

SECTION II

PUBLICATIONS, CONFERENCE PROCEEDINGS, INVITED TALKS AND THESIS TITLES

Publications

Annals of Physics

Semi-Empirical Effective Interactions for the 1s-0d Shell; B.A. Brown, W.A. Richter, R.E. Julies and B.H. Wildenthal, *Ann. Phys.* 182, 191 (1988).

Static Path Approximation for the Nuclear Partition Function; P. Arve, G. Bertsch, B. Lauritzen and G. Puddu, *Ann. Phys.* 183, 309 (1988).

First-Forbidden Beta Decay near $A=40$; E.K. Warburton, J.A. Becker, D.J. Millener and B.A. Brown, *Ann. Phys.* 187, 471 (1988).

Nuclear Instruments and Methods

Particle Identification via Pulse-Shape Discrimination with a Charge-Integrating ADC; J. Heltsley, L. Brandon, A. Galonsky, L. Heilbronn, S. Langer, B.A. Remington, A. Vander Molen, J. Yurkon and J. Kasagi, *Nucl. Instrum. Methods* A263, 441 (1988).

Resolution Tests of CsI(Tl) Scintillators Read Out by PIN Diodes; W.G. Gong, Y.D. Kim, G. Poggi, Z. Chen, C.K. Gelbke, M.R. Maier, T. Murakami, M.B. Tsang, H.M. Xu and K. Kwiatkowski, *Nucl. Instrum. Methods* A268, 190 (1988).

Energy Dependence of the $v_r + 2v_z = 3$ Coupling Resonance Limit in a Superconducting Cyclotron; M.L. Mallory and P. Miller, *Nucl. Instrum. Methods* A272, 645 (1988).

CCD Camera System for use with a Streamer Chamber; S. Angius, R. Au, G. Crawley, C. Djalali, R. Fox, M. Maier, C. Ogilvie, A. Vander Molen, G. Westfall, and R. Tickle, *Nucl. Instrum. Methods* A273, 283 (1988).

Nuclear Physics

Scaling Behavior of Observables in Heavy-Ion Collisions; A. Bonasera, L.P. Csernai and B. Schurmann, *Nucl. Phys.* A476, 159 (1988).

Beta Decay Rates of sd-Shell Nuclei in Stellar Interiors; B.A. Brown, T. Kajino, E. Shiino, H. Toki and B.H. Wildenthal, *Nucl. Phys.* A480, 175 (1988).

The $^{52,54}\text{Cr}(p,n)^{52,54}\text{Mn}$ and $^{57,58}\text{Fe}(p,n)^{57,58}\text{Co}$ Reactions at $E_p = 120$ MeV; D. Wang, J. Rapaport, D.J. Horen, B.A. Brown, C. Gaarde, C.D. Goodman, E. Sugarbaker and T.N. Taddeucci, *Nucl. Phys.* A480, 285 (1988).

Heavy-Ion Reactions as Probes for Spin Strength; N. Anantaraman, S.M. Austin and J.S. Winfield, *Nucl. Phys.* A482, 331c (1988).

Making Pions with Heavy Ions; W. Benenson, *Nucl. Phys.* A482, 503c (1988).

Hard Photons from Heavy-Ion Collisions; K. Niita, A.L. DePaoli, W. Bauer, T.S. Biro, W. Cassing, and U. Mosel, *Nucl. Phys.* A482, 525c (1988).

The First Excited State in ^{23}Al and its Influence on $^{22}\text{Mg}(p,\gamma)^{23}\text{Al}$; M. Wiescher, J. Gorres, B. Sherrill, M. Mohar, J.S. Winfield and B.A. Brown, *Nucl. Phys.* A484, 90 (1988).

A Study of Proton Pairing Vibrations in the fp-Shell Using ^{14}C -Induced Two-Proton Pickup Reactions; D. Barker, J.M. Nelson, D.W. Banes, B.R. Fulton, S.D. Hoath, M.C. Mannion, G.C. Morrison, C.A. Ogilvie, L. Zybert, R. Zybert, *Nucl. Phys.* A485, 161 (1988).

Production and Characterization of Hot Nuclei in the Reactions of 19 and 35 MeV/u ^{14}N with ^{154}Sm ; K. Hagel, D. Fabris, P. Gonthier, H. Ho, Y. Lou, Z. Majka, G. Mouchaty, M.N. Namboodiri, J.B. Natowitz, G. Nebbia, R.P. Schmitt, G. Viesti, R. Wada and B. Wilkins, Nucl. Phys. A486, 429 (1988).

Interferometry of Charged Particles in Intermediate-Energy Collisions; W.G. Lynch, Nucl. Phys. A488, 359c (1988).

Pion Collectivity in Relativistic Heavy-Ion Collisions; G.F. Bertsch, G.E. Brown, V. Koch and B.-A. Li, Nucl. Phys. A490, 745 (1988).

Physical Review B

Simulation of Vacancies in a 2D Ising Antiferromagnet; W. Bauer and S.E. Koonin, Phys. Rev. B38, 8958 (1988).

