This grant ran from February 1, 1981 to January 31, 1995. It resulted in a rich output of experimental results that will have a lasting impact on the field of phase transitions in lower dimensions. It produced 33 formal publications and 7 Ph.D. theses. It has also opened the door for ongoing research, for which continued funding is being sought.

The scientific output of the project has been detailed in a series of progress reports that need not be summarized here. Instead I have appended to this report a list of all the publications and theses arising out of this grant, plus copies of those papers published in the last two years. The most recent paper, published in Physical Review Letters in January 1995, the last month of the grant, explains the remarkable phenomenon of reentrant layering in thin adsorbed films, and opens a dramatic new class of possible phases and phase transitions at crystal surfaces.

Perhaps the most important consequence of this grant is the fine group of scientists it produced. Here is a list of the 7 Ph.D.'s that were supported and their present positions:

Dr. Jeffrey M. Greif (1982) - Inference Corp (an advanced mathematical software firm)
Dr. Jeffrey J. Hamilton (1983) - Research staff, University of Maryland, College Park
Dr. Michael B. Weimer (1986) - Professor, Texas A&M University
Dr. Michael B. Pettersen (1988) - Assistant Professor, Oderbein College, Columbus, OH
Dr. Roya Maboudian (1988) - Assistant Professor, University of California, Berkeley
Dr. Mark J. Lysek (1991) - Member technical staff, Jet Propulsion Laboratory (Caltech)
Dr. Peter K. Day (1993) - Humboldt Postdoctoral Fellowship, Göttingen, Germany

I wish to thank the Department of Energy for the bountiful contribution this grant has made to science. The recent publications and the full list of publications supported by the grant are attached.
Publications Supported by this Grant


14. The Multilayer Melting Transition in Methane Adsorbed on Graphite, M.S. Pettersen,


32. Evidence for a preroughening transition and a disordered flat phase in solid argon and krypton, "LTXX International Conference on Low Temperature Physicsm Eugene Oregon, August 4-11, 1993.


Theses Supported by this Grant


5. In Situ Observation of surface and Near-Surface Modification Using Scattering of Ballistic Phonons, Roya Maboudian, Ph.D. Thesis, California Institute of Technology,


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