeneous Explosives*," Phys. Fluids **23** 2362 (1980).
518. E. L. Lee, M. Finger, and W. Collins, "*JWL Equation of State Coefficients for High Explosives*," Lawrence Livermore Laboratory report UCID-16189 (1973).

519. E. L. Lee, H. C. Hornig, and J. W. Kury, "*Adiabatic Expansion of High Explosive Detonation Products*," Lawrence Livermore National Laboratory report UCRL-50422 (1968).
520. E. L. Lee, et al., "*Detonation Product EOS: The Region Above Chapman-Jouget Pressure*," Lawrence Livermore National Laboratory report UCRL-89983 (1983) and Shock Waves in Condensed Matter - 1983, Santa Fe, New Mexico, Proc. APS Topical Conf., J. R. Asay, R. A. Graham, G. K. Straub, eds., North-Holland, Amsterdam, Netherlands (1984) p. 617.
521. E. L. Lee, et al., "*The Motion of Thin Metal Walls and the Equation of State of Detonation Products*," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 613.
522. E. L. Lee, et al., "*Two-Dimensional Calculations of Detonation Processes in Condensed Explosives*," Shock Waves in Condensed Matter - 1979, Pullman, Washington, Am. Phys. Soc. Bull. 24 722 (1979).
523. J. Lee and P.-A. Persson, "*Detonation Behavior of Emulsion Explosives*," Propellants, Explos., Pyrotech. 15 208 (1990).
524. J. Lee, J. H. Kuk, and K. Y. Choi, "*Numerical Modeling of an Aquarium Test for a Nonideal Explosive*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 515.
525. J. Lee, et al., "*Detonation and Shock Initiation Properties of Emulsion Explosives*," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 573.
526. J. Lee, et al., "*Detonation in an Aluminized Explosive and its Modeling*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 369.
527. R. J. Lee and D. G. Tasker, "*Factors Affecting the Sensitivity of Energetic Materials to Electrostatic Initiation*," Shock Compression of Condensed Matter - 1991, Williamsburg, Virginia, Proc. APS Topical Conf., S. C. Schmidt, et al., eds., North-Holland, Amsterdam, Netherlands (1992), p. 687.
528. R. J. Lee, et al., "*Shock Initiation of an Explosive Due to Electrostatic Discharge (ESD)*," Shock Compression of Condensed Matter - 1989, Albuquerque, New Mexico, Proc. APS Topical Conf., S. C. Schmidt, J. N. Johnson, L. W. Davison, eds., North-Holland, Amsterdam, Netherlands (1990) p. 729.
529. R. S. Lee, C. A. Honodel, and R. C. Weingart, "*Shock Initiation of TATB by Short-Duration Pulses*," Am. Phys. Soc. Bull. 25 495 (1980).
530. R. S. Lee, N. L. Parker, and R. C. Weingart, "*Measurement of Reaction-Zone Width in TATB by Plate Jump-Off Experiments Using Visar*," Am. Phys. Soc. Bull. 23 36 (1978).
531. K. Lehmann, "*Comparison of Various Pressure Functions of Detonating Solid Explosives and their Importance for the Degree of Damage*," Explosivstoffe 5 165 (1973).
532. C. O. Leiber, "*Approximate Quantitative Aspects of a Hot Spot, Part II. Initiation, Factors of Safe Handling, Reliability and Effects of Hydrostatic Pressure on Initiation*," J. Haz. Mat 13 311 (1986).
533. C. O. Leiber, "*Corrections to Detonation Model with Spherical Sources. B. Deflagration Detonation Transition Approach*," Proc. 16th Int. Pyrotechnics Seminar, Jonkoping, Sweden 1991 p. 55.
534. C. O. Leiber, "*Detonation Model with Spherical Sources*."

- A. *Smooth and Rough Pressure Fronts, Dark Waves*," Proc. 13th Int. Pyrotechnics Seminar, 1988 p. 555.
 - B. *Deflagration Detonation Transition Approach*," Proc. 14th Int. Pyrotechnics Seminar, St. Helier 1989 p. 551.
 - C. *Quasicontinuum Approach: Slow and Low Velocity Detonation*," Proc. 15th Int. Pyrotechnics Seminar, Boulder, Colorado, 1990 p. 601.
 - D. *Fracture Dynamics of Initiation - Dense Quasihomogeneous Media*," Proc 15th Int. Pyrotechnics Seminar, Boulder, Colorado, 1990 p. 621.
 - E. *Dynamic Particle Motion - Initiation of Heterogeneous Materials*," Proc. 16th Int. Pyrotechnics Seminar, Jonkoping, Sweden 1991 p. 39.
 - F. *Dynamic Void Mobilities - Alterations of the Hugoniot by Bubble Flow*," Proc. 17th Int. Pyrotechnics Seminar Comb. with 2nd Beijing Int Symp. on Pyrotechnics and Explosives, Beijing, China 1991, Beijing Inst. of Technol. Press vol. II p. 722.
 - G. *Dynamic Void Mobilities, HVD Initiation of Liquid Explosives*," Proc. 17th Int. Pyrotechnics Seminar Comb. with 2nd Beijing Int. Symp. Pyrotechnics and Explosives, Beijing, China 1991, Beijing Inst. of Technol. Press vol. II p. 722.
 - H. *Low Velocity Detonation of Solid Explosives - A Summary*," Proc. 18th Int. Pyrotechnic Seminar, Breckenridge, Colorado, 1992, p. 563.
-
535. C. O. Leiber, " *The Detonation of an Explosive by an Acoustic-Rheological Effect*," Rheologica Acta 11 302 (1972).
 536. C. O. Leiber, " *Explosion and Detonation - Materials, Incidents, Hazards*," Bundesinst. Chem.-Tech. Untersuchungen, (BICT), Swisttal, Germany (1995).
 537. C. O. Leiber, " *On Double Explosions*," Proc. 18th Int. Pyrotechnics Seminar, Breckenridge, Colorado 1992 p. 593.
 538. C. O. Leiber, " *Sensitizing and Desensitizing Explosives*," Rheologica Acta 14 85 (1975).
 539. C. O. Leiber, " *Slow Detonation, Vapor Explosion, Bubble Resonance Explosion - General*," Chem.-Ing.-Techn. 49 925 (1977).
 540. C. O. Leiber, " *The Structure of Detonation within the Bubble Dynamic Model*," Behavior of Dense Media under High Dynamic Pressures, 1978, Proc. CEA, Paris, France 1978 p. 183.
 541. G. A. Leiper and J. Cooper, " *The Kinetics of Detonation of Nitroguanidine*," Propellants, Explos., Pyrotech. 22 347 (1997).
 542. G. A. Leiper and J. Cooper, " *The Kinetics of Detonation of Ammonium Perchlorate*," Proc. 22nd Int. Pyrotechnics Seminar, Fort Collins, Colorado (1996) p. 287.
 543. G. A. Leiper and J. Cooper, " *Low and High Order Detonation in Tetryl*," Propellants, Explos., Pyrotech. 21 325 (1996).
 544. G. A. Leiper and I. J. Kirby, " *A Method of Parameterising Hydrocode Kinetic Models for Non-Ideal Explosives Based on the Variation of Detonation Velocity with Charge Diameter*," Shock Waves in Condensed Matter - 1985, Spokane, Washington, APS Topical Conf., Y. M. Gupta, ed., Plenum Press (1986) p. 917.
 545. E. R. Lemar and J. W. Forbes, " *Detonation Wave Curvature of Cast Comp B and PBXN-111*," High-Pressure Science and Technology - 1993, Colorado Springs, Colorado, Proc. Joint Int. Assoc. for Research and Advancement of High Pressure Science and Technology and APS Topical Group on Shock Compression of Condensed Matter, S. C. Schmidt, et al., eds., AIP Press, New York, Conf. Proc. #309 Pt. 2 p. 1385.

546. E. R. Lemar, J. W. Forbes, and J. W. Watt, "*Unreacted Hugoniot and Shock Ignition Studies of Composition B-3 and PBXW-109.*" Shock Waves in Condensed Matter - 1983, Santa Fe, New Mexico, Proc. APS Topical Conf., J. R. Asay, R. A. Graham, G. K. Straub, eds., North-Holland, Amsterdam, Netherlands (1984) p. 539.
547. E. R. Lemar, et al., "*Unreacted Hugoniot of Composition B-3 for 0-16 kbar,*" J. Appl. Phys. **8** 3404 (1985).
548. B. Lewis, R. N. Pease, and H. S. Taylor, "*Combustion Processes,*" Princeton University Press, Princeton, New Jersey (1956).
549. T. P. Liddiard and J. W. Forbes, "*Initiation of Burning and Detonation in Cast H-6 and Cast PBXW-109,*" Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 308.
550. E. E. Lin, A. V. Sirenko, and A. I. Funtikov, "*Change in the Pressure with Time in a Reflected Shock Wave with the Explosion of a Sheet Charge of Explosive,*" Combust., Explos., Shock Waves **15** 275 (1979).
551. I. E. Lindstrom, "*Planar Shock Initiation of Porous Tetryl,*" J. Appl. Phys. **41** 337 (1970).
552. I. E. Lindstrom, "*Plane Shock Initiation of an RDX Plastic Bonded Explosive,*" J. Appl. Phys. **37** 4873 (1966).
553. A. M. Lipanov, ed., "*Theory of Combustion of Powder and Explosives,*" Nova Science Publishers, Commack, New York (1996).
554. V. N. Lobanov et al., "*Critical Conditions of the Excitation of Detonation by a Thermal Mechanism,*" Combust., Explos., Shock Waves **23** 51 (1987).
555. S. N. Lubyatinsky and B. G. Loboiko, "*Density Effect on Detonation Reaction Zone Length in Solid Explosives,*" Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 743.
556. P. E. Luebcke, P. M. Dickson, and J. E. Field, "*Deflagration-to-Detonation Transition in Granular Pentaerythritol Tetranitrate,*" J. Appl. Phys. **79** 3499 (1996).
557. P. E. Luebcke, P. M. Dickson, and J. E. Field, "*Experimental Investigation into the Deflagration to Detonation Transition in Secondary Explosives,*" Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 242.
558. P. E. Luebke, P. M. Dickson, and J. E. Field, "*Experimental Study of the Deflagration-to-Detonation Transition in Granular Secondary Explosives,*" Proc. Roy. Soc. (London) **A448** 439 (1995).
559. E. A. Lundstrom, "*Evaluation of Forest Fire Burn Model of Reaction Kinetics of Heterogeneous Explosives,*" Naval Weapons Center, China Lake, California report NWC-TP-6898, AD-A200 411 (1988).
560. C. L. Mader, "*Code Calculations of Initiation and Performance of Explosives,*" Proc. 12th Ann. Symp. on Behavior and Utilization of Explosives in Engineering Design, 1972, U. of New Mexico, Albuquerque, New Mexico p. 35.
561. C. L. Mader, "*Detonation Performance Calculations Using the Kistiakowsky-Wilson Equation of State,*" Los Alamos Scientific Laboratory report LA-2613 (1961).
562. C. L. Mader, "*Detonation Properties of Condensed Explosives Computed Using the Becker-Kistiakowsky-Wilson Equation of State,*" Los Alamos Scientific Laboratory report LA-2900 (1963).

563. C. L. Mader, "*Detonation Wave Interactions*," Proc. Seventh Symp. (Int.) on Detonation, Coronado, California, 1976, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 669.
564. C. L. Mader, "*An Empirical Model of Heterogeneous Shock Initiation of [PBX] 9404*," Los Alamos Scientific Laboratory report LA-4475 (1970).
565. C. L. Mader, "*FORTTRAN BKW: A Code for Computing the Detonation Properties of Explosives*," Los Alamos Scientific Laboratory report LA-3704 (1967).
566. C. L. Mader, "*The Hydrodynamic Hot Spot and Shock Initiation of Homogeneous Explosives*," Los Alamos Scientific Laboratory report LA-2703 (1962).
567. C. L. Mader, "*Numerical Modeling of Detonation*," University of California Press, Berkeley, California (1979).
568. C. L. Mader, "*Numerical Modeling of Explosives and Propellants*," 2d ed., CRC Press, Boca Raton, Florida (1998).
569. C. L. Mader, "*Shock and Hot Spot Initiation of Homogeneous Explosives*," Phys. Fluids 6 375 (1963).
570. C. L. Mader, "*A Study of the One-Dimensional, Time-Dependent Reaction Zone of Nitromethane and Liquid TNT*," Los Alamos Scientific Laboratory report LA-3297 (1965).
571. C. L. Mader, "*The Time-Dependent Reaction Zones of Ideal Gases, Nitromethane, and Liquid TNT*," Los Alamos Scientific Laboratory report LA-3764 (1967).
572. C. L. Mader, "*Two-Dimensional Homogeneous and Heterogeneous Detonation Wave Propagation*," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 405.
573. C. L. Mader and B. G. Craig, "*Non-Steady State Detonations in One-Dimensional, Plane, Diverging and Converging Geometries*," Los Alamos Scientific Laboratory report LA-5865 (1975).
574. C. L. Mader and C. A. Forest, "*Two-Dimensional Homogeneous and Heterogeneous Detonation Propagation*," Los Alamos Scientific Laboratory report LA-6259 (1976).
575. C. L. Mader and J. D. Kershner, "*Three-Dimensional Modeling of Explosive Desensitization by Preshocking*" J. Energetic Mater. 3 35 (1985).
576. C. L. Mader and J. D. Kershner, "*Three Dimensional Modeling of Shock Initiation of Heterogeneous Explosives*," Nineteenth Symp. (Int.) on Combustion - 1982, The Combustion Institute, Pittsburgh, Pennsylvania (1983) p. 685.
577. C. L. Mader and J. D. Kershner, "*Three-Dimensional Modeling of Triple-Wave Initiation of Insensitive Explosives*," Los Alamos Scientific Laboratory report LA-8206 (1980).
578. C. L. Mader, J. N. Johnson, and S. L. Crane, "*Los Alamos Explosive Performance Data*," University of California Press, Berkeley, California (1987).
579. D. E. Maiden, "*A Hot Spot Model for Calculating the Threshold for Shock Initiation of Pyrotechnics and Explosives*," 3^e Congres de Pyrotechnie Spatiale, Juan-les Pins, France, 1987 p. 17.