Physical Review C

Elastic Scattering of 210 MeV ^6Li ions from ^{12}C and ^{58}Ni and Unique ^6Li -Nucleus Optical Potentials; A. Nadasen, M. McMaster, G. Gunderson, A. Judd, S. Villanueva, P. Schwandt, J.S. Winfield, J. van der Plicht, R.E. Warner, F.D. Becchetti and J.W. Janecke, Phys. Rev. C37, 132 (1988).

Fragmentation of ^{16}O Projectiles at 100 MeV per Nucleon; J.D. Silk, H.D. Holmgren, D.L. Hendrie, T.J.M. Symons, G.D. Westfall, P.H. Stelson, S. Raman, R.L. Auble, J. Wu and K. Van Bibber, Phys. Rev. C37, 158 (1988).

E1 Polarizability of ^7Li and Astrophysical S Factor for $^4\text{He}(t, \gamma)^7\text{Li}$; T. Kajino, G.F. Bertsch and K. Kubo, Phys. Rev. C37, 512 (1988).

Momentum Space Simulation of Proton Spectra in Heavy-Ion Reactions; W. Bauer, G.D. Westfall, D. Fox and D.A. Cebra, Phys. Rev. C37, 664 (1988).

Branching Ratios of ^9C to Low-Lying States in ^9B ; D. Mikolas, B.A. Brown, W. Benenson, L.H. Harwood, E. Kashy, J.A. Nolen Jr., B. Sherrill, J. Stevenson, J.S. Winfield, Z.Q. Xie and R. Sherr, Phys. Rev. C37, 776 (1988).

Fragment Spectra from Reactions Induced by 35 MeV/nucleon ^{14}N on ^{16}Ho ; G. Caskey, L. Heilbronn, B. Remington, A. Galonsky, F. Deák, A. Kiss and Z. Seres, Phys. Rev. C37, 969 (1988).

Measurement of the Beta Decay Half-life of ^{17}B ; M. Samuel, B.A. Brown, D. Mikolas, J. Nolen, B. Sherrill, J. Stevenson, J.S. Winfield and Z.Q. Xie, Phys. Rev. C37, 1314 (1988).

Transition Densities in ^{30}Si Studied by Electron Scattering and Coupled-Channel Calculations of 650 MeV Proton Scattering; R.A. Miskimen, A.M. Bernstein, G. Bernhardt, C.F. Williamson, B.A. Brown and R. Alarcon, Phys. Rev. C37, 1600 (1988).

Coulomb Excitation of $^{144,146,148,150}\text{Nd}$; A. Ahmad, G. Bomar, H. Crowell, J.H. Hamilton, H. Kawakami, C.F. Maguire, W.G. Nettles, R.B. Piercey, A.V. Ramayya, R. Soundranayagam, R.M. Ronningen, O. Scholten and P.H. Stelson, Phys. Rev. C37, 1836 (1988).

Low- and High-Spin Excited States in ^{139}Pr ; R. Aryaeinejad and B. McHarris, Phys. Rev. C37, 1855 (1988).

Total Nuclear Reaction Probabilities for 2 to 6 MeV/nucleon d and ^3He in Si; R.E. Warner, C.P. Browne, S.E. Darden, J.J. Kolata, A. Rollefson, P.A. Kimoto, and A. Galonsky, Phys. Rev. C37, 1884 (1988).

Pion Interferometry in Ultrarelativistic Heavy-Ion Collisions; G. Bertsch, M. Gong and M. Tohyama, Phys. Rev. C37, 1896 (1988).

Low- and High-Spin Excited States in ^{139}Pr ; R. Aryaeinejad and Wm.C. McHarris, Phys. Rev. C37, 2220 (1988).

A Search for the Exotic Nucleus ^{10}He ; J. Stevenson, B.A. Brown, Y. Chen, J. Clayton, R.E. Julies, E. Kashy, D. Mikolas, J. Nolen, W.A. Richter, M. Samuel, B. Sherrill, J.S. Winfield and Z.Q. Xie, Phys. Rev. C37, 2220 (1988).

Neutrons in Coincidence with Intermediate Mass Fragments at Large Angles from $^{14}\text{N} + \text{Ag}$ Reactions at $E/A = 20$ and 35 MeV; C. Bloch, W. Benenson, A. Galonsky, E. Kashy, J. Heltsley, L. Heilbronn, M. Lowe, R.J. Radtke, B. Remington, J. Kasagi, D. Morrissey, Phys. Rev. C37, 2469 (1988).

The Deformed Odd-Odd $^{180,182,184}\text{Re}$ Isotopes in the IBA Model; W.T. Chou, Wm.C. McHarris and Olaf Scholten, Phys. Rev. C37, 2834 (1988).

Shock Phenomena in Supercooled Baryon-Free Strongly Interacting Matter; L.P. Csernai and M.Z. Gong, Phys. Rev. C37, 3231 (1988).

Angular Correlations Near the Fermi Energy; D. Fox, D. Cebra, J. Karn, C. Parks, A. Pradhan, A. Vander Molen, J. van der Plicht, G. Westfall, K. Wilson and R. Tickle, Phys. Rev. C38, 146 (1988).

