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Abstract

Twelve years of support by the U. S. Department of Energy have turned a two man team with no equipment and no graduate students working on a single experiment into an active group of four professors, one post-doctoral research associate and three graduate students working with appropriate equipment on three major experiments and several other projects.
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1 Introduction

Part of the U. S. Department of Energy's mission is the support of High Energy Physics in the United States. It does this by building and supporting the great laboratories such as the Stanford Linear Accelerator Laboratory and Fermi National Accelerator Laboratory, to name just two. It also supports the university groups who design, build and operate the detectors used at the laboratories to do the intended research. The two go hand-in-hand to provide an active pool of individuals competent to do research in this most fundamental of all areas.

The group at the University of South Carolina is one of the university groups supported by the U.S. D.O.E. Like the others, it has benefitted from long term support via annual contract extensions, about a third of which were submitted to external review. During the course of this contract, the group at the University of South Carolina has grown from two professors with no equipment and no graduate students to an important component of the Department of Physics and Astronomy. It is now comprised of four professors, one postdoctoral research associate and three graduate students, and the group now has equipment appropriate to the research being carried out. Members of the group participate in three forefront experiments and are engaged in development work applicable to future experiments.

The three major experiments are the AMY experiment at KEK in Tskuba, Japan, Experiment E687 at the Fermi National Accelerator Laboratory, Batavia, Illinois and Experiment E789, also at FNAL. The AMY experiment was designed to investigate a new energy region in $e^+e^-$ annihilation. Among other things, this experiment showed that the mass of the top quark, if it exists, had to be greater than 60 GeV, a new lower limit at the time.

Experiment E687 was designed to study all aspects of charm physics using charm particles produced by a high energy photon beam.

Experiment E789 was designed to study rare two-body decays of B mesons, in particular $B \rightarrow \pi K$, $B \rightarrow \pi\pi$ and $B \rightarrow KK$. Rare two-body decays of charm mesons were also of interest.

The AMY collaboration was still taking data at the end of the reporting period. Both E687 and E789 collaborations had completed data taking and were in the process of analyzing their data.
2 ARGUS

Two South Carolina professors, C. Darden and R. Childers, were heavily involved in the commissioning and running of the ARGUS experiment. This experiment was a new effort by the DASP II collaboration. In fact, some of the interesting DASP II results came out during the time the group was gearing up to run ARGUS. The ARGUS activity occurred through most of the 1980’s and both Darden and Childers spent much time at the experiment contributing hardware expertise. The collaboration produced more than 100 publications during the time the two were involved. Some of the important physics results published during this time period was the first observation of $B^0 - \bar{B}^0$ mixing, precise measurements of the mass of the $\Upsilon(2S)$, observation of $B \rightarrow J/\psi + X$, and copious work involving beauty and charm spectroscopy.

3 AMY

C. Rosenfeld joined the group in 1986, bringing with him his responsibilities on the AMY experiment. The AMY detector occupies the Oho experimental hall of the TRISTAN $e^+e^-$ collider at the Japanese National Laboratory for High Energy Physics in Tsukuba. With the help of a postdoc (A.T.M. Wang) and three students (S. Lusin, S. Wilson and L.Y. Zheng) he built the high voltage distribution and preamplifier system for the central drift chamber and a track trigger processor, which was the mainstay of the trigger system from the inception of data-taking in 1987. In 1991 the group upgraded the trigger processor and adapted it to utilize the second generation endcap detectors. USC’s trigger system was highly successful. It enabled the experiment to accept even events in which only a single charged track was visible without stressing the 3 Hz capacity of the data acquisition system.

The theory of electroweak interactions tells us that the interference between $\gamma$-mediated and $Z$-mediated amplitudes produces dramatic asymmetries in angular distributions in the energy range covered by TRISTAN. USC students have pursued the study of these asymmetries, S. Lusin in the dilepton final states $\mu^+\mu^-$ and $\tau^+\tau^-$, and L. Zheng in the $c\bar{c}$ final state. Dr. Lusin has completed his Ph.D. dissertation, and Ms. Zheng is preparing hers. The AMY collaboration has 7 publications and is still pursuing several analysis efforts.
4 Fermilab Fixed Target Experiments

The group was involved with two Fermilab fixed target experiments during the grant period: E789 and E687. C. Darden and R. Childers became involved with E789 in 1990. They officially withdrew from ARGUS the following year in order to devote more attention to their new experiment. J. Wilson joined the group in 1990 and moved to Fermilab where he began working on the RICH detector of E789. He also continued his involvement on E687.