580. J. L. Maienschein, et al., "*Effect of Microvoids on the Shock Initiation of PETN*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 711.
581. H. D. Mallory, "*Von Neumann Peak from Detonation Velocity*," Combust. Flame 59 217 (1985).
582. N. P. Mancon, "*Relation Between Detonation Wave Velocity and Explosive Charge Diameter*," Dokl. Akad. Nauk SSSR 330 567 (1993).
583. W. R. Marlow and I. C. Skidmore, "*The Initiation of Condensed Explosives by Shock Waves from Metals*," Proc. Roy. Soc. (London) A246 p. 284 (1958).
584. S. P. Marsh, "*LASL Shock Hugoniot Data*," University of California Press, Berkeley, California (1980).
585. V. F. Martynyuk, et al., "*Pressure Estimation for a Low-Speed Detonation Wave in Pressed TEN*," Combust., Explos., Shock Waves 23 742 (1988).
586. H. Matsuo, et al., "*Spectroscopic Study of Cylindrically Converging Shock Waves*," J. Appl. Phys. 58 2487 (1985).
587. J. M. McAfee, et al., "*Deflagration-to-Detonation Transition in Granular HMX*," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7, vol. I, p. 265.
588. R. R. McGuire and M. Finger, "*Composite Explosives for Metal Acceleration: The Effect of Detonation Temperature*," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Warfare Center, Silver Spring, Maryland report NSWC MP 86-194 p.1018.
589. J. H. McLain, "*Pyrotechnics*," The Franklin Institute Press, Philadelphia, Pennsylvania (1980).
590. F. McMurphy, "*Cylinder Tests of HE Materials [Data Sheets]*," Lawrence Livermore National Laboratory report
591. R. G. McQueen and J. Fritz, "*The Reaction Zone of High Explosives*," Los Alamos National Laboratory report M-6-530 (1983).
592. R. G. McQueen and S. P. Marsh, "*High Explosive Systems for Equation-of-State Studies*," Shock Waves in Condensed Matter - 1987, Monterey, California, S. C. Schmidt, N. C. Holmes, eds, North-Holland, Amsterdam, Netherlands (1988) p. 107.
593. L. A. Medard, "*Accidental Explosions*," 2 volumes., Halsted Press, John Wiley, New York (1990).
594. A. M. Mellor, D. A. Wiegand, and K. B. Isom, "*Hot Spot Histories in Energetic Materials*," Structure and Properties of Energetic Materials, Boston, Massachusetts, 1992, Materials Research Society, Pittsburgh, Pennsylvania, vol. 296, D. H. Liebenberg, R. W. Armstrong, J. J. Gilman, eds., (1993) p. 293.
595. R. Mendes, I. Plaksin, and J. Campos, "*Single and Two Initiation Points of PBX*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 715.
596. R. Menikoff, "*Determining Curvature Effect on Detonation Velocity from Rate Stick Experiment*," Impact of Comput. Sci. Eng. 1 168 (1989).

597. I. A. P. Metzner and C. S. Coffey, "*Hot Spot Initiation of Plastic-Bonded Explosives During the Rapid Flow Phase of the Drop Weight Impact Test*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 219.
598. R. Meyer, "*Explosivstoffe*," 6th ed., VCH Verlag, Weinheim, Germany (1985).
599. P. J. Miller, "*A Reactive Flow Model with Coupled Reaction Kinetics for Detonation and Combustion in Non-Ideal Explosives*," Decomposition, Combustion, and Detonation Chemistry of Energetic Materials, Boston, Massachusetts, 1995, Proc. Materials Research Society vol. 418, T. B. Brill, et al., eds., Pittsburgh, Pennsylvania (1996) p. 413.
600. P. J. Miller and K. E. Carlson, "*Determination of JWL Equation of State Parameters Using the Gurney Equation Approximation*," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 498.
601. R. S. Miller and J. M. Goldwasser, "*Research into the Detonation of Nonideal Versus Ideal Explosives*," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Proc. J. Physique III 5 Colloque C4, Suppl. to no. 5, 1995, p. 189.
602. A. Miyake, et al., "*Non-Ideal Detonation Properties of Ammonium Nitrate (II). Influence of Confinement Diameter Effect on Detonation Velocity of Micro-Prill AN*," Explosions and Explosives 52 342 (1991).
603. V. K. Mohan and J. E. Hay, "*Reparameterization of the Becker-Kistiakowski-Wilson Equation of State for Water-Gel Explosives*," Combust. Flame 50 207 (1983).
604. T. C. K. Molyneaux, L.-Y. Li, and N. Firth, "*Numerical Simulation of Underwater Explosions*," Computers & Fluids 23 903 (1994).
605. C. P. Morris, "*Los Alamos Shock Wave Profile Data*," University of California Press, Berkeley, California (1981).
606. H. Moulard, "*Critical Conditions for Shock Initiation of Detonation by Small Projectile Impact*," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 316.
607. H. Moulard, "*Particular Aspects of the Explosives Particle Size Effects on Shock Sensitivity of Cast PBX Formulations*," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 18.
608. H. Moulard, J. Kury, and A. Declos, "*The Effect of RDX Particle Size on the Shock Sensitivity of Cast PBX Formulations*," Proc. Eighth Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC-MP 86-194 p. 902.
609. R. N. Mulford, and R. R. Alcon, "*Shock Initiation of PBX 9502 at Elevated Temperatures*," Shock Compression of Condensed Matter - 1995, Seattle, Washington, Proc. APS Topical Conf., S. C. Schmidt, W. C. Tao, eds., AIP Press, Woodbury, NY, Conf. Proc. #370 Pt. 2 p. 855 and Los Alamos National Laboratory report LA-UR-95-2761 (1995).
610. R. N. Mulford and J. A. Romero, "*Sensitivity of the TATB-Based Explosive PBX 9502 After Thermal Expansion*," Shock Compression of Condensed Matter - 1997, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, conf. Proc. #429 p. 723.

611. R. N. Mulford, S. A. Sheffield, and R. R. Alcon, "*Initiation of Preshocked High Explosives PBX 9404, PBX 9502, and PBX 9501, Monitored with In-Material Magnetic Gauging*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 459.
612. R. N. Mulford, S. A. Sheffield, and R. R. Alcon, "*Preshock Desensitization of PBX Explosives*," High-Pressure Science - 1993, Colorado Springs, Colorado, Joint Int. Assoc. for Research and Advancement of High Pressure Science and Technology and APS Topical Group on Shock Compression of Condensed Matter, S. C. Schmidt, et al., eds., AIP Press, New York, Conf. Proc. #309 Pt. 2 p.1405.
613. H. Muraour, "*Poudres et Explosifs*," Presses Universitaires de France (1947).
614. M. J. Murphy, et al., "*Modeling Shock Initiation in Composition B*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 963.
615. Y. Nakayama, et al., "*Underwater Explosion of Cylindrical Charge with Large Length to Diameter Ratio*," Explos. and Explosives 52 335 (1991).
616. P. Naoum, "*Nitroglycerin and Nitroglycerin Explosives*," Williams and Wilkins Company, Baltimore, Maryland (1928).
617. T. Neal, "*Perpendicular Explosive Drive and Oblique Shocks*," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 602.
618. A. L. Nichols III, "*Nonequilibrium Detonation of Composite Explosives*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 345.
619. M. Nicolle, et al., "*Initiation of a Mixed TATB-HMX Composition by Single and Double Shocks*," Propellants, Explos., Pyrotech. 18 128 (1993).
620. B. Nouguez, A. Bertrand, and J. Mala, "*Numerical Simulation of the Shock-Detonation Transition*," AGARD Conf. Proc. no. 367, Neuilly-sur-Seine, France (1984).
621. J. W. Nunziato, "*Initiation and Growth-to-Detonation in Reactive Mixtures*," Shock Waves in Condensed Matter - 1983, Santa Fe, New Mexico, Proc. APS Topical Conf., J. R. Asay, R. A. Graham, G. K. Straub, eds., North-Holland, Amsterdam, Netherlands (1984) p. 581.
622. J. W. Nunziato and M. R. Baer, "*A Macroscopic Approach to the Initiation and Detonation of Condensed-Phase Energetic Materials*," Microscopic and Macroscopic Approaches to Detonation, Megeve, France, Peoc. J. Physique 48 Colloque C4, Suppl. to no. 9, p. 67.
623. J. W. Nunziato, J. E. Kennedy, and D. R. Hardesty, "*Modes of Shock Wave Growth in the Initiation of Explosives*," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 47.
624. J. W. Nunziato, E. K. Walsh, and J. E. Kennedy, "*A Continuum Model for Hot Spot Initiation of Granular Explosives*," Behavior of Dense Media under High Dynamic Pressures, Proc. CEA, Paris, France 1978 p. 139.
625. G. L. Nutt, "*A Reactive Flow Model for a Monomolecular High Explosive*," J. Appl. Phys. 64 1816 (1988).
626. G. L. Nutt and L. M. Erickson, "*Reactive Flow Lagrange Analysis in RX-26-AF*," Shock Waves in Condensed Matter - 1983, Santa Fe, New Mexico, Proc. APS Topical Conf., J. R. Asay, R. A. Graham, G. K. Straub, eds., North-Holland, Amsterdam, Netherlands (1984) p. 605.

627. A. V. Obmenin, et al., "*Propagation of Predetonation Regimes in Porous Explosives*," Combust., Explos., Shock Waves 5 317 (1969).
628. S. Odier, "*Mechanisms of Detonation in Molecular Crystals: a Review*," Microscopic and Macroscopic Approaches to Detonation, Megeve, France, Proc. J. Physique 48 Colloque C4, Suppl. to no. 9, p. 225.
629. S. Odier and M. Peyrard, "*Why Does an Explosive Explode?*," Microscopic and Macroscopic Approaches to Detonation, Megeve, France, Proc. J. Physique 48 Colloque C4, Suppl. to no. 9, p. 393 (1987).
630. Office of Naval Research, "*Symposium on Detonation*," Office of Naval Research, Arlington, Virginia reports: 1st (1951); 2nd (1955) AD-52144 ; 3rd (1960) ACR-52, 3 vols.; 4th (1965) ACR-126; 5th (1970) ACR-184; 6th (1976) ACR-221; 7th (1981) NSWC MP 82-334; 8th (1985) NSWC MP 86-194; 9th (1989) OCNR 113291-7, 2 vols.; 10th (1993) ONR 33395-12.
631. V. N. Okhitin, "*Self-Modeling Parameter Distribution Behind a Detonation Wave*," Z. Prikl. Mekh. i Tekh. Fiz. (English) 25 98 (1984).
632. M. Onofri and A. Tesei, eds., "*Fluid Dynamical Aspects of Combustion Theory*," Lagman Scientific & Technical, Harlow, Essex, England, and Wiley, New York (1991).
633. D. C. Pack and F. J. Warner, "*Whitham's Shock-Wave Approximation Applied to the Initiation of Detonation in Solid Explosives*," Tenth Symp. (Int.) on Combustion - 1964, The Combustion Institute, Pittsburgh, Pennsylvania (1965) p. 845.
634. D. L. Paisley, "*Laser-Driven Miniature Flyer Plates for Shock Initiation of Secondary Explosives*," Shock Compression of Condensed Matter - 1989, Albuquerque, New Mexico, Proc. APS Topical Conf., S. C. Schmidt, J. N. Johnson, L. W. Davison, eds., North-Holland, Amsterdam, Netherlands (1990) p. 733.
635. A. K. Parfenov and I. M. Voskoboinikov, "*Low Velocity Detonation of Powdered Explosives*," Combust., Explos., Shock Waves 5 240 (1969).
636. Y. Partom, "*Calibration of DSD Parameters for LX-07 from Rate-Stick Data*," Shock compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 361.
637. Y. A. Partom, "*Characteristics Code for Shock Initiation*," Los Alamos Scientific Laboratory report LA-6959 (1976).
638. Y. Partom, "*Modeling the Crossover in Reaction Rate for Micronized TATB*," Shock Waves in Condensed Matter - 1987, Monterey, California, Proc. APS Topical Conf., S. C. Schmidt, N. C. Holmes, eds., North-Holland, Amsterdam, Netherlands (1988) p. 535.
639. Y. A. Partom, "*A Void Collapse Model for Shock Initiation*," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 506.
640. D. J. Pastine and R. R. Bernecker, "*P, v, E, T Equation of State for 1,3,5-Triamino-2,4,6-Trinitrobenzene*," J. Appl. Phys. 45 4458 (1974).
641. D. J. Pastine and J. W. Enig, "*Energetics of Late Chemical Reactions in Nonideal Underwater Detonations: Phase I, Preliminary Theoretical Model Development*," Enig Associates, Inc., Silver Spring, Maryland report ENIG-TR-95-1, AD-A309 088 (1995).