E789 was approved to search for $B \rightarrow \pi^+\pi^-$ and $B \rightarrow K^+K^-$ using $B$ mesons produced by a high intensity 800 GeV proton beam. Running conditions were changed due to safety concerns and were not favorable for this search, so the emphasis was changed to do cross section measurements for beauty and charm mesons at 800 GeV. At the close of the contract work was proceeding on three topics: cross-section measurements using $B \rightarrow J/\psi$, cross-section measurements using $D \rightarrow K\pi$, and a measurement of the $X_F$ dependence of $J/\psi$ production at high $X_F$.

The intent of E687 was to study as many aspects of charm physics as possible using an open geometry fixed target spectrometer in a high energy photon beam. The reconstructed charm sample amassed by E687 was the largest in the world at the time and allowed the best lifetime measurements of mesons and baryons to date (first measurements of $\Xi_c$ and $\Omega_c$ lifetimes). Several semileptonic form factors and branching ratios were measured for $D^+, D^0,$ and $D_s$. Studies of charm photoproduction dynamics were undertaken with our sample of fully reconstructed charm pairs. We also undertook searches for CP violation and other rare processes. At the end of the grant in early 1992 many of these investigations were underway but were published only in 1993 and 1994.
5 Infrastructure

An important aspect of building up the size and responsibilities of the group was the acquisition of various items of infrastructure. The group now has a reasonable amount of electronic test equipment which was purchased for the AMY trigger project. This included CAD software and hardware used for in house electronic design and testing. We now have a small microVax cluster, several RISC workstations and a number of Apple Machintosh computers, all fully networked to HEPnet and the Internet.
6. Publications coauthored by members of the South Carolina high energy group, 1980–1993. Entries except those marked with † are included in the collection of reprints furnished with this report.

6.1 DASP-II publications coauthored by C.W. Darden, R.L. Childers, and other group members.

A Determination of the Total Width of the γ(9.46) Meson.
H. Albrect et al.

Inclusive Hadron Production in the γ-Region.
H. Albrect et al.

The Hadronic Cross-Section of Electron-Positron Annihilation at 9.5 GeV and the γ and γ′ Resonance Parameters.
H. Albrect et al.

6.2 ARGUS publications coauthored by C.W. Darden, R.L. Childers, and other group members.

Branching Ratio and Mass Spectrum of the Decay γ′ → γπ⁺π⁻.
ARGUS Collaboration (H. Albrect et al.).

A Precision Measurement of the γ′ Meson Mass.
ARGUS Collaboration and Crystal Ball Collaboration (D.P. Barber et al.).

Evidence for F* Meson Production in e⁺e⁻ Annihilation at 10 GeV Center-of-Mass Energy.
ARGUS Collaboration (H. Albrect et al.).

Production and Decay of the Charged D* Meson in e⁺e⁻ Annihilation at 10-GeV Center-of-Mass Energy.
ARGUS Collaboration (H. Albrect et al.).

Production and Decay of the F Meson in e⁺e⁻ Annihilation at 10 GeV Center-of-Mass Energy.
ARGUS Collaboration (H. Albrect et al.).

Search for Narrow States Coupling to τ Pairs in Radiative γ′ Decays.
ARGUS Collaboration (H. Albrect et al.).

Search for Fractionally Charged Particles Produced in e⁺e⁻ Annihilation.
ARGUS Collaboration (H. Albrect et al.).

Observation of Antideuteron Production in Electron-Positron Annihilation at 10 GeV Center of Mass Energy.
ARGUS Collaboration (H. Albrect et al.).

Direct Evidence for W Exchange in Charmed Meson Decay.
ARGUS Collaboration (H. Albrect et al.).
Radiative Decays of the $\Upsilon(2s)$ Into the Three $\chi_b$ States.
ARGUS Collaboration (H. Albrecht et al.).

Observation of $B$-Meson Decay Into $J/\psi$.
ARGUS Collaboration (H. Albrecht et al.).

An Upper Limit on the Mass of the Tau Neutrino.
ARGUS Collaboration (H. Albrecht et al.).

A Determination of the Muon Pair Branching Ratio of the $\Upsilon$ Meson.
ARGUS Collaboration (H. Albrecht et al.).