642. R. L. Peeters and R. M. Hackett, "Constitutive Modeling of Plastic-Bonded Explosives," *Experim. Mech.* **21** 111 (1981).
643. S. S. Penner, "Explosions, Detonations, Flammability, and Ignition," Pergamon Press, London, New York (1959).
644. D. Perrin and A. Zarembowitch, "Ultrasonic Methods to Enhance the Understanding of the Initiation of Detonation in Energetic Molecular Crystals," *Microscopic and Macroscopic Approaches to Detonation*, Proc. J. Physique **48** Colloque C4, Suppl. to no. 9, p. 281 (1987).
645. S. V. Pershin, et al., "Development of Polymorphic Transformations of Added Substances in Measurements of Wave and Mass Velocities for Detonation of an Explosive," *Combust., Explos., and Shock Waves* **23** 67 (1987).
646. P.-A. Persson, "Composite Energetics," Proc. 15th Int. Pyrotechnics Seminar, Boulder, Colorado (1990) p.757.
647. P.-A. Persson, R. Helmberg, and J. Lee, "Rock Blasting and Explosives Engineering," CRC Press, Inc., Boca Raton, Florida (1994).
648. F. J. Petrone, "Validity of the Classical Detonation Wave Structure for Condensed Explosives," *Phys. Fluids* **11** 1473 (1968).
649. E. A. Petrov and L. T. Eremenko, "The Influence of Supermolecular Structure of High Explosives on Their Sensitivity," *Combust., Explos., Shock Waves* **27** 339 (1991).
650. M. Peyrard and S. Odier, "Toward a Microscopic Theory of Detonations in Energetic Crystals," *Numerical Approaches to Combustion Modeling*, E. S. Oran, J. P. Boris, eds., Progress in Astronautics and Aeronautics vol. 135, A. R. Seebass, ed, AIAA, Washington, DC (1991) Ch. 16 p. 513.
651. M. Peyrard, S. Odier, and E. Oran, "Molecular Dynamics Simulations of the Propagation of a Detonation Wave in a Crystal," *Microscopic and Macroscopic Approaches to Detonation*, Megeve, France, Proc. J. Physique **48** Colloque C4, Suppl. to no. 9, p. 291 (1987).
652. L. Phillips, "Molecular Dynamics Simulations of Shocks and Detonations in a Model 3D Energetic Crystal with Defects," *Structure and Properties of Energetic Materials*, Boston, Massachusetts, 1992, Materials Research Society, Pittsburgh, Pennsylvania, vol. 296, D. H. Liebenberg, R. W. Armstrong, J. J. Gilman, eds., (1993) p. 155.
653. L. Phillips and E. S. Oran, "Molecular Dynamics Simulations of Shocks in Imperfect Crystal Lattices," *Shock Compression of Condensed Matter - 1991*, Williamsburg, Virginia, S. C. Schmidt et al., eds, North-Holland, Amsterdam, Netherlands (1992) p. 143.
654. L. Phillips, et al., "The Interaction of Shocks and Defects in Lennard-Jones Crystals," *J. Phys. - Condensed Matter* **5** 6357 (1993).
655. G. H. Pimbley and E. F. Marshall, "The Premature Detonation Problem," Los Alamos Scientific Laboratory report LA-8352-MS (1980).
656. A. V. Pinaev and G. A. Lyamin, "Low-Velocity Detonation of an Explosive in an Evacuated Porous Medium," *Dokl. Akad. Nauk SSSR* **325** 498 (1992).
657. M. Pinegre, et al., "Expansion Isentropes of TATB Compositions Released into Argon," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 815.

658. T. S. Pivina, et al., "*Molecular Criteria of Explosive Sensitivity to Shock*," Combust., Explos., Shock Waves 27 242 (1991).
659. I. Plaksin, et al., "*Interaction of Double Corner Turning Effect in PBX*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 755.
660. J. P. Plotard, et al., "*Effect of a Preshock on the Initiation of HMX, TATB, and HMX TATB Compositions*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 507.
661. A. P. Pogorelov and S. A. Novikov, "*Time Dependence of the Pressures for Detonation Initiation in TNT and TH 50 50 by Nonstationary Shock Waves*," Combust., Explos., Shock Waves 21 496 (1985).
662. A. I. Pogrebov, V. I. Tarzhanov, and V. I. Sdobnov, "*Characteristics of the Initiation of Heterogeneous Explosives by a Diverging Detonation of a Thin Donor Charge*," Combust., Explos., Shock Waves 23 75 (1987).
663. J. F. Polk, "*Determination of the Equation of State of Explosive Detonation Products from the Cylinder Expansion Test*," Army Ballistic Research Lab., Aberdeen Proving Ground, Maryland report ARBL-TR-02571, AD-A145 713 (1984).
664. H. N. Presles and P. Vidal, "*Detonation Generation and Propagation in Homogeneous Liquid Explosives*," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III 5 Colloque C4, Suppl. to no. 5, p. 143 (1995).
665. H. N. Presles, et al., "*Influence of Glass Microballoons on the Detonation of Nitromethane*," Shock Waves 4 325 (1995).
666. D. Price, "*Critical Parameters for Detonation Propagation and Initiations of Solid Explosives*," Naval Surface Weapons Center, Silver Spring, Maryland, report NSWC TR 80-339 (1981).
667. D. Price, "*Effect of Particle Size on the Shock Sensitivity of Pure Porous HE*," Naval Surface Weapons Center, Silver Spring, Maryland report NSWC TR 86-336 (1986).
668. D. Price, "*Shock Sensitivity, a Property of Many Aspects*," Proc. Fifth Symp. (Int.) on Detonation, Pasadena, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-184 p. 207.
669. D. Price and R. R. Bernecker, "*Effect of Wax on the Deflagration to Detonation Transition of Porous Explosives*," Behavior of Dense Media under High Dynamic Pressures, Proc. CEA, Paris, France 1978 p. 149.
670. D. Price and A. R. Clairmont, Jr., "*Deflagration to Detonation Transition Behavior of Aluminized HMX*," Propellants and Explosives 4 132 (1979).
671. D. Price, J. F. Wehner, and G. E. Robertson, "*Transition from Slow Burning to Detonation : Role of Confinement, Pressure Loading, and Shock Sensitivity*," Naval Surface Weapons Center, White Oak, Maryland, report NSWC-TR 68-138 (1968).
672. S. V. Pyaternev, et al., "*Effect of Carbon and Boron Nitride Additions on Detonation of Explosives*," Combust., Explos., Shock Waves 22 351 (1986).

673. S. V. Pyaternev, et al., "Singularity of the Particle-Velocity Profile of a Detonation Wave in a High Explosive Containing an Additive that Undergoes Polymorphic Conversion," *Combust., Explos., Shock Waves* 22 386 (1986).
674. R. L. Rabie and J. Wackerle, "Shock Initiation of Detonation Studies on PBX 9404 and Superfine TATB for Short Run Distances," *Shock Waves in Condensed Matter - 1979*, Pullman, Washington, Am. Phys. Soc. Bull. 24 722 (1979).
675. J. B. Ramsay, "Effect of Confinement on Failure in 95 TATB-5 Kel-F," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 372.
676. J. B. Ramsay and A. Popolato, "Analysis of Shock Wave and Initiation Data for Solid Explosives," Proc. Fourth Symp. (Int.) on Detonation, Silver Spring, Maryland, 1965, Office of Naval Research - Department of the Navy, Washington, DC report ACR-126 p. 233.
677. J. B. Ramsay, B. G. Craig, and J. J. Dick, "High-Temperature Shock Initiation of Explosives," Los Alamos Scientific Laboratory report LA-7158 (1978).
678. F. H. Ree, "Improved Model of Mixtures and its Application to Predict Postdetonation Behavior of PETN," *High Pressure Science and Technology*, Proc. 9th AIRAPT Int. High Pressure Conf., Albany, New York, 1983, Materials Research Society Symp. vol. 22 Pt. III -General Topics, C. Homan R. K. MacCrone, E. Whalley, eds., North-Holland, Amsterdam, Netherlands (1984) p. 163.
679. F. H. Ree, "Postdetonation Behavior of Condensed High Explosives by Modern Methods of Statistical Mechanics," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p.646.
680. F. H. Ree, "A Statistical Mechanical Theory of Chemically Reacting Multiphase Mixtures: Application to the Detonation Properties of PETN," *J. Chem. Phys.* 81 1251 (1984).
681. F. H. Ree, "Supercritical Fluid Phase Separations: Implications for Detonation Properties of Condensed Explosives," *J. Chem. Phys.* 84 5845 (1986).
682. F. H. Ree and M. van Thiel, "Detonation Behavior of LX-14 and PBX 9404: Theoretical Aspect," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 501.
683. J. Renick and J. Sanchez, "Detonation Characteristics of Mixtures of HMX and Emulsion Explosives," Air Force Weapons Lab., Kirtland AFB, New Mexico report AFWL-TR-88-106, AD-A209 168 (1988).
684. A. M. Renlund and W. M. Trott, "Spectroscopic Studies of Initiation and Detonation Chemistry," *Microscopic and Macroscopic Approaches to Detonation*, Megeve, France, Proc. J. Physique 48 Colloque C4, Suppl. to no. 9, p. 179 (1987).
685. A. M. Renlund and W. M. Trott, "Spectroscopic Studies of Shocked and Detonating Explosives," *Shock Waves in Condensed Matter - 1987*, Monterey, California, Proc. APS Topical Conf., S. C. Schmidt, N. C. Holmes, eds., North-Holland, Amsterdam, Netherlands (1988) p. 547.
686. G. Ribaud, "Detonation Waves," Centre National des Recherches Scientifiques, Paris, France (1962).
687. J. Ribovich, "A Wedge Technique for Evaluation of Detonation Hazards of Liquid Explosives," *Ann. New York Acad. Sci.* 152 766 (1968).

688. F. Rigas, N. Pitsinis, and P. Tsimogianni, "Gibbs Energy Minimization Approach in the Estimation of Detonation, Explosion and Work Production Parameters of Confined Charges," *Propellants, Explos., Pyrotech.* **19** 76 (1994).
689. J. P. Ritchie and S. M. Bachrach, "Molecular Models for Explosives," Microscopic and Macroscopic Approaches to Detonation, Megeve, France, *Proc. J. Physique* **48** Colloque C4, Suppl. to no. 9, p. 377 (1987).
690. D. H. Robertson, D. W. Brenner, and C. T. White, "Delayed Initiation in a Model Energetic Material," *Structure and Properties of Energetic Materials*, Boston, Massachusetts, 1992, Materials Research Society, Pittsburgh, Pennsylvania, vol. 296, D. H. Liebenberg, R. W. Armstrong, J. J. Gilman, eds., (1993) p. 183.
691. D. H. Robertson, D. W. Brenner, and C. T. White, "Effects of Crystal Orientation on the Properties of a Chemically Sustained Shock Wave in a Model Energetic Material," *High-Pressure Science and Technology - 1993*, Colorado Springs, Colorado, Joint Int. Assoc. for Research and Advancement of High Pressure Science and Technology and APS Topical Group on Shock Compression of Condensed Matter, S. C. Schmidt, et al., eds., AIP Press, New York, Conf. Proc. #309 Pt. 2 p. 1369.
692. J. Roth, "Shock Sensitivity and Shock Hugoniot of High-Density Granular Explosives," *Proc. Fifth Symp. (Int.) on Detonation*, Pasadena, California, 1976, Office of Naval Research - Department of the Navy report ACR-126 p. 219.
693. L. R. Rothstein and R. Petersen, "Predicting High Explosives Detonation Velocities from their Composition and Structure," *Propellants and Explosives* **4** 56 (1979) and **6** 91 (1981).
694. M. Samirant, "DDT in RDX and Ball Powder: Behavior of the Porous Bed," *Proc. Eighth Symp. (Int.) on Detonation*, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC 86-194 p. 972.
695. M. Samirant, "Detonation of Single Crystals," Microscopic and Macroscopic Approaches to Detonation, Megeve, France, *Proc. J. Physique* **48** Colloque C4 Suppl. to no. 9, p. 85 (1987).
696. H. W. Sandusky and R. R. Bernecker, "Influence of Fresh Damage on the Shock Reactivity and Sensitivity of Several Energetic Materials," *Proc. Tenth Int. Detonation Symp.*, Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 490.
697. Saurel and J. Massoni, "On Riemann-Problem-Based Methods for Detonation in Solid Energetic Materials," *Int. J. Numer. Methods in Fluids* **26** 101 (1998).
698. A. C. Schwarz, "Flyer Plate Performance and the Initiation of Insensitive Explosives by Flyer Plate Impact," Sandia Laboratories, Albuquerque, New Mexico report SAND 75-0461 (1975).
699. G. E. Seay, "Shock Initiation of Granular Explosives Pressed to Low Density," *Ninth Symp. (Int.) on Combustion*, 1962, The Combustion Institute, Pittsburgh, Pennsylvania (1963) p. 536.
700. G. E. Seay and L. B. Seely, "Initiation of a Low-Density PETN Pressing by a Plane Shock Wave," *J. Appl. Phys.* **32** p. 1092 (1961).
701. W. L. Seitz, "Short-Duration Shock Initiation of Triaminotrinitrobenzene (TATB)," *Shock Waves in Condensed Matter - 1983*, Santa Fe, New Mexico, *Proc. APS Topical Conf.*, J. R. Asay, R. A. Graham, G. K. Straub eds., North-Holland, Amsterdam, Netherlands (1984) p. 531.
702. W. L. Seitz, H. L. Stacy, and J. Wackerle, "Detonation Reaction Zone Studies on TATB Explosives," *Proc. Eighth Symp. (Int.) on Detonation*, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 123.

703. W. L. Seitz, et al., "*Detonation Reaction-Zone Structure of PBX 9502*," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 1132'9-7 vol. I p. 657.
704. L. H. Sentman, et al., "*Development of a Single Species Equation of State for Detonation Products Suitable for Hydrocode Calculations*," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 721.
705. R. E. Setchell, "*Experimental Studies of Chemical Reactivity During Shock Initiation of HNS*," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 15.
706. R. E. Setchell, "*Grain-Size Effects on the Shock Sensitivity of Hexanitrostilbene (HNS) Explosive*," Combust. Flame 56 343 (1984).
707. R. E. Setchell, "*Microstructural Effects in Shock Initiation of Granular Explosives*," Proc. Symp. on Pyrotechnics and Explosives, Beijing, China, 1987, p. 635.
708. R. E. Setchell, "*Ramp-Wave Initiation of Granular Explosives*," Shock Waves in Condensed Matter - 1979, Pullman, Washington, Am. Phys. Soc. Bull. 24 718 (1979).
709. R. E. Setchell and P. A. Taylor, "*Effects of Grain size on Shock Initiation Mechanisms in Hexanitrostilbene (HNS) Explosive*," Dynamics of Shock Waves, Explosions, and Detonations, Ninth Int. Colloq. on Gasdynamics of Explosions and Reactive Systems, Poitiers, France, 1983, J. R. Brown, et al., eds., Progress Astron. Aeronaut. 94 p. 350 (1984).
710. S. A. Shackelford, "*A General Concept Concerning Energetic Material Sensitivity and Initiation*," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III 5 Colloque C4, Suppl. to no. 5, p. 485 (1995).
711. J. Sharma and B. C. Beard, "*Electronic Excitations Preceding Shock Initiation in Explosives*," Structure and Properties of Energetic Materials, Boston, Massachusetts, 1992, Materials Research Society, Pittsburgh, Pennsylvania, vol. 296, D. H. Liebenberg, R. W. Armstrong, J. J. Gilman, eds., (1993) p. 189.
712. J. Sharma, et al., "*The Physical and Chemical Nature of Sensitization Centers Left from Hot Spots Caused in Triaminotrinitrobenzene by Shock or Impact*," J. Phys. Chem. 91 5139 (1987).
713. M. S. Shaw and J. D. Johnson, "*The Theory of Dense Molecular Fluid Equations of State with Applications to Detonation Products*," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 531.
714. R. Shaw, "*Calculated Shock Temperatures of Liquid TNT, Nitromethane, and four Liquid Bis(difluoramino) Alkanes*," J. Chem. Phys. 54 3657 (1971).
715. V. G. Shchetinin, "*Calculation of the State Parameters of Condensed Substances at High Pressures and Temperatures*," Combust., Explos., Shock Waves 27 426 (1992).
716. V. G. Shchetinin, "*Critical Conditions for Detonation of Solid Explosives*," Dokl. Akad. Nauk SSSR 258 865 (1981).
717. S. A. Sheffield, R. R. Alcon, and R. L. Gustavsen, "*Hugoniot and Initiation Measurements on TNAZ Explosive*," Shock Compression of Condensed Matter - 1995, Seattle, Washington, Proc. APS Topical Conf.,

- S. C. Schmidt, W. C. Tao, eds., AIP, Woodbury, New York, Conf. Proc. #370 Pt. 2 p. 879, and Los Alamos National Laboratory report LA-UR-95-2765 (1995).
- 718 S. A. Sheffield, D. D. Bloomquist, and C. M. Tarver, "Subnanosecond Measurements of Detonation Fronts in Solid High Explosives," J. Chem. Phys. **80** 3831 (1984).
 719. S. A. Sheffield, R. L. Gustavsen, and R. R. Alcon, "Shock Initiation Studies of Low Density HMX Using Electromagnetic Particle Velocity and PVDF Stress Gauges," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 166.
 720. S. A. Sheffield, R. L. Gustavsen, and M. U. Anderson, "Shock Loading of Porous High Explosives," High-Pressure Shock Compression of Solids IV, L. Davison, Y. Horie, M. Shahinpoor, eds., Springer-Verlag, New York (1997) Ch. 2, p. 23.
 721. S. A. Sheffield, D. E. Mitchell, and D. B. Hayes, "The Equation of State and Chemical Kinetics of HNS Explosive," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 748.
 722. K. K. Shvedov, "Determination of the Chapman-Jouguet Parameters in the Detonation of Condensed Explosives," Combust., Explos., Shock Waves **23** 464 (1987).
 723. K. K. Shvedov, "Determination of the Performance of Explosives," Combust., Explos., Shock Waves **20** 301 (1984).
 - 724 K. K. Shvedov, et al., "Detonation of Highly Dilute Porous Explosives. II. Influence of Inert Additives on the Structure of the Front, the Parameters, and the Reaction Time," Combust., Explos., Shock Waves **18** 64 (1982).
 725. K. K. Shvedov, S. A. Koldunov, and A. N. Dremin, "Stability of Low Velocity Detonation in Powdered Solid Explosives," Combust., Explos., Shock Waves **9** 371 (1973).
 726. R. A. Sickler, "Explosive Principles: An Essential Guide to Understanding Explosives and Detonations," Paladin Press (1992).
 - 727 R. L. Simpson, F. H. Helm, and J. W. Kury, "Non-Reactive HMX Shock Hugoniot Data," Propellants, Explos., Pyrotech. **18** 150 (1993).
 728. R. L. Simpson, P. A. Urtiew and C. M. Tarver, "Shock Initiation of 1,3,3-Trinitroazetidine (TNAZ)," Shock Compression of Condensed Matter - 1995, Seattle, Washington, Proc. APS Topical Conf., S. C. Schmidt, W. C. Tao, eds., AIP, Woodbury, New York, Conf. Proc. #370 Pt. 2 p. 883.
 729. R. L. Simpson, et al., "Characterization of TNAZ," Lawrence Livermore National Laboratory report UCRL-ID-119672 (1994).
 730. R. L. Simpson, et al., "CL-20 Performance Exceeds that of HMX and its Sensitivity is Moderate," Propellants, Explos., Shock Waves **22** 249 (1997).
 731. R. L. Simpson, et al., "Particle Size Effects in the Initiation of Explosives Containing Reactive and Non-Reactive Continuous Phases," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Operations, Arlington, Virginia report OCNR113291-7 vol. I p. 25.
 - 732 V. P. Singh, "Effect of Thermal Pressure in Converging Detonation Waves," Pramana **24** 527 (1985).
 733. V. P. Singh, "Folding Detonation Waves," Defense Sci. J. **33** 53 (1983).

734. V. P. Singh and A. M. N. Yogi, "Simulation of Pressure-Space-Time History in Underwater Explosions," *Pramana* 32 39 (1989).
735. W. A. Sirignano, et al., eds., "Advances in Combustion Science: In Honor of Ya. B. Zeldovich," Progress in Astronautics and Aeronautics vol. 173, P. Zarchan, ed., AIAA, Reston, Virginia (1997).
736. I. C. Skidmore and S. Hart, "Equation of State of Detonation Products Behind Overdriven Detonation Waves in Composition B," Proc. Fourth Symp. (Int.) on Detonation, Silver Spring, Maryland, 1965, Office of Naval Research - Department of the Navy, Washington, DC report ACR-126 p. 47.
737. R. D. Skocypec, et al., "Modeling Laser Ignition of Explosives and Pyrotechnics: Effects and Characterization of Radiative Transfer," Proc. 15th Int. Pyrotechnics Seminar, Boulder, Colorado (1990) p. 877.
738. V. S. Solovev, et al., "Experimental Study of the Mechanism of Initiation of Detonation in Low-Density Explosives," *Combust., Explos., Shock Waves* 22 469 (1987).
739. V. S. Solovev, et al., "The Role of Lateral Unloading Wave During Shock Initiation of Explosives," *Combust., Explos., Shock Waves* 5 441 (1970).
740. S. F. Son, et al., "Reaction Rate Modeling in the Deflagration to Detonation Transition of Granular Energetic Materials," Decomposition, Combustion, and Detonation Chemistry of Energetic Materials, Boston, Massachusetts, 1995, Proc. Materials Research Society vol. 418, T. B. Brill, et al., eds., Pittsburgh, Pennsylvania (1996) p. 313.
741. P. C. Souers, "Size Effect and Detonation Front Curvature," *Propellants, Explos., Pyrotech.*, 22 221 (1997).
742. P. C. Souers and R. Garza, "Size Effect and Detonation Front Curvature," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. 429 p. 325.
743. P. C. Souers and L. C. Haselman, Jr., "Detonation Equation of State at LLNL, 1993," Lawrence Livermore National Laboratory report UCRL-ID-116113 (1994).
744. P. C. Souers and J. W. Kury, "Comparison of Cylinder Data and Code Calculations for Homogeneous Explosives," *Propellants, Explos., Pyrotech.* 18 175 (1993).
745. P. C. Souers, B. Wu, and L. C. Haselman, Jr., "Detonation Equation of State at LLNL, 1995," Lawrence Livermore National Laboratory report UCRL-ID-119262 Rev. 3 (1996).
746. E. Souletis and J. Souletis, "Shock Sensitivity of RDX," Proc. Thirteenth Symp. on Explosives and Pyrotechnics, December 2-4, 1986 p. I-1.
747. R. J. Spear and V. Nanut, "Mechanism of and Particle Size Effects on Shock Sensitivity of Heterogeneous Pressed Explosives: Preliminary Assessment of Binderless RDX in Fuze Trains," Materials Research Laboratories, Ascot Vale, Australia report MRL-1077 (1987).
748. R. S. Spear and M. G. Wolfson, "Determination of Detonation Parameters of Booster Explosives at Small Diameter Charges," Materials Research Labs, Ascot Vale, Australia report MRL-TR-89-45, AD-A220 352 (1989).

- 749 J. Starkenberg, "An Assessment of the Performance of the Original and Modified Versions of the Forest Fire Explosive Initiation Model," Army Research Lab., Aberdeen Proving Ground, Maryland final report ARL-TR-373, AD-A277 888 (1994).
- 750 J. Starkenberg and T. M. Dorsey, "A Computational Study of Detonation Failure in Composition B and Cast TNT Charges," Army Research Lab, Aberdeen Proving Ground, Maryland final report ARL-TR-616, AD-A285 987 (1994).
- 751 A. M. Staver, A. I. Lyamkin, and A. P. Ershov, "Study of Detonations in Condensed Explosives by Conduction Methods," Combust., Explos., Shock Waves 20 320 (1984).
- 752 D. J. Steinberg, "Comparison of Experimental Data on Detonation Velocity and Chapman-Jouget Pressure vs Initial HE Density with Predictions from Ree's Model Equation of State," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center Silver Spring, Maryland report NSWC MP 86-194 p. 513.
- 753 D. S. Stewart, "Lectures on Detonation Physics: Introduction to the Theory of Detonation Shock Dynamics," University of Illinois, Dept. of Theoret. Phys., Urbana, Illinois report WL-TR-94-7089, AD-A301 339 (1993).
- 754 D. S. Stewart and J. B. Bdzil, "Examples of Detonation Shock Dynamics for Detonation Wave Spread Applications," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 773.
- 755 D. S. Stewart and J. B. Bdzil, "Lecture on Detonation-Shock Dynamics," University of Illinois, Dept. of Theoret. Phys., Urbana, Illinois report T.&A.M. no. 485 (1987).
- 756 D. S. Stewart and J. B. Bdzil, "The Shock Dynamics of Stable Multidimensional Detonation," Combust. Flame 72 311 (1988).
- 757 D. S. Stewart and J. Yao, "Normal Detonation Shock Velocity Curvature Relationship for Materials with Nonideal Equation of State and Multiple Turning Points," Combust. Flame 113 224 (1998).
- 758 D. S. Stewart, et al., "Level Set Techniques Applied to Unsteady Detonation Propagation," Los Alamos National Laboratory report LA-UR-94-3546 (1994).
- 759 L. I. Stiel and E. L. Baker, "Detonation Energies of Explosives by Optimized JCZ3 Procedures," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury Park, New York, Conf. Proc. #429 p. 357.
- 760 L. I. Stiel, V. M. Gold, and E. L. Baker, "Analysis of Hugoniot and Detonation Properties of Explosives with JCZ3 Equation of State," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993 p. 433.
- 761 J. R. Stine, "On Predicting Properties of Explosives - Detonation Velocity," J. Energetic Mater. 8 41 (1990).
- 762 D. Stirpe, J. O. Johnson, and J. Wackerle, "Shock Initiation of XTX-8003 and Pressed PETN," J. Appl. Phys. 41 3884 (1970).
- 763 R. A. Strehlow, "Combustion Fundamentals," McGraw-Hill, New York (1984).
- 764 R. H. F. Stresau, "Low Velocity of Detonation of Certain Primary Explosives," Navy report NAVORD-2490 (1952).
- 765 E. Stromsoe and S. W. Eriksen, "Performance of High Explosives in Underwater Applications. Part 1. CHNO Explosives, Part 2. Aluminized Explosives," Propellants, Explos., Pyrotech. 15 48, 52 (1990).

766. M. Suceca, "Calculation of the Detonation Properties of C-H-N-O Explosives," *Propellants, Explos., Pyrotech.* **16** 197 (1991).
767. M. Suceca, "Test Methods for Explosives," Springer Verlag, Inc., New York (1995).
768. A. A. Sulimov, B. S. Ermolaev, and V. E. Khrapovski, "Mechanism of Deflagration-to-Detonation Transition in High-Porosity Explosives," *Dynamics of Explosions, Proc. 11th Int. Colloq. on Dynamics of Explosions and Reactive Systems, Warsaw, Poland, 1987*, A. L. Kuhl, et al., eds, *Progress in Astronautics and Aeronautics* **114**, M. Summerfield, ed., AIAA, Washington, DC (1988) p. 322.
769. A.A. Sulimov, et. al., "On the Mechanism of Deflagration to Detonation Transition in Gas-Permeable High Explosives," *Proc. Sixth Symp. (Int.) on Detonation, 1976, Coronado, California*, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 250.
770. C. Sun, F. Zhao, and W. Gao, "Detonation Shock Dynamics Approach to the Diameter Effect of Explosive Sticks," *Explos. and Shock Waves* **16** 193 (1996).
771. C. Sun, S. Zhuang, and C. Wang, "Calculation of Shock Initiation of Explosives Impacted by the Laser-driven Flyer," *High Power Laser and Particle Beams* **2** 471 (1997).
772. C. Sun, et al., "High Velocity Flyers Accelerated By Multistage Explosive Slabs," *Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf.*, S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 971.
773. G. T. Sutherland, et al., "Shock Response of the Explosive PBXN-103," *Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf.*, S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 747.
774. G. T. Sutherland, et al., "Shock Wave and Detonation Wave Response of Selected HMX Based Research Explosives with HTPB Binder Systems," *High-Pressure Science and Technology - 1993, Colorado Springs, Colorado, Proc. Joint Int. Assoc. for Research and Advancement of High Pressure Science and Technology and APS Topical Group on Shock Compression of Condensed Matter*, S. C. Schmidt, et al., eds., AIP Press, New York, Conf. Proc. #309 Pt. 2 p. 113.
775. D. C. Swift and B. D. Lambourn, "A Review of Developments in the W-B-L Detonation Model," *Proc. Tenth Int. Detonation Symp.*, Boston, Massachusetts, 1993 p. 386.
776. D. C. Swift and S. J. White, "An Evaluation of Detonation Models," *Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III* **5** Colloque C4, Suppl. to no. 5, (1995) p. 37.
777. R. J. Swinton, T. Bussell, and L. McVay, "A Critical Diameter Study of the Australian Manufactured Underwater Explosive Composition H6," *Defence Science and Technology Organization, Canberra, Australia report DSTO-TN-0049, AD-A319 313* (1996).
778. K. Tanaka, "Detonation Properties of High Explosives Calculated by Revised Kihara-Hikita Equation of State," *Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985*, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 548.
779. P. K. Tang, "Initiation and Detonation of Heterogeneous High Explosive: A Unified Model," *Los Alamos National Laboratory report LA-11352-MS* (1988).
780. P. K. Tang, "PBX 9502 Products Equation of State," *Propellants, Explos., Pyrotech.* **22** 45 (1997).