Upper Limit for the Emission of Monoenergetic Photons in $\Upsilon(1s)$- and $\Upsilon(2s)$-Meson Decays.
ARGUS Collaboration (H. Albrecht et al.).

Search for Gluinos in Decays of the $\chi_b(1^{P}1)$ Meson.
ARGUS Collaboration (H. Albrecht et al.).

Observation of $F$ Decays into $K^*K$
ARGUS Collaboration (H. Albrecht et al.).

Search for Exotic Decay Modes of the $\Upsilon(1s)$.
ARGUS Collaboration (H. Albrecht et al.).

Determination of the Branching Ratio for the Decay $B^0 \rightarrow D^0 \pi^0$.
ARGUS Collaboration (H. Albrecht et al.).

Observation of a New Charmed Meson.
ARGUS Collaboration (H. Albrecht et al.).

An Upper Limit for Two-Jet Production in Direct $\Upsilon(1S)$ Decays
ARGUS Collaboration (H. Albrecht et al.).

Measurement of Tau Decays into Three Charged Pions
ARGUS Collaboration (H. Albrecht et al.).
Zeitschrifft fur Physik C33, 7 (1986).

Observation of Octet and Decuplet Hyperons in $e^+e^-$ Annihilation at 10 GeV Centre-of-Mass Energy.
ARGUS Collaboration (H. Albrecht et al.).

Reconstruction of $B$ Mesons
ARGUS Collaboration (H. Albrecht et al.).

Evidence for the Decay $\tau^- \rightarrow \nu_\tau \omega \pi^-$. 
ARGUS Collaboration (H. Albrecht et al.).

Search for Lepton-Number and Lepton-Flavour Violation in Tau Decays
ARGUS Collaboration (H. Albrecht et al.).
Observation of Inclusive $D_s$ Production in $B$ Meson Decay  
ARGUS Collaboration (H. Albrecht et al.).  

Observation of $B^0$-$\bar{B}^0$ Mixing.  
ARGUS Collaboration (H. Albrecht et al.).  

Search for the Decay $D_s \to \rho^0\pi$ as Evidence for Quark Annihilation.  
ARGUS Collaboration (H. Albrecht et al.).  

Search for the Decay $\tau^- \to \nu_\tau\pi^\pm\pi^-$.  
ARGUS Collaboration (H. Albrecht et al.).  

First Observation of $\gamma\gamma \to \omega\omega$.  
ARGUS Collaboration (H. Albrecht et al.).  

Measurement of the Decay $B^0 \to D^{*+}\phi\nu$.  
ARGUS Collaboration (H. Albrecht et al.).  

First Observation of $\gamma\gamma \to K^{*0}\bar{K}^{*0}$.  
ARGUS Collaboration (H. Albrecht et al.).  

First Observation of $\gamma\gamma \to \omega\omega$.  
ARGUS Collaboration (H. Albrecht et al.).  

Determination of $\sin^2\theta_w$ from a Measurement of the Direct Photon Spectrum in $\Upsilon(1S)$ Decays.  
ARGUS Collaboration (H. Albrecht et al.).  

An Upper Limit on $D^0-\bar{D}^0$ Mixing.  
ARGUS Collaboration (H. Albrecht et al.).  

B Meson Decays into Charnoium States.  
ARGUS Collaboration (H. Albrecht et al.).  

Measurement of $\eta' \to \pi^\mp\pi^\pm\gamma$ in $\gamma\gamma$ Collisions.  
ARGUS Collaboration (H. Albrecht et al.).  

A Measurement of the Tau Lifetime.  
ARGUS Collaboration (H. Albrecht et al.).  

The Decay $D^+ \to \bar{K}\phi$.  
ARGUS Collaboration (H. Albrecht et al.).  

The Hadronic Transitions from $\Upsilon(2S)$ to $\Upsilon(1S)$.  
ARGUS Collaboration (H. Albrecht et al.).  

An Improved Upper Limit on the $\nu_\tau$-Mass from the Decay $\tau^- \to \pi^-\pi^-\pi^+\pi^+\nu_\tau$.  
ARGUS Collaboration (H. Albrecht et al.).  
Observation of the Charmed Baryon $\Lambda_C$ in $e^+e^-$ Annihilation at 10 GeV.
ARGUS Collaboration (H. Albrecht et al.).

Measurement of $D_s^* - D_s$ Mass Difference.
ARGUS Collaboration (H. Albrecht et al.).

Observation of Charmless $B$ Meson Decays.
ARGUS Collaboration (H. Albrecht et al.).

Search for $D^*$ Decays into Lepton Pairs.
ARGUS Collaboration (H. Albrecht et al.).

Search for the Decay $B \rightarrow K^*\gamma$.
ARGUS Collaboration (H. Albrecht et al.).

Observation of Inclusive $B$ Meson Decays into $\Lambda_C^+$ Baryons.
ARGUS Collaboration (H. Albrecht et al.).

Lifetimes of Charmed Mesons.
ARGUS Collaboration (H. Albrecht et al.).

A Search for $\omega\phi$ and $\phi\phi$ Production in the Reactions $\gamma\gamma \rightarrow K^+K^-\pi^+\pi^-\pi^0$ and $\gamma\gamma \rightarrow 2K^+2K^-$. 
ARGUS Collaboration (H. Albrecht et al.).

Observation of the Charmed Baryon $\Sigma_C$ in $e^+e^-$ Annihilations.
ARGUS Collaboration (H. Albrecht et al.).

First Observation of $\gamma\gamma \rightarrow K^+K^-$. 
ARGUS Collaboration (H. Albrecht et al.).

$B$ Meson Decays to $D\pi$ and $D\rho$.
ARGUS Collaboration (H. Albrecht et al.).

Observation of the Orbitally Excited $\Lambda(1520)$ Baryon in $e^+e^-$ Annihilation.
ARGUS Collaboration (H. Albrecht et al.).

Hyperon Production in $e^+e^-$ Annihilation at 10 GeV Center of Mass Energy.
ARGUS Collaboration (H. Albrecht et al.).

Measurement of the Decays $\tau^- \rightarrow K^-\nu_\tau$ and $\tau^- \rightarrow \rho^-\nu_\tau$.
ARGUS Collaboration (H. Albrecht et al.).

Upper Limits for the Decay of $\tau$-Leptons into $\eta$-Mesons.
ARGUS Collaboration (H. Albrecht et al.).

ARGUS: A Universal Detector at DORIS II.
ARGUS Collaboration (H. Albrecht et al.).
A Measurement of $\gamma\gamma \rightarrow p^+p^-$.
ARGUS Collaboration (H. Albrecht et al.).

Measurement of $D^{*+}$ Polarization in the Decay $B^0 \rightarrow D^{*+} \gamma \bar{\nu}$
ARGUS Collaboration (H. Albrecht et al.).

Observation of the $D^0(2459)$ in $e^+e^-$ annihilation.
ARGUS Collaboration (H. Albrecht et al.).

Measurement of the Decay $B^+ \rightarrow D^+ \gamma \nu$.
ARGUS Collaboration (H. Albrecht et al.).

Search for $b \rightarrow s\gamma$ in Exclusive Decays of $B$ Mesons.
ARGUS Collaboration (H. Albrecht et al.).

Observation of a New Charmed-Strange Meson.
ARGUS Collaboration (H. Albrecht et al.).

Observation of $\Delta(1232)^{++}$ Production in $e^+e^-$Annihilations Around 10 GeV.
ARGUS Collaboration (H. Albrecht et al.).

Observation of the Charged Isospin Partner of the $D^*(2459)^0$.
ARGUS Collaboration (H. Albrecht et al.).

Resonance Decomposition of the $D^*(2420)^0$ Through a Decay Angular Analysis.
ARGUS Collaboration (H. Albrecht et al.).

Measurement of the Lifetime Ratio $\tau(B^+)/\tau(B^0)$.
ARGUS Collaboration (H. Albrecht et al.).

Inclusive $\phi$-Meson Production in Electron-Positron Interactions in the Energy Region of the
$Y$-Resonances.
ARGUS Collaboration (H. Albrecht et al.).

Search for Exclusive Radiative Decays of $Y(1S)$ and $Y(2S)$ Mesons.
ARGUS Collaboration (H. Albrecht et al.).

Measurement of Inclusive $B$ Meson Decays into Baryons.
ARGUS Collaboration (H. Albrecht et al.).

Two-Photon Production of Final States with a $p\bar{p}$ Pair.
ARGUS Collaboration (H. Albrecht et al.).

Results on Baryon Antibaryon Correlations in $e^+e^-$ Annihilation.
ARGUS Collaboration (H. Albrecht et al.).