781. P. K. Tang, "A Study of Detonation Processes in Heterogeneous High Explosives," J. Appl. Phys. 63 1041 (1988).
782. P. K. Tang, "A Study of the Impact of Reaction Rates on Equation of State," Shock Compression of Condensed Matter - 1991, Williamsburg, Virginia, Proc. APS Topical Conf., S. C. Schmidt, et al., eds., North-Holland, Amsterdam, Netherlands (1992), p. 337.
783. P. K. Tang, "A Study of the Role of Homogeneous Process in Heterogeneous High Explosives," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 947.
784. P. K. Tang, R. S. Hixson, and J. N. Fritz, "Modeling PBX 9501 Overdriven Release Experiments," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Forbes, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 365.
785. P. K. Tang, J. N. Johnson, and C. A. Forest, "Modeling Heterogeneous High Explosive Burn with an Explicit Hot-Spot Process," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver spring, Maryland report NSWC MP 86-194 p. 52.
786. P. K. Tang, et al., "A Study on the Contribution of Slow Reaction in Detonation," Shock Compression of Condensed Matter - 1989, Albuquerque, New Mexico, Proc. APS Topical Conf., S. C. Schmidt, J. N. Johnson, L. W. Davison, eds., North-Holland, Amsterdam, Netherlands (1990) p. 279.
787. W. C. Tao, et al., "Understanding Composite Explosive Energetics: IV. Reactive Flow Modeling of Aluminum Reaction Kinetics in PETN and TNT Using Normalized Product Equation of State," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 628.
788. C. M. Tarver, "The Effects of Chemical Energy Release on Detonation Waves in Condensed Explosives," Shock Waves in Condensed Matter - 1979, Pullman, Washington, Am. Phys. Soc. Bull. 24 713 (1979).
789. C. M. Tarver, "Modeling Shock Initiation and Detonation Divergence Tests on TATB-Based Explosives," Propellants, Explos., Pyrotech. 15 p. 132 (1990).
790. C. M. Tarver, "The Structure of Detonation Waves in Solids," Shock Compression of Condensed Matter - 1991, Williamsburg, Virginia, Proc. APS Topical Conf., S. C. Schmidt, et al., eds., North-Holland, Amsterdam, Netherlands (1992) p. 311.
791. C. M. Tarver and J. O. Hallquist, "Modeling Two-Dimensional Shock Initiation and Detonation Wave Phenomena in PBX 9404 and LX-17," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 488, and Lawrence Livermore National Laboratory report UCRL-84990 (Preprint) (1981).
792. C. M. Tarver and P. A. Urtiew, "Theoretical Modeling of Converging and Diverging Detonation Waves in Solid and Gaseous Explosives," Dynamics of Shock Waves, Explosions, and Detonations, Ninth Int. Colloq. on Gasdynamics of Explosions and Reactive Systems, Poitier, France, 1983, J. R. Brown, et al., eds., Progress Astron. Aeronaut. 94 p. 369 (1984).
793. C. M. Tarver, R. D. Breithaupt, and J. W. Kury, "Detonation Waves in Pentaerythritol Tetranitrate," J. Appl. Phys. 81 7193 (1997).
794. C. M. Tarver, L. M. Erickson, and N. L. Parker, "Shock Initiation, Detonation Wave Propagation and Metal Acceleration Measurements and Calculations for RX-26-AF," Shock Compression in Condensed Matter -

- 1983, Santa Fe, New Mexico, Proc. APS Topical Conf., J. R. Asay, R. A. Graham, G. K. Straub, eds., North-Holland, Amsterdam, Netherlands (1984) p. 609.
795. C. M. Tarver, J. O. Hallquist, and L. M. Erickson, "Modeling Short Pulse Duration Shock Initiation of Solid Explosives," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 951.
 796. C. M. Tarver, R. L. Simpson, and P. A. Urtiew, "Shock Initiation of an ϵ -CL-20 Estane Formulation," Shock Compression of Condensed Matter - 1995, Seattle, Washington, Proc. APS Topical Conf., S. C. Schmidt, W. C. Tao, eds., AIP, Woodbury, New York, Conf. Proc. #370 Pt. 2 p. 891.
 797. C. M. Tarver, W. C. Tao, and C. G. Lee, "Sideways Plate Push Test for Detonating Solid Explosives," Propellants, Explos., Pyrotech. **21** 238 (1996).
 798. C. M. Tarver, P. A. Urtiew, and W. C. Tao, "Effects of Tandem and Colliding Shock Waves on the Initiation of Triaminotrinitrobenzene," J. Appl. Phys. **78** 3089 (1995).
 799. C. M. Tarver, et al., "Critical Conditions for Impact and Shock Induced Hot Spots in Solid Explosives," J. Phys. Chem. **100** 5794 (1996).
 800. C. M. Tarver, et al., "Energy Transfer in Detonation of Solid Explosives," Proc. Tenth Int. Symp. on Detonation, Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 3.
 801. C. M. Tarver, et al., "Multiple Shock Initiation of LX-17," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 696.
 802. C. M. Tarver, et al., "Shock Compression and Initiation of LX-10," Propellants, Explos., Pyrotech. **18** 117 (1993).
 803. V. I. Tarzhanov, "Overheated Detonation in Condensed Explosives," Combust., Explos., Shock Waves **21** 588 (1985).
 804. D. G. Tasker, "Shock Initiation and Subsequent Growth of Reaction in Explosives and Propellants: The Low Amplitude Shock Initiation Test - LASI," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 285.
 805. D. G. Tasker and R. J. Lee, "High Current Electrical Conduction of Pressed Condensed Detonating Explosives," Shock Waves in Condensed Matter - 1985, Spokane, Washington, APS Topical Conf., Y. M. Gupta, ed., Plenum Press (1986) p. 923.
 806. D. G. Tasker, R. H. Granholm, and R. J. Lee, "The Fast Measurement of Electrical Conductivity Structure within the Detonation Zone of a Condensed Explosive," Shock Waves in Condensed Matter - 1987, Monterey, California, Proc. APS Topical Conf., S. C. Schmidt, N. C. Holmes, eds., North-Holland, Amsterdam, Netherlands (1988) p. 561.
 807. P. Tavernier, "Poudres et Explosifs," Presses Universitaires de France (1969).
 808. B. C. Taylor and L. W. Ervin, "Separation of Ignition and Buildup to Detonation in Pressed TNT," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 3.
 809. G. I. Taylor, "The Dynamics of the Combustion Products Behind Plane and Spherical Detonation Fronts in Explosives," Proc. Roy. Soc. (London) **A200** 235 (1950).

810. J. Taylor, "*Detonation in Condensed Explosives*," Clarendon Press, London, England (1952).
811. P. A. Taylor, "*The Effect of Material Structure on the Shock Sensitivity of Porous Granular Explosives*," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 26.
812. P. A. Taylor, "*The Effects of Grain Size on the Shock Sensitivity of Porous Granular Explosives*," Shock Waves in Condensed Matter - 1983, Santa Fe, New Mexico, Proc. APS Topical Conf., J. R. Asay, R. A. Graham, and G. K. Straub, eds., North-Holland, Amsterdam, Netherlands (1984) p. 597.
813. P. A. Taylor, "*Shock Wave Evolution in a Chemically Reacting Mixture with Microstructure*," Int. J. Eng. Sci. 22 1199 (1984).
814. R. Trebinski, W. Trzcinski, and E. Wlodarczyk, "*Method for Estimating the Pressure in a Detonation Wave of an Explosive with an Inert Addition*," J. Tech. Phys. 28 451 (1987).
815. R. Trebinski, E. Wlodarczyk, and S. Zon, "*Co-Acting Detonation and Shock Waves in Segmented Explosive Charges*," J. Tech. Phys. 17 145 (1976).
816. V. S. Trofimov and A. N. Dremin, "*Basis of the Selection Rule for Detonation Velocity*," Combust., Explos., Shock Waves 2 (3) 11 (1966).
817. D. H. Tsai, "*Modeling of Detonation: Role of Vacancies in the Initiation of Detonation in an Energetic Crystal*," Microscopic and Macroscopic Approaches to Detonation, Megeve, France, Proc. J. Physique 48 Colloque C4, Suppl. to no. 9, p.303 (1987).
818. J. Tyl, "*Analysis of the Structure of a Stationary Plane Detonation Front of a Heterogeneous Explosive*," J. Tech. Phys. 25 79 (1984).
819. US Army Materiel Command, "*Engineering Design Handbook - Explosives Series - Properties of Explosives of Military Interest*," AMC Pamphlet AMCP 706-177 (1967).
820. U. S. Army, "*Military Explosives*," Department of the Army report TM9-1300-214 (1984).
821. T. Urbanski, "*Chemistry and Technology of Explosives*," 4 vols., McMillan, New York (1964 - 1968).
822. M. J. Urizar, E. James, Jr., and L. C. Smith, "*Detonation Velocity of Pressed TNT*," Phys. Fluids 4 262 (1961).
823. M. J. Urizar, S. W. Peterson, and L. C. Smith, "*Detonation Sensitivity Tests*," Los Alamos Scientific Laboratory report LA-7193-MS (1978).
824. P. A. Urtiew and B. Hayes, "*Empirical Estimate of Detonation Parameters in Condensed Explosives*," Lawrence Livermore National Laboratory report UCRL-JC-103219 (1990).
825. P. A. Urtiew and B. Hayes, "*Parametric Study of the Dynamic JWL-EOS for Detonation Products*," Lawrence Livermore National Laboratory report UCRL-JC-103218 (1990), and Combust., Explos., Shock Waves 27 505 (1991).
826. P. A. Urtiew and A. K. Oppenheim, "*Detonative Ignition Induced by Shock Merging*," Eleventh Symp. (Int.) on Combustion - 1966, The Combustion Institute, Pittsburgh, Pennsylvania (1967) p. 665.

827. P. A. Urtiew, C. M. Tarver, and R. L. Simpson, "*Shock Initiation of 2,4-Dinitroimidazole (2,4-DNI)*," Shock Compression of Condensed Matter - 1995, Seattle, Washington, Proc. APS Topical Conf., S. C. Schmidt, W. C. Tao, eds., AIP, Woodbury, New York, Conf. Proc. #370 p. 887.
828. P. A. Urtiew, et al., "*Effect of Confinement and Thermal Cycling on the Shock Initiation of LX-17*," Combust. Flame **105** 43 (1996).
829. P. A. Urtiew, et al., "*Shock Initiation of LX-17 as a Function of its Initial Temperature*," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief on Naval Research, Arlington, Virginia report OCNR 113219-7 vol. I p. 112.
830. P. A. Urtiew, et al., "*Shock Sensitivity of IHE at Elevated Temperatures*," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 139.
831. P. A. Urtiew, et al., "*Shock Sensitivity of LX-04 at Elevated Temperatures*," Shock Compression of Condensed Matter - 1997, Amherst, Massachusetts, Proc. APS Topical Conf., S. C. Schmidt, D. P. Dandekar, J. W. Fowler, eds., AIP, Woodbury, New York, Conf. Proc. #429 p. 727.
832. R. W. van Dolah, et al., "*Low Velocity Detonation in Liquid Explosives*," Proc. Int. Conf. on Sensitivity and Hazards of Explosives, London, England, 1963.
833. A. van der Steen and R. Verbeek, "*Initiation and Detonation of RDX and HMX HTPB-Based Plastic-Bonded Explosives*," Propellants, Explos., Pyrotech. **15** 19 (1990).
834. A. C. van der Steen, H. H. Kodde, and A. Miyake, "*Detonation Velocities of the Non-Ideal Explosive Ammonium Nitrate*," Propellants, Explos., Pyrotech. **15** 58 (1990).
835. A. C. van der Steen, H. J. Verbeek, and J. J. Meulenbrugge, "*Influence of RDX Crystals Shape on the Shock Sensitivity of PBXes*," Proc. Ninth Symp. (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 83.
836. M. van Thiel, "*Thermodynamic Properties and Hydrodynamic Response of High-Density High-Temperature C-H-N-O Mixtures*," Shock Compression of Condensed Matter - 1989, Santa Fe, New Mexico, Proc. APS Topical Conf., S. C. Schmidt, J. N. Johnson, L. W. Davison, eds., North-Holland, Amsterdam, Netherlands (1990) p. 79.
837. M. van Thiel, E. L. Lee, and S. Cochran, "*Effects of Overdriven Shock States on the Equation of State of [PBX] 9404*," J. Appl. Phys. **54** 6760 (1983).
838. M. van Thiel, F. H. Ree, and J. Sayer, "*Equilibrium Shock and Release Properties of Post-Detonation Mixtures of PBX 9404, LX-14, RDX, and TNT*," Shock Waves in Condensed Matter - 1985, Spokane, Washington, Proc. APS Topical Conf., Y. M. Gupta, ed., Plenum Press, New York (1986) p. 883.
839. H. C. Vantine, J. Chan, and L. M. Erickson, "*Thin Pulse Initiation of PBX 9404*," Shock Waves in Condensed Matter - 1981, Menlo Park, California, APS Topical Conf., W. J. Nellis, L. Seaman, R. A. Graham, eds., AIP, New York (1982) Conf. Proc. #78 p. 558.
840. H. C. Vantine, et al., "*A Comparison of Stress and Velocity Measurements in PBX 9404 Explosive*," Eighteenth Symp. (Int.) on Combustion 1980, The Combustion Institute, Pittsburgh, Pennsylvania (1981) p. 1631.
841. V. I. Vashchenko, et al., "*Explosion Energy of Water-Compatible Explosives (RDX)*," Combust., Explos., Shock Waves **7** 370 (1971).