Measurement of $D^0$ decays into $\bar{K}^0\omega$, $\bar{K}^0\eta$, and $\bar{K}^0\eta$.
ARGUS Collaboration (H. Albrecht et al.).
Inclusive Production of Charged Pions, Charged and Neutral Kaons and Antiprotons in $e^+e^-$ Annihilation at 10 GeV and in Direct Upsilon Decays.
ARGUS Collaboration (H. Albrecht et al.).

Observation of Semileptonic Charmless $B$ Meson Decays.
ARGUS Collaboration (H. Albrecht et al.).

ARGUS Collaboration (H. Albrecht et al.).

Search for Hadronic $b\to u$ Decays.
ARGUS Collaboration (H. Albrecht et al.).

Observation of the Decay $D_s^+\to\eta^'\pi^+$. 
ARGUS Collaboration (H. Albrecht et al.).

Determination of the Michel Parameter in Tau Decay.
ARGUS Collaboration (H. Albrecht et al.).

Measurement of $\Xi_c^0$ Production in $e^+e^-$ Annihilation at 10.5 GeV Center-of-Mass Energy.
ARGUS Collaboration (H. Albrecht et al.).

Study of Inclusive Semileptonic $B$ Meson Decays.
ARGUS Collaboration (H. Albrecht et al.).

Determination of the Tau-Neutrino Helicity.
ARGUS Collaboration (H. Albrecht et al.).

A Study of Cabibbo-Suppressed $D^0$ Decays.
ARGUS Collaboration (H. Albrecht et al.).

Inclusive $\pi^0$ and $\eta$ Meson Production in Electron Positron Interactions at $\sqrt{s}$=10 GeV.
ARGUS Collaboration (H. Albrecht et al.).

Measurement of $K^+K^-$ Production in $\gamma\gamma$ Collisions.
ARGUS Collaboration (H. Albrecht et al.).

Exclusive Hadronic Decays of $B$ Mesons.
ARGUS Collaboration (H. Albrecht et al.).

Search for $b\to s$ gluon in $B$ Meson Decays.
ARGUS Collaboration (H. Albrecht et al.).

Reconstruction of Semileptonic $b\to u$ Decays.
ARGUS Collaboration (H. Albrecht et al.).

Observation of the Decays $D_{s}^{+} \to \phi e^{-} \nu$ and $D^{-} \to K^{*0} e^{-} \nu$.
ARGUS Collaboration (H. Albrecht et al.).
Observation of the Decay $\tau \rightarrow \rho \pi \nu_\tau$.
ARGUS Collaboration (H. Albrecht et al.).

Search for $b \rightarrow sX^+X^-$ in Exclusive Decays of $B$ Mesons.
ARGUS Collaboration (H. Albrecht et al.).

A Spin Parity Analysis of $\gamma\gamma \rightarrow \rho^+\rho^-$. 
ARGUS Collaboration (H. Albrecht et al.).

Observations of $\Lambda_c^+$ Semileptonic Decay.
ARGUS Collaboration (H. Albrecht et al.).

Study of $pp$ and $\Lambda\Lambda$ Production in $e^+e^-$ Annihilation at 10 GeV Center of Mass Energy.
ARGUS Collaboration (H. Albrecht et al.).

Observation of Spin-Parity $2^+$ Dominance in the Reaction $\gamma\gamma \rightarrow \rho^\circ\rho^\circ$ Near Threshold.
ARGUS Collaboration (H. Albrecht et al.).

Inclusive Production of $D^+$, $D^*$, and $D^{*(2010)^+}$ Mesons in $B$ Decays and Nonresonant $e^+e^-$ Annihilation at 10.6 GeV.
ARGUS Collaboration (H. Albrecht et al.).

† A Measurement of $\tau(B^+)/\tau(B^0)$ from the Lepton and Dilepton Rates in $\Upsilon(4S)$ Decays.
ARGUS Collaboration (H. Albrecht et al.).

A Measurement of Asymmetry in the Decay $\Lambda_c^+ \rightarrow \Lambda\pi^+$. 
ARGUS Collaboration (H. Albrecht et al.).

First Evidence of $\chi_c$ Production in $B$-Meson Decays.
ARGUS Collaboration (H. Albrecht et al.).

ARGUS Collaboration (H. Albrecht et al.).

The Measurement of $D_s^{+}$ and $D^+$ Meson Decays Into $K^{*+}K^{*0}$. 
ARGUS Collaboration (H. Albrecht et al.).

Measurement of Exclusive One-Prong and Inclusive Three-Prong Branching Ratios of the $\tau$ Lepton.
ARGUS Collaboration (H. Albrecht et al.).

Production of $D_s^+$ Mesons in $B$ Decays and Determination of $fD_s$.
ARGUS Collaboration (H. Albrecht et al.).

Measurement of $R$ and Determination of the Charged-Particle Multiplicity in $e^+e^-$ Annihilation at $\sqrt{s}$ Around 10 GeV.
ARGUS Collaboration (H. Albrecht et al.).
A New Determination of the $B^0\bar{B}^0$ Oscillation Strength.

H. Albrecht \textit{et al.} (ARGUS Collaboration).


6.3 AMY publications coauthored by C. Rosenfeld and other group members.

Measurements of R and a Search for Heavy-Quark Production in $e^+e^-$ Annihilation at $\sqrt{s} = 50$ and 52 GeV.

H. Sagawa \textit{et al.} (AMY Collaboration).


Search for Isolated Leptons in Low Thrust $e^+e^-$ Annihilation Events at $\sqrt{s} = 50$ and 52 GeV.

S. Igarashi \textit{et al.} (AMY Collaboration).


Experimental Mass Limit for a Fourth Generation Sequential Lepton from $e^+e^-$ Annihilations at $\sqrt{s} = 56$ GeV.


Measurements of Cross Sections and Charge Asymmetries for $e^+e^- \rightarrow t^+t^-$ and $e^+e^- \rightarrow \mu^+\mu^-$ for $\sqrt{s}$ from 52 to 57 GeV.

A. Bacala \textit{et al.} (the AMY Collaboration).


Measurements of the $e^+e^-$ Total Hadronic Cross Section and a Determination of $M_Z$ and $\Lambda_{\overline{\text{MS}}}$.

T. Mori \textit{et al.} (the AMY Collaboration).


Search for the Substructure of Leptons in High Energy QED Processes at TRISTAN.

S.K. Kim \textit{et al.} (the AMY Collaboration).


Search for Non-Minimal Higgs Production in $e^+e^-$ Annihilations at $\sqrt{s} \sim 56$ GeV.

E. Low \textit{et al.} (the AMY Collaboration).


Experimental Evidence for the Non-Abelian Nature of QCD from a Study of Multi-jet Events Produced in $e^+e^-$ Annihilations.

I.H. Park \textit{et al.} (the AMY Collaboration).


A Search for Unstable Neutral Leptons in $e^+e^-$ Annihilations at $\sqrt{s}$ from 50 to 60.8 GeV.

N.M. Shaw \textit{et al.} (the AMY Collaboration).


Comparison of Quark and Gluon Jets Produced in High Energy $e^+e^-$ Annihilations.

Y.K. Kim \textit{et al.} (the AMY Collaboration).


Search for a Fourth-Generation Charge $-1/3$ Quark.

S. Eno \textit{et al.} (the AMY Collaboration).


Measurement of the $e^+e^- \rightarrow b \bar{b}$ Forward-Backward Charge Asymmetry between $\sqrt{s} = 52$ and 57 GeV.

H. Sagawa \textit{et al.} (the AMY Collaboration).

A Search for SUSY Particles in $e^+e^-$ Annihilations at $\sqrt{s}=50-60.8$ GeV.
Y. Sakai et al. (the AMY Collaboration).

A Search for Leptoquark and Colored Lepton Pair Production in TRISTAN.
G.N. Kim et al. (the AMY Collaboration).

Observation of Anomalous Production of Muon Pairs in $e^+e^-$ Annihilation into Four-Lepton Final States.
Y.H. Ho et al. (the AMY Collaboration).

A Measurement of the Photon Structure Function $F_2$.
T. Sasaki et al. (the AMY Collaboration).

Multihadron-event Properties in $e^+e^-$ Annihilation at $\sqrt{s} = 52–57$ GeV.
Y.K. Li et al. (the AMY Collaboration).

Charged-particle Multiplicities in $e^+e^-$ Annihilations at $\sqrt{s} = 50–61.4$ GeV.
H.W. Zheng et al. (the AMY Collaboration).

Mass Limits of Charged Higgs Boson at Large $\tan\beta$ from $e^+e^-$ Annihilations at $\sqrt{s} = 50–60.8$ GeV.
J.R. Smith et al. (the AMY Collaboration).

Measurements of $R$ for $e^+e^-$ Annihilation at the KEK Collider TRISTAN.
T. Kumita et al. (the AMY Collaboration).