842. V. I. Vashchenko, et al., "Heat Release in the Low Velocity Detonation Regime," *Combust., Explos., Shock Waves* 7 102 (1971).
843. M. Y. Vasilev, "Shock Initiation of an Explosion. II. Critical Energy," *Combust., Explos., Shock Waves* 1 25 (1965).
844. V. A. Vasilev and A. A. Ivlev, "Analysis of the Initiation of Detonation of Mechanically Inhomogeneous Explosives by a Shock Wave," *Combust., Explos., Shock Waves* 8 234 (1972).
845. M. Vaullerin, A. Espagnacq, and B. Blaise, "Reparametrization of the BKW Equation of State for the Triazoles and Comparison of the Detonation Properties of HMX, TNMA and NTO by Means of Ab-Initio and Semiempirical Calculations," *Propellants, Explos., Pyrotech.* 23 73 (1998).
846. R. Velicky, "Effect of TNT Miscible Additives on the Mechanical Behavior and Shock Sensitivity of Composition B," Army Armament Research Development and Engineering Center, Dover, New Jersey report ARAED-TR-88031, AD-A203 968 (1989).
847. H. J. Verbeek, "Modelling of DDT in Granular Explosives," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 669.
848. H. J. Verbeek and A. van der Steen "Combined Experimental and Theoretical Investigations into the Deflagration to Detonation Transition," Proc. Ninth Symp., (Int.) on Detonation, Portland, Oregon, 1989, Office of the Chief of Naval Research, Arlington, Virginia report OCNR 113291-7 vol. I p. 320.
849. R. Verbeek and A. van der Steen, "Linking Experimental and Theoretical Results on the Deflagration to Detonation Transition," *Propellants, Explos., Pyrotech.* 15 35 (1990).
850. H. J. Verbeek, R. Oostdam, and E. G. de Jong, "Experimental Investigations into the Deflagration-to Detonation Transition at TNO/PML," Prins Maurits Laboratorium, TNO, Rijswijk, Netherlands report PML-1992-77, AD-A266 753 (1993).
851. H. J. Verbeek, A. van der Steen, and E. de Jong, "The Influence of Parameter Variations on the Deflagration to Detonation Transition," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report 33395-12 p. 685.
852. P. Vidal, E. Bouton, and H. N. Presles, "Some Features of the Curvature of a Two-Dimensional Detonation Shock Front at a Simple Refraction Locus," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III 5 Colloque C4, Suppl. to no. 5, p. 49 (1995).
853. P. Vidal, et al., "On the Curvature of a Two-Dimensional Detonation Wave at an Explosive-Confinement Interface," *CR II* 315 791 (1992).
854. P. Vidal, et al., "A Study of the Curvature of a Two-Dimensional Detonation Wave at an Explosive-Confinement Interface," High-Pressure Science and Technology - 1993, Colorado Springs, Colorado, Joint Int. Assoc. for Research and Advancement of High Pressure Science and Technology and APS Topical Group on Shock Compression of Condensed Matter, S. C. Schmidt, et al., eds., AIP Press, New York, Conf. Proc. #309 p. 1353.
855. F. Volk, "Energy Output of Insensitive High Explosives by Measuring the Detonation Products," Proc. 18th Int. Pyrotechnics Seminar, Breckenridge, Colorado 1992 p. 899.
856. F. Volk, "Influence of Initiation Strength, Ambient Inert Gas, Al-Content, and Polymeric Binder on the Detonation Products of High Explosives," Microscopic and Macroscopic Approaches to Detonation, 2nd Int.

- Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III 5 Colloque C4, Suppl. to no. 5, p. 383 (1995).
857. A. A. Vorobev, et al., "Investigation of Detonation Initiation in Cast TNT. I. Formulation of the Problem and Experimental Procedure," II. Determination of Sound Velocity and General Kinetic Characteristics," Combust., Explos., Shock Waves 21 227 (1985); 23 12 (1987).
 858. J. Vorthman and J. Wackerle, "Multiple Wave Effects on Explosives Decomposition Rates," Shock Waves in Condensed Matter - 1983, Santa Fe, New Mexico, Proc. APS Topical Conf., J. R. Asay, R. A. Graham, G. K. Straub, eds., North-Holland, Amsterdam, Netherlands (1984) p. 613.
 859. I. M. Voskoboinikov and A. A. Kotomin, "Calculation of Detonation Parameters for Explosive Mixtures with Inert Additions," Combust., Explos., Shock Waves 21 600 (1986).
 860. I. M. Voskoboinikov, G. V. Dimza, and M. F. Gogulya, "Effect of Compressibility of Additive on Rate of Detonation of Mixed Charges," Combust., Explos., Shock Waves 23 744 (1988).
 861. I. M. Voskoboinikov, N. F. Voskoboinikova, and A. A. Kotomin, "Effects of Inert Additives on the Divergence Speed of Plates Driven by Mixed Explosives," Combust., Explos., Shock Waves 18 706 (1983).
 862. J. Wackerle, J. O. Johnson, and P. M. Halleck, "Shock Compression and Initiation of Porous PETN," Am. Phys. Soc. Bull. 20 20 (1975).
 863. J. Wackerle and A. B. Anderson, "On the Shock Initiation of Heterogeneous Explosives," Shock Waves in Condensed Matter - 1979, Pullman, Washington, Am. Phys. Soc. Bull. 24 718 (1979).
 864. J. Wackerle, J. O. Johnson, and P. M. Halleck, "Shock Initiation of High Density PETN," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 20.
 865. J. Wackerle, H. L. Stacy, and W. L. Seitz, "Velocimetry Studies on the Prompt Initiation of PBX 9502," Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993 p. 468.
 866. J. Wackerle et al., "A Shock Initiation Study of PBX 9404," Behavior of Dense Media under High Dynamic Pressures, Proc. CEA, Paris, France 1978 p. 127.
 867. E. H. Walker, "Derivation of the $p^2 \tau$ Detonation Criterion," Proc. Eighth Symp. (Int.) on Detonation, Albuquerque, New Mexico, 1985, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 86-194 p. 1119.
 868. F. E. Walker, "Calculation of Detonation Velocities from Hugoniot Data," Propellants, Explos., Pyrotech. 15 157 (1990).
 869. F. E. Walker, "A Comparison of the Classical and a Modern Theory of Detonation," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III 5 Suppl. Colloque C4, Suppl. to no. 5, p. 231 (1995).
 870. F. E. Walker, "Correlation Between Reaction Dynamics Experiments and the Detonation of Explosives," Propellants, Explos., Pyrotech. 15 190 (1990).
 871. F. E. Walker, "The Initiation and Detonation of Explosives - an Alternative Concept," Lawrence Livermore National Laboratory report UCRL-53860 (1988).

872. F. E. Walker, "A New Kinetics and the Simplicity of Detonation," Microscopic and Macroscopic Approaches to Detonation, 2nd Int. Workshop, Vaujours-Moronvilliers, France, Proc. J. Physique III 5 Suppl. Colloque C4, Suppl. to no. 5, p. 309 (1995).
873. F. E. Walker, "Performance of Nonideal HE," Lawrence Livermore National Laboratory reports UCID-16439 (1973), UCID-16557 (1974).
874. F. E. Walker and J. L. Austing, "The Detonation of Solutions of TNT in Chlorine Trifluoride. I Computation of the Shock Hugoniot of the Constituent Elements. II. Computation of the Detonation Velocity," Proc. Twenty-Second Int. Pyrotechnics Seminar, Ft. Collins, Colorado, July 15-19, 1996.
875. F. E. Walker and R. J. Wasley, "Critical Energy for Shock Initiation of Heterogeneous Explosives," Explosivstoffe 17 p. 9 (1969).
876. F. E. Walker and R. J. Wasley, "A General Model for the Shock Initiation of Explosives," Propellants and Explosives 1 p. 73 (1976).
877. F. E. Walker, L. G. Green, and R. J. Wasley, "Critical Energy for Shock Initiation of Fuze-Train Explosives," Lawrence Livermore National Laboratory report UCRL-75339 Preprint (1974).
878. J. M. Walsh, "On the Problem of the Oblique Interaction of a Detonation Wave with an Explosive-Metal Interface," Shock Waves in Condensed Matter - 1987, Monterey, California, Proc. APS Topical Conf., S. C. Schmidt, N. C. Holmes, eds., North-Holland, Amsterdam, Netherlands (1988) p. 3.
879. S. Y. Wang, et al., "Non-Ideal Equations of State for Combusting and Detonating Explosives," Progress in Energy and Combust. Sci. 11 311 (1985).
880. F. J. Warner, "Initiation of Detonation in Solid Explosives," Ninth Symp. (Int.) on Combustion 1962, Academic Press, New York (1963) p. 536.
881. J. Waschl and D. Richardson, "Effect of Specific Surface Area on the Sensitivity of Hexanitrostilbene to Flyer Plate Impact," J. Energ. Mat. 9 269 (1991).
882. R. W. Watson, "Dark Waves in Liquid Explosives: Their Role in Detonation Failure," Proc Fifth Symp. (Int.) on Detonation, Pasadena, California, 1970, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-184 p. 169.
883. R. C. Weingart, et al., "Acceleration of Thin Flyers by Exploding Metal Foils: Application to Initiation Studies," Proc. Sixth Symp. (Int.) on Detonation, Coronado, California, 1976, Office of Naval Research - Department of the Navy, Arlington, Virginia report ACR-221 p. 653.
884. A. M. Weston, et al., "Correlation of Shock Initiation Tests for Explosives and Propellants," Proc. Seventh Symp. (Int.) on Detonation, Annapolis, Maryland, 1981, Naval Surface Weapons Center, Silver Spring, Maryland report NSWC MP 82-334 p. 887.
885. C. T. White and D. W. Brenner, "Simulations of Reactive Collisions in Detonating Solids," Naval Research Laboratory, Washington, DC report AD-A229 071 (1989).
886. C. T. White, et al., "Effects of Nanoscale Voids on the Sensitivity of Model Energetic Materials," Decomposition, Combustion, and Detonation Chemistry of Energetic Materials, Boston, Massachusetts, 1995, Proc. Materials Research Society vol. 418, T. B. Brill, et al., eds., Pittsburgh, Pennsylvania (1996) p. 277.
887. M. L. Wilkins, B. Squier, and B. Halperin, "Equation of State for Detonation Products of PBX 9404 and LX-04-01," 10th Symp. (Int.) on Combustion, The Combustion Institute, Pittsburgh, Pennsylvania (1965) p. 769.

888. F. A. Williams, ed., *"Modern Developments in Energy, Combustion, and Spectroscopy: In Honor of S. S. Penner,"* Pergamon Press, Oxford, England, New York (1993).
889. W. H. Wilson, et al., *"Detonation Properties of the Non-Ideal Explosive PBXW-123,"* Shock Compression of Condensed Matter - 1995, Seattle, Washington, Proc. APS Topical Conf., AIP Press, Woodbury, New York, Conf. Proc. #370 Pt. 2 p. 795.
890. W. H. Wilson, et. al., *"Experimental Study of Detonation in PBXW-123, a Large Failure Diameter, Non-Ideal Explosive,"* Proc. Tenth Int. Detonation Symp., Boston, Massachusetts, 1993, Office of Naval Research, Arlington, Virginia report ONR 33395-12 p. 63.
891. W. H. Wilson, et al., *"Sensitivity Studies of a New Energetic Formulation,"* High-Pressure Science - 1993, Colorado Springs, Colorado, Joint Int. Assoc. for Research and Advancement of High Pressure Science and Technology and APS Topical Group on Shock Compression of Condensed Matter, S. C. Schmidt, et al., eds., AIP Press, New York, Conf. Proc. #309 Pt. 2 p. 1401.
892. W. S. Wilson, et al., *"Explosive Properties of Polynitroaromatics,"* Naval Weapons Center, China Lake, California report NWC-TP-7073, AD-A229 627 (1990).
893. C. H. Winning, *"The Underwater Shock-Wave Initiation of Cast Pentolite,"* Roy. Soc. (London) Proc. A246 p. 288 (1958).
894. W. W. Wood and J. G. Kirkwood, *"Diameter Effects in Condensed Explosives. The Relation Between Velocity and Radius of Curvature of the Detonation Wave,"* J. Chem. Phys. 22 1920 (1954).
895. W. Worthy, *"Shock Sensitivity of Explosives Clarified,"* C & E News 65 no. 32 p. 25 (8/10/1987).
896. K. Xu, et al., *"Effect of Charge Diameter on Detonation Pressure Measured by Aquarium Technique,"* Shock Waves in Condensed Matter - 1981, Menlo Park, California, Proc. APS Topical Conf., W. J. Nellis, L. Seaman, R. A. Graham, eds., AIP, New York (1982) p. 573.
897. H. S. Yadav and N. K. Gupta, *"Flyer Plate Motion and its Deformation During Flight,"* Int. J. Impact Eng. 7 71 (1988).
898. H. S. Yadav, et a., *"Shock Initiation of Sheet Explosive,"* Propellants, Explos., Pyrotech. 19 26 (1994).
899. L. C. Yang and V. J. Menichelli, *"Detonation of Insensitive High Explosives by a Q-Switched Ruby Laser,"* Appl. Phys. Lett. 19 473 (1971).
900. J. Yao and D. S. Stewart, *"On the Dynamics of Multi-Dimensional Detonation,"* J. Fluid Mech. 309 225 (1996).
901. J. Yao and D. S. Stewart, *"On the Normal Detonation Shock Velocity-Curvature Relationship for Materials with Large Activation Energy,"* Combust. Flame 100 519 (1995).
902. C. S. Yoo, N. C. Holmes, and P. C. Souers, *"Detonation in Shocked Homogeneous High Explosives,"* Decomposition, Combustion, and Detonation Chemistry of Energetic Materials, Boston, Massachusetts, 1995, Proc. Materials Research Society vol. 418, T. B. Brill, et al., eds., Pittsburgh, Pennsylvania (1996) p. 397.
903. T. Yukio, et al., *"Correlation between Detonation Properties and Underwater Explosion Performances of Emulsion Explosives,"* 22nd Int. Ann. Conf. of ICT, Karlsruhe, Germany, 1991 p. 80.1.

904. Y. B. Zeldovich, "On the Theory of Combustion of Powder and Explosives," Zh. Eksper. Teoret. Fiz. 12 498 (1942); transl. U. S. Department of Commerce report AD-486286.
905. Y. B. Zeldovich, ed., "The Mathematical Theory of Combustion and Explosion," transl. from Russian by D. H. Weill, Consultants Bureau, New York (1985).
906. Y. B. Zeldovich and A. S. Kompaneets, "Theory of Detonation," Academic Press, New York (1960).
907. Y. B. Zeldovich and Y. P. Raizer, "Physics of Shock Waves and High-Temperature Hydrodynamic Phenomena," W. D. Hayes and R. F. Probstein, eds., Academic Press, New York (1966).
908. Y. B. Zeldovich, et al., "Detonation Propagation in a Rough Tube Taking Account of Deceleration and Heat Transfer," Combust., Explos., Shock Waves 23 342 (1987).
909. T. Zhang, Z. Zhao, and S. Fan, "Thermomechanical Analysis of Shock-Induced Hot Spot Formation in Condensed Energetic Materials," Baozha Yu Chongji Bianjibu (Explosion and Shock Waves) 16 333 (1996).
910. F. Zhao, C. Sun, and Y. Wei, "A Developed Unified Critical Criterion for the Initiation of Bare Explosives," High Pressure Science and Technology - 1993, Colorado Springs, Colorado, 1993, Proc. Joint Int. Assoc. for Research and Advancement of High Pressure Science and Technology and APS Topical Group on Shock Compression of Condensed Matter, S. C. Schmidt, et al., eds., AIP Press, New York, Conf. Proc. #309 Pt. 2 p.1361.
911. V. N. Zubarev and A. A. Evstigneev, "Equations of State of the Products of Condensed-Explosive Explosions," Combust., Explos., Shock Waves 20 699 (1984).
912. V. N. Zubarev and A. A. Evstigneev, "Possible Reasons for Scatter in the Experimental Characteristics of Detonation Waves," Dokl. Akad. Nauk SSSR 277 845 (1984).
913. P. I. Zubkov, L. A. Lukyanchikov, and B. S. Novoselov, "Electrical Conductivity in the Detonation Zone of Explosives," Combust., Explos., Shock Waves 7 253 (1971).
914. P. I. Zubkov, L. A. Lukyanchikov, and Y. V. Ryabinin, "Electrical Stability of Detonation Products of Condensed Explosives," Zh. Prikl. Mekh. i Tehk. Fiz. (English) 19 44 (1978).
915. J. A. Zukas and W. P. Walters, eds., "Explosive Effects and Applications," Springer-Verlag, New York (1998).
916. B. Zygmunt, et al., "Detonation Behavior of Suspension-Type Explosives with Various Textures," Combust., Explos., Shock Waves 18 363 (1982).

INDEX

- Accidents 81, 536, 593
- Activation Energy 44, 45, 111, 783, 901
- Additives 503, 644
 - Effect on Detonation Parameters 9, 227, 672, 673, 724, 814, 846, 859-861
- Aluminized Explosive 197, 326, 504, 505, 526, 670, 765, 787, 856
- Ammonium Nitrate (AN) 191, 207, 400, 602, 834
- Ammonium Perchlorate 291, 542, 790
- ANFO 437
- Aquarium Test see Underwater
- Baratol 355, 497
- Black Powder 402
- Books
 - Accidents 81
 - Blasting 277, 647
 - Combustion 105, 350, 475, 548, 553, 632, 735, 763, 888, 905
 - Detonation 101, 144, 271, 314, 318, 338, 353, 367, 435, 567, 630, 643, 686, 726, 810, 906
 - Explosions 41, 101, 105, 475, 643, 905
 - Explosives 15, 16, 49, 91, 176, 177, 185, 189, 214, 251, 278, 308, 345, 377, 438, 568, 578, 598, 613, 726, 767, 807, 819-821, 915
 - Modeling 567, 568
 - Nitroglycerin 616
 - PETN 72
 - Primary Explosives 303
 - Pyrotechnics 110, 281, 282, 589
 - Reactions 103
 - Safety 593
 - Shock Waves 109, 480, 548, 605, 907
 - Spectroscopy 888
 - Underwater 172
- Bubbles 47, 139, 309, 460, 491, 534F, 540, 589, 593, 598, 605, 616, 632, 645, 647
- Burning 24, 160, 330
 - Model 182, 440, 559, 749, 785
- Burning-to-Detonation Transition see Deflagration-to-Detonation Transition
- Carbon 50, 402, 672
- Cast Explosives 75-77, 85, 92, 98, 262, 326, 342, 549, 607, 608, 857
- Chapman-Jouguet see also Equation of State, Hugoniot
 - Detonation 145, 147, 315, 901
 - Parameters 8, 55, 197, 215, 223, 404, 417, 581, 631, 722, 756, 900, 902
 - Point 188, 213, 327, 357, 462, 788
 - Pressure 184, 186, 223-225, 276, 336, 393, 406, 520, 752
- Charme 231
- Chemical Equilibrium/Reactions 96, 111, 120, 160, 258, 414, 641, 649, 658, 684, 705, 712, 721, 813
- CL-20 730, 796, 891
- Codes
 - Charme 231
 - Eulerian 122, 231, 252, 286, 753, 805
 - Forest Fire 559, 749
 - Huygens 42, 55, 56
 - Lagrange 195, 196, 199, 200, 231, 324, 331, 434, 513, 626, 840
 - Sesame 70

Tiger 201, 744
 Combustion 99, 106, 115, 118, 228, 333, 337, 338, 344, 495, 548, 751
 Book 105, 350, 475, 553, 632, 735, 763, 888, 905
 EOS 879
 Model/Theory 17, 33, 115, 475, 483, 553, 599, 632, 650, 904, 905
 RDX 19
 TNT 19
 Combustion-to-Detonation Transition see Deflagration-to-Detonation Transition
 Composition A4, B, B-3 23, 30, 132, 153, 217, 222, 355, 432, 545-547, 614, 736, 750, 846
 Compression 10, 11, 19, 28, 346, 359, 362, 364, 389, 464, 497, 909
 Corner Turning see Wave Spreading
 Critical Diameter 97, 131, 247, 256, 257, 267, 268, 272, 285, 289, 430, 454, 462, 471, 491, 582, 659, 741, 742, 770, 788, 894, 896
 AP 542
 CL-20 891
 Comp B 750
 Comp H6 446
 EDNA 180
 Effect of Temperature 27, 68
 Model 139, 444, 544, 750
 NG 68
 NM 664, 665
 PBX 9502 27, 675
 PETN 180, 494
 RDX 180, 494
 TATB and Mixtures 130
 Tetryl 24, 180, 494
 TNT and Mixtures 48, 68, 332, 494, 499, 750
 Critical Energy 30, 196, 255, 301, 392, 411, 431-433, 839, 843, 867, 875, 877, 910
 Crystals 38, 106, 113, 164-168, 171, 235, 236, 239, 242-244, 405, 555, 653, 654
 Detonation 38, 628, 650-652, 691, 695, 817, 835
 Shock Initiation 234, 237, 241
 Cyanotetrazolatopentaammine Cobalt Perchlorate (CP) 34, 557, 558, 718
 Cylinder Test see also Metal Acceleration 5, 6, 141, 290, 319, 334, 400, 470, 514, 515, 590, 663, 744
 Dark Wave 263, 534A, 882
 DATB 173, 895
 DDT see Deflagration-to Detonation Transition
 Decomposition 23, 254, 266, 348, 388, 453, 858
 Deflagration-to-Detonation Transition (DDT) 4, 21, 33, 60, 67, 95, 115, 124, 179, 292, 366, 381, 428, 487, 493, 496, 621, 671, 754-756, 768-770, 849-851
 Aluminized Explosives 526, 670
 CP 34, 557
 H-6 549
 HMX 34, 78, 231, 587
 LX-07 636
 Model/Theory 34, 35, 54-58, 63, 66, 95, 330, 455, 476-478, 488, 524, 533, 534B, 544, 534, 620, 740, 753, 847, 848, 886
 PBX 9502 27
 PBXW-109 549
 PETN 20, 556, 558
 RDX 694
 RDX/Wax 669
 Review 33
 Tetryl 24, 79

Dense Explosive 131, 138
 EOS 108, 692, 713, 800
 Shock Initiation 862, 864
 Detasheet see also Sheet Explosive 28, 590
 Detonation 10, 20, 26, 44, 45, 46, 51, 52, 55, 89, 92, 100-102, 107, 111, 124, 136, 137, 146, 190, 206, 215, 228,
 257, 264, 269, 280, 300, 302, 306, 312, 318, 338, 347, 394, 425, 435, 449, 498, 535, 540, 541, 622,
 655, 759, 789, 792, 823, 826, 861, 867, 870-872, 880, 882, 885
 Book 101, 144, 271, 314, 318, 338, 353, 367, 435, 567, 630, 643, 686, 726, 810, 906
 Buildup 78, 233, 436, 808
 Curvature 6, 18, 29, 32, 36, 42, 61, 97, 116-120, 122, 139, 149, 203, 291, 307, 327, 358, 370, 374, 448,
 456, 511, 586, 595, 617, 662, 733, 742, 805, 806, 852-854, 878, 900, 901
 Comp B 545
 NM 664, 665
 PBXN-111 329, 545
 Front 42, 117, 121, 138, 151, 152, 204, 260, 265, 291, 339, 346, 395, 396, 718, 742, 809, 818
 Limit 213, 356, 493
 Model 54, 95, 140, 161, 248, 330, 354, 462, 481, 526, 533, 534, 567, 568, 599, 651, 652, 775, 776, 779,
 791, 817, 818
 Nonideal 601, 757
 Parameters 5, 8, 9, 12, 154, 156, 193, 216, 279, 293, 295, 299, 311, 313, 323, 376, 385, 390, 405, 443,
 451, 502-504, 506, 522, 523, 525, 539, 554, 561, 562, 565, 688, 716, 723, 748, 766, 778, 815,
 824, 873, 892, 903, 908, 912
 AN 602
 DATB 173
 Effect of Additives 9, 672, 673, 724, 814, 859
 HMX 833, 845
 LX-14 682
 NTO 845
 PBX 9404 681, 682, 760, 805, 806
 PBXW-123 889, 890
 PE4 154
 PETN 21, 678, 680, 681
 RDX 738, 833, 835
 Slurry Explosives 916
 TATB 415, 423, 424, 781
 Tetryl 541
 TNAZ 729
 TNT 416, 857
 Pressure 178, 222, 454, 456, 531, 585, 603, 765, 814, 896
 Products 18, 96, 125, 127, 141, 148, 230, 253, 254, 296, 751, 855, 856, 914
 Propagation 42, 122, 151, 152, 287, 328, 344, 371, 758
 Review 89, 300, 302, 426, 628, 872
 Slurry Explosives 683
 Spectroscopy 684, 685
 Temperature 123, 459, 588, 803
 Tetryl 543
 Theory 2, 221, 261, 300-302, 304, 314, 367, 387, 458, 485, 510, 650, 679, 680, 682, 697, 741, 869, 872,
 906
 Time 52
 Velocity 26, 112, 113, 143, 147, 194, 220, 247, 256, 327, 369, 398, 441, 447, 462, 486, 541, 581, 595,
 693, 761, 816, 822, 868
 AN 602, 834
 Comp B-3 217
 EDNA 180

Effect of Additives 227
 Effect of Curvature 118, 358, 596, 757, 894, 901
 Effect of Density 752
 Effect of Diameter 180, 582, 602, 894
 HMX 860
 LX-10 36
 LX-17 36
 Octol 113
 PBX 9404 217, 840
 PBXW-115 441
 PETN 180
 RDX 180, 860
 RX-26-AF 36
 Tetryl 180
 TNT 860, 874
 Waves 1, 3, 10, 11, 23, 121, 152, 238, 258, 260, 271, 342-344, 354, 373, 396, 410, 412, 417, 585, 648, 686, 774, 790-792
 Divergence see Detonation Curvature
 EDNA 180
 Electrical/Electrostatic Parameters 208, 269, 527, 528, 805, 806, 913, 914
 Emulsion Explosive see Slurry Explosive
 Energy Transfer 47, 90, 111, 213, 228, 250, 354, 397, 457, 468, 527, 737, 783, 788, 800, 855
 Equation of State (EOS) 1, 7, 8, 39, 40, 70, 80, 108, 118, 121, 126, 128, 141, 148, 155-157, 193, 201, 218-220, 248, 279, 313, 320, 334, 336, 344, 357, 384, 404, 409, 414, 427, 445, 446, 447, 452, 469, 470, 497, 507, 511, 518, 520, 521, 560-562, 565, 592, 600, 663, 704, 715, 743, 745, 759, 778, 783, 825, 844, 879, 911
 Baratol 355
 Carbon 50
 Comp B 355, 514, 515, 736
 H6 446
 HMX 514, 515, 731, 836, 845
 HNS 388, 721
 LX-04 831, 887
 LX-14 838
 NM 514, 515
 NTO 845
 Nonideal 114, 126, 197, 202
 PBX 9404 116, 357, 364, 514, 515, 837-839, 887
 PBX 9501 784
 PBX 9502 780, 782
 PBXN-103 773
 PBXN-111 96
 Pentolite 355, 357
 PETN 357, 363, 447
 RDX 447
 RX-26-AF 626
 Slurry Explosives 603
 TATB 640, 657
 TNT 355, 357, 514, 515
 Eulerian see Codes
 Explosions 41, 101, 105, 174, 475, 537, 629, 643, 841, 905
 Failure Diameter see Critical Diameter
 Forest Fire 559, 749
 Fracture/Molecular Structure 534, 642, 649, 658, 693, 707, 813