Forward-Backward Charge Asymmetry in $e^+e^- \rightarrow$ Hadron Jets.
D. Stuart et al. (the AMY Collaboration).

Search for Charged Heavy Leptons with Arbitrary Neutrino Masses in $e^+e^-$ Annihilations at $\sqrt{s} = 50–60.8$ GeV.
G.N. Kim et al. (the AMY Collaboration).

The Design of the AMY Central Drift Chamber and Performance in a 3 Tesla Magnetic Field.

Evidence for Hard Scattering of Hadronic Constituents of Photons in Photon-Photon Collisions at TRISTAN.
R. Tanaka et al. (the AMY Collaboration).

Search for Anomalous $\gamma\gamma$ Production at TRISTAN.
K.L. Sterner et al. (the AMY Collaboration).

Measurement of $\alpha_S$ from the Moment of Particle Momenta Within Jets from $e^+e^-$ Annihilation.
K.B. Lee et al. (the AMY Collaboration).
6.4 E687 publications coauthored by J.R. Wilson.

Measurement of $\Lambda_c^+$ and $D_s^+$ Lifetimes.
P.L. Frabetti et al. (the E687 Collaboration).

A Measurement of the $D^0$ and $D^+$ Lifetimes.
P.L. Frabetti et al. (the E687 Collaboration).

Description and Performance of the Fermilab E687 Spectrometer.
P.L. Frabetti et al. (the E687 Collaboration).

Measurement of the Decays $D^0 \to \pi^+\pi^-\pi^-$, $D^0 \to K^-K^+$, and $D_s^+ \to \phi\pi^\pm\pi^\mp$.
P.L. Frabetti et al. (the E687 Collaboration).

Study of $D^0 \to K^0\pi^+\pi^-$ and $D^0 \to K^0\phi K^+$ in High Energy Photoproduction.
P.L. Frabetti et al. (the E687 Collaboration).

A Wide Band Photon Beam at the Fermilab Tevatron to Study Heavy Flavors.
P.L. Frabetti et al. (the E687 Collaboration).

First Evidence of $\Omega_c^0 \to \Omega^-\pi^+$
P.L. Frabetti et al. (the E687 Collaboration).

Analysis of the Decay Mode $D^+_c \to \bar{K}^*\mu^+\nu$.
P.L. Frabetti et al. (the E687 Collaboration).

Studies of $D\bar{D}$ Correlations in High Energy Photoproduction
P.L. Frabetti et al. (the E687 Collaboration).

A Measurement of $\Gamma(D_s^+ \to \phi\mu^+\nu)/\Gamma(D_s^+ \to \phi\pi^+)$.
P.L. Frabetti et al. (the E687 Collaboration).

Evidence of the Cabibbo-Suppressed Decay $\Lambda_c^+ \to pK^-K^+$.
P.L. Frabetti et al. (the E687 Collaboration).

Study of $D^0 \to K^-\mu^+\nu$ in High Energy Photoproduction.
P.L. Frabetti et al. (the E687 Collaboration).

A Measurement of Elastic $J/\psi$ Photoproduction Cross Section at Fermilab E687.
P.L. Frabetti et al. (the E687 Collaboration).

Measurement of the Mass and Lifetime of the $\Xi_c^+$.
P.L. Frabetti et al. (the E687 Collaboration).

Measurement of the $\Lambda_c^+$ Lifetime.
P.L. Frabetti et al. (the E687 Collaboration).
Measurement of the Lifetime of the $\Xi^0_c$.
P.L. Frabetti et al. (the E687 Collaboration).

Precise Measurement of the $D_s^+$ Meson Lifetime.
P.L. Frabetti et al. (the E687 Collaboration).

6.5 Publications and reports on Fermilab E789 and miscellaneous other topics coauthored by various group members.

CAMAC Staggered Memory Look-up Module and ECL Fan-in for Fast Trigger Applications.

Nuclear Effects on Heavy Quark Production Results from Fermilab Experiments E772 and E789.
M.J. Leitch et al. (the E772 and E789 Collaborations).

High Sensitivity search for a 17 keV Neutrino. Negative Indication with an Upper Limit of 0.095%.
J. Shirai, Y. Sugaya, T. Suzuki, K. Takahashi, T. Tsukamoto, K. Ueno, K. Ukai, S. Wilson,
and Y. Yonezawa.

† Preliminary Results from Fermilab E789.
J.C. Peng et al.

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