- Friction 490
- Gap Test 325, 891
- Gruneisen Parameter 84, 127, 336
- Gurney 399, 403, 450, 463, 600, 771
- High-Density Explosive see Dense Explosive
- H-6 549
- HMX and Mixtures 65, 73, 94, 231, 307, 354, 374, 381, 396, 611, 619, 784, 833, 860
 - DDT 34, 587
 - Hugoniot 727, 784
 - Detonation 211, 358, 373, 587, 660, 683, 695, 774, 784, 836, 860, 861
 - Particle Size 78, 731
- HNAB 382
- HNS 388, 389, 705-707, 721, 881
- Hot Spots 42, 65, 91, 104, 111, 160, 162, 164, 165, 170, 284, 375, 439, 473, 487, 532, 541, 543, 566, 569, 579, 594, 597, 624, 638, 660, 712, 781, 783, 785, 786, 799, 812, 863, 909
- Hugoniot see also Equation of State 191, 192, 224, 226, 244, 309, 329, 357, 372, 519, 534, 539, 546, 584, 692, 868
 - AN 191
 - Comp B-3 546, 547
 - HMX 727
 - LX-14 838
 - PBX 9404 760
 - PBX 9501 784
 - PBXN-103 773
 - PBXN-111 329
 - RDX 838
 - TATB 656, 782
 - TNAZ 717
 - TNT 341, 838, 874
- Huygens see Codes
- Ideal Detonation 175, 304, 368, 601
- Impact 37, 107, 164-168, 170, 171, 178, 183, 275, 280, 381, 405, 433, 597, 606, 696, 712
- Initiation 2, 17, 21, 91, 208, 246, 349, 386, 394, 415, 424, 532, 534, 621, 623, 662, 698, 710, 833, 865, 899
 - Model/Theory 534E, 577, 690, 910
- Kinetics 18, 62, 111, 491, 644, 857
- Lagrangian see Codes
- Laser Initiation 232, 634, 737, 771, 899
- Liquid Explosive 107, 212, 372, 687
 - Detonation 2, 43-45, 47, 105, 123, 136, 255, 256, 263-265, 383, 534G, 832, 882
- Low-Density Explosive see Porous Explosive
- Low Velocity Detonation (LVD) 22, 136, 241, 371, 383, 413, 489, 508, 534, 539, 543, 585, 635, 656, 725, 764, 832, 842
- LX-04 358, 360, 831, 887
- LX-07 361, 364, 636
- LX-09 360
- LX-10 36, 361, 802
- LX-14 682, 838
- LX-15 375
- LX-17 36, 86, 364, 791, 801, 828, 829
- Metal Acceleration/Expansion See also Cylinder Test 30, 31, 39, 87, 140, 213, 316, 324, 335, 339, 375, 382, 386, 399, 403, 410, 452, 457, 463, 468, 516, 519, 521, 530, 588, 634, 653, 654, 690, 698, 730, 744, 771, 772, 782, 794, 861, 897
 - HNS 881
 - LX-14 797

- LX-17 797, 798
- Microballoons 471, 665
- Modeling
 - Aluminized Explosives 505, 526, 787
 - Burn 160, 182, 440, 559, 749, 785
 - Combustion 17, 115, 475, 483, 553, 599, 632, 905
 - Critical Diameter 139, 444, 544, 750
 - DDT 34, 35, 54-58, 66, 455, 478, 488, 533, 740, 847
 - Detonation 22, 54, 114, 126, 140, 150-152, 161, 195, 196, 231, 248, 441, 462, 476-478, 481, 513, 526, 533, 534, 567, 568, 651, 652, 678, 689, 775, 776, 779, 789, 792, 817, 818, 847, 885
 - Detonation Curvature 789, 792, 885
 - Energy Transfer 354
 - EOS 223, 631, 744, 752, 784, 793
 - Fracture/Structure 534D, 642
 - Hot Spot 65, 579, 638, 660, 786
 - Impact 171, 275
 - Initiation 534, 577, 690, 910
 - Reaction 83, 210, 638, 785, 786, 885
 - Sensitivity 575, 653
 - Shock Initiation 95, 161, 171, 192, 195, 196, 275, 324, 379, 380, 462, 474, 513, 517, 564, 568, 576, 579, 614, 637, 639, 789, 791, 792, 795, 876, 886
 - Underwater 202, 505, 524, 604, 641
 - Wave Propagation 122, 150-152, 511, 631
- Nitroglycerine (NG) 68, 538, 616
- Nitromethane (NM)
 - Critical Diameter 664, 665
 - Detonation 44, 459, 664, 665
 - Reaction 43, 64, 570, 571
 - Shock Initiation 45, 714, 902
- Nonideal Detonation 175, 197, 213, 305, 400, 461, 462, 601, 602, 618, 757, 873, 889, 890
 - Model 114, 126, 202, 252, 304, 367, 368, 441, 524, 544, 599, 641
- Oblique Shock 273, 617, 878
- Octol 113
- Overdriven Detonation 336, 479, 736, 760, 836, 837
 - Model/Theory 39, 40, 784, 793
- Particle Size Effects 162, 667
 - Cast HE 607, 608
 - HMX 78, 731
 - LX-17 86
 - RDX 98, 608, 747
 - TATB and Mixtures 162, 638
- PBX 9404 132, 195, 217, 241, 290, 466, 467
 - Detonation Parameters 358, 498, 681, 682, 760, 791, 813, 840, 866
 - Electrical Parameters 805, 806
 - EOS 116, 364, 837, 838, 887
 - Gruneisen 84
 - Shock Initiation 432, 439
- PBX 9501 336, 611, 784
- PBX 9502 27, 241, 244, 401, 718, 786
 - Critical Diameter 675
 - Shock Initiation 609-612, 865
- PBXC-19 891
- PBXN-103 773
- PBXN-109 74-77

PBXN-111 96, 327, 329, 545, 696
 PBXN-301 see XTX-8003
 PBXW-108 74-77
 PBXW-109 74-77, 540, 546, 549
 PBXW-114 696
 PBXW-115 88, 328, 441, 462, 528
 PBXW-123 889, 890
 Pentolite 355, 357
 PETN and Mixtures 92, 235, 240, 307, 405, 447
 Critical diameter 494
 DDT 20, 556, 558
 Detonation Parameters 21, 147, 180, 405, 585, 678, 680, 681, 695, 899
 EOS 363, 447, 744, 793
 Reaction Rate 43, 180, 555
 Shock Initiation 142, 234-238, 242, 243, 245, 297, 564, 580, 604, 700, 762, 862, 864
 PE4 154
 Plane Waves 3, 86, 112, 233, 237, 241, 315, 317, 373, 388, 434, 449, 512, 551, 555, 700, 818
 Pop Plot 237, 345, 676
 Porous/Low-Density Explosive 212, 337, 372, 473, 478, 627
 DDT 4, 292, 496, 768, 769
 EOS 186
 Detonation 22, 297, 724, 738
 Shock Initiation 14, 74, 270, 317, 472, 551, 699, 700, 719, 720, 811
 Pressure Effects 2, 7, 53, 178, 433, 464, 495, 715
 Primary Explosives 106, 246, 298, 303, 764
 Pulse Detonation 211, 259, 321, 322
 Pyrotechnics 418, 579
 Book 110, 281, 282, 589
 Rarefaction Wave 59, 206, 582
 RDX and Mixtures 19, 98, 307, 447, 503, 838
 Critical Diameter 494
 DDT 669
 Detonation 92, 180, 656, 694, 695, 738, 860
 Reaction Rate 91, 180, 555, 909, 913
 Shock Initiation 38, 93, 94, 153, 274, 552, 746, 833, 899
 Reaction
 Rate 2, 43, 62, 103, 180, 202, 226, 295, 336, 346, 439, 465, 477, 646, 718, 782, 804, 831, 858, 865, 870, 885
 Model 83, 202, 231, 477, 524, 599, 625, 626, 638, 641, 740, 787
 Zone 46, 53, 59, 60, 118, 119, 122, 169, 276, 286, 290, 301, 305, 362, 369, 374, 384, 417, 503, 517, 530, 555, 591, 741, 742, 756, 913
 Baratol 355
 Comp B 355
 HMX 358
 LX-04 358
 Model 210
 NM 570, 571
 PBX 9404 358
 Pentolite 355
 TATB 530, 702, 703
 TNT 355, 570, 571
 Reflected Shock see also Shock Waves, Wave 69, 226, 310, 412, 550, 852
 Review 32, 69, 137, 232, 287, 298, 426, 628, 775, 790, 823
 Detonation 89, 300, 302, 872

Run Distance 73, 113, 187, 365, 373, 517, 612, 731, 831
 RX-03-BB 290
 Gruneisen 84
 RX-26-AF 36, 364, 626, 794
 Safety 429, 532, 536, 593
 Sensitivity 38, 94, 98, 230, 235, 575, 649, 710, 712, 823
 Sesame 70
 Shear 115, 235, 239, 240, 481, 840
 Sheet Explosive see also Detasheet 550, 898
 Shock 122, 188, 266, 326, 501, 838, 870
 Front 2, 46, 212, 249, 258, 434, 734, 812, 852
 Initiation 14, 25, 31, 37, 74, 85-87, 129, 134, 143, 154, 158, 160, 161, 164-167, 169, 183, 195, 229, 233, 250, 270, 309, 310, 325, 351, 360, 361, 378, 407, 408, 411, 433, 436, 439, 456, 472, 484, 566, 569, 583, 606, 624, 646, 676, 677, 711, 720, 739, 771, 804, 826, 843, 863, 867, 875, 877, 883, 884
 AN and Mixtures 207
 Cast Explosives 75-77
 CL-20 796
 Comp A4, B 30, 153, 432, 614
 Dense HE 862, 864
 DNI 827
 HMX and Mixtures 73, 94, 619, 634, 719
 HNAB 382
 HNS 389, 623, 705-707, 709, 881
 Liquid Explosives 133, 134
 LX-04 360, 831
 LX-07 360
 LX-09 360
 LX-10 360, 802
 LX-17 791, 798, 801, 828, 829
 NM 44, 45, 902
 PBX 9404 432, 439, 517, 564, 610-612, 708, 791, 839, 840, 866
 PBX 9501 610, 611
 PBX 9502 244, 609-612, 865
 PBXW-108 74-77
 PBXW-109 74-77
 PBXW-115 528
 PE4 154
 Pentolite 170, 893
 PETN 142, 234-238, 242, 243, 245, 297, 517, 555, 580, 634, 700, 762, 862, 864, 902
 Porous HE 699
 RDX and Mixtures 92-94, 153, 552, 555, 835, 898
 RX-26-AF 794
 Slurry Explosives 525
 TATB 13, 14, 163, 209, 239, 407, 517, 529, 712, 789
 Tetryl 551
 Theory/Model 43, 95, 161, 192, 196, 275, 288, 379, 380, 440, 458, 462, 474, 484, 485, 511, 513, 517, 564, 568, 576, 614, 637, 639, 789, 791, 795, 839, 871, 876, 886
 TNAZ 717, 728
 TNT 170, 200, 262, 288, 352, 517, 661
 XTX-8003 31, 762
 Parameters 205, 492,
 Pressure 86, 178, 187, 346, 359, 389, 437, 464, 465, 550, 895

Sensitivity 13, 38, 64, 93, 94, 111, 132, 234, 429, 442, 460, 489, 490, 658, 668, 692, 696, 746, 747, 811, 812, 891, 895
 Comp B-3 132
 Effect of Additives 846
 Effect of Microballoons 471
 Effect of Particle Size 607, 608, 667
 PBX 9404 132
 PBX 9502 244
 RDX 274
 Theory 64
 TNT 274
 Temperature 714
 Waves see also Reflected Shock, Wave 80, 135, 168, 211, 215, 240, 263, 269, 273, 286, 343, 420, 506, 633, 617, 774
 Short Pulse/Shock 48, 85, 87, 239, 335, 349, 352, 529, 701, 785, 795, 839, 875, 881, 883
 Slurry/Emulsion Explosive 460, 523, 525, 603, 683, 841, 903, 916
 Sound Speed 326, 336, 857
 Spin Detonation 146, 211, 499, 500
 Spectroscopy 586, 684, 685
 Steady-State Detonation 51, 138, 143, 169, 194, 198, 283, 286, 370, 398, 641
 TATB and Mixtures 13, 14, 65, 162, 209, 348, 401, 702, 703, 789
 Critical Diameter 130
 Detonation 415, 423, 424
 EOS 640, 657
 Reaction Zone 530, 638, 702, 703
 Run Distance 365
 Shock Initiation 13, 163, 239, 407, 408, 423, 660, 701, 712
 Wave Spreading 203, 401
 Temperature Effects 19, 27, 53, 68, 123, 162, 209, 296, 407, 497, 588, 609, 677, 715, 828-831, 836, 841, 842
 Tetryl 24, 79, 180, 541, 543
 Critical diameter 494
 Shock Initiation 551, 899
 Theory 16, 145, 146, 181, 230, 289, 469, 470
 Book 15, 314, 367, 906
 Combustion 115, 475, 553, 904, 905
 Detonation 2, 221, 261, 294, 300-302, 304, 387, 445, 446, 510, 650, 682, 697, 869, 872
 Mixture 34, 389
 Shock Initiation/Sensitivity 64, 288, 458
 Shock Waves 80, 485
 Tiger 201, 744
 Time Effects 52, 59, 60, 661
 TNAZ 717, 728, 729
 TNT and Mixtures 19, 48, 170, 241, 262, 307, 326, 341, 352, 355, 357, 416, 453, 499, 500, 714, 838
 Critical Diameter 68, 494, 750
 Detonation 190, 200, 211, 213, 274, 288, 332, 342, 498, 604, 656, 807, 857, 874
 Velocity 822, 860
 Reaction Zone 570, 571, 718, 909
 Underwater/Aquarium Events 82, 172, 397, 419-422, 437, 454, 505, 601, 603, 765, 777, 903
 Effect of Diameter 615, 896
 PBXW-115 88, 441
 Pentolite 893
 Model 202, 505, 524, 604, 641, 734
 Unsteady Detonation 187, 212, 256, 260, 263, 426, 483, 573, 758
 Model 150-152, 159, 294

Wave

- Evolution 465-467, 623, 813
- Front 175, 253, 307
- Interactions 54, 58, 59, 61, 63, 97, 149, 153, 293, 340, 412, 563, 595, 654, 732, 733, 798, 801, 815, 826, 827, 852-854, 878
 - Model/Theory 512
- Propagation 21, 135, 371, 572, 574, 627, 651, 664, 666, 794, 908
 - Model/Theory 122, 150-152, 511
- Spreading 121, 203, 390, 391, 659, 754, 785
 - PBXN-111 329
 - TATB and Mixtures 203, 401, 638
- Structure 1, 3, 29, 42, 204, 212, 248, 307, 342, 395, 482, 648, 724, 790, 818
- Wedge Test 78, 244, 245, 687, 701, 731
- XTX-8003 31, 762