High Energy γ -rays from the $^{12}\text{C} + ^{12}\text{C}$ and $^{40}\text{Ar} + ^{48}\text{Ti}$ Systems at 15 MeV/nucleon; K. Hanold and D.J. Morrissey, Phys. Rev. C38, 165 (1988).

Target Mass Dependence of Neutron Emission in Collisions with 35 MeV/u ^{14}N Ions; A. Kiss, F. Deák, Z. Seres, G. Caskey, A. Galonsky, L. Heilbronn and B. Remington, Phys. Rev. C38, 170 (1988).

Inclusive Neutron Spectra at 0° from $\text{Nb} + \text{Nb}$ and $\text{Au} + \text{Au}$ Collisions at 800 MeV/nucleon; R. Madey, W.M. Zhang, B.D. Anderson, A.R. Baldwin, B.S. Flanders, W. Pairsuwan, J. Varga, J.W. Watson and G.D. Westfall, Phys. Rev. C38, 184 (1988).

Damping of Quadrupole Motion in Time-Dependent Density Matrix Theory; M. Tohyama, Phys. Rev. C38, 553 (1988).

Mass of ^{39}Sc via the $^{40}\text{Ca}(^7\text{Li}, ^8\text{He})$ Reaction; M.F. Mohar, E. Adamides, W. Benenson, C. Bloch, B.A. Brown, J. Clayton, E. Kashy, M. Lowe, J.A. Nolen, Jr., W.E. Ormand, J. van der Plicht, B. Sherrill, J. Stevenson and J.S. Winfield, Phys. Rev. C38, 737 (1988).

Population of High-Spin States by Quasi-Elastic and Deep Inelastic Collisions; H. Takai, C.N. Knott, D.F. Winchell, J.X. Saladin, M.S. Kaplan, L. de Faro, R. Aryacinejad, R.A. Blue, R.M. Ronningen, D.J. Morrissey, I.Y. Lee and O. Dietzsch, Phys. Rev. C38, 1247 (1988).

Population of High-Spin States by Quasi-Elastic and Deep Inelastic Collisions; H. Takai, C.N. Knott, D.F. Winchell, J.X. Saladin, M.S. Kaplan, L. de Faro, R. Aryacinejad, R.A. Blue, R.M. Ronningen, D.J. Morrissey, I.Y. Lee and O. Dietzsch, Phys. Rev. C38, 1247 (1988).

Empirically Optimum M1 Operator for M1 Transition in the sd-Shell Nuclei; M.C. Etchegoyen, A. Etchegoyen, B.H. Wildenthal, B.A. Brown and J. Keinonen, Phys. Rev. C38, 1382 (1988).

Superfluid Tunneling in the Restoration of Parity Conservation in Octupole Deformed Nuclei; F. Barranco, E. Vigezzi, R.A. Broglia and G.F. Bertsch, Phys. Rev. C38, 1523 (1988).

Single-Nucleon Pickup Spectroscopic factors for Levels in ^{30}Si and ^{30}P and the D-State of the Three-Nucleon System; C.M. Bhat, J.E. Bowsher, T.B. Clegg, H.J. Karwowski, E.J. Ludwig and B.A. Brown, Phys. Rev. C38, 1537 (1988).

Boltzmann Master Equation Analysis of Pre-Equilibrium Neutron Emission from Heavy-Ion Collisions at 35 MeV/nucleon; B.A. Remington, M. Blann, A. Galonsky, L. Heilbronn, F. Deák, A. Kiss and Z. Seres, Phys. Rev. C38, 1746 (1988).

Extraction of Signals of a Phase Transition from Nuclear Multifragmentation; W. Bauer, Phys. Rev. C38, 1927 (1988).

Correlations Between High-Energy Gamma Rays and Light Fragments in Heavy-Ion Collisions; A.R. Lampis, J. Stevenson, W. Benenson, J. Clayton, D. Cebra, Y. Chen, D. Fox, E. Kashy, D.J. Morrissey, M. Samuel, R. Smith, C.L. Tam, G.D. Westfall, K. Wilson and J.S. Winfield, Phys. Rev. C38, 1961 (1988).

High-Energy Gamma Ray Production in Light-Ion-Induced Reactions; C.L. Tam, J. Stevenson, W. Benenson, J. Clayton, Y. Chen, E. Kashy, A.R. Lampis, D.J. Morrissey, M. Samuel, T.K. Murakami and J.S. Winfield, Phys. Rev. C38, 2526 (1988).

Sequential Feeding and Temperature Determinations from the Relative Populations of Widely Separated States in ^4He , ^5Li , and ^8Be Nuclei; Z. Chen and C.K. Gelbke, Phys. Rev. C38, 2630 (1988).

Entropy from Fragment Yields in Nucleus-Nucleus Collisions around 100 MeV/nucleon; L.P. Csernai, G. Fai and G.D. Westfall, Phys. Rev. C38, 2681 (1988).

Physical Review D

Shock Phenomena in Super-Cooled Baryon-Free Strangely Interacting Matter; L. Csernai and M. Gong, Phys. Rev. D11, 3231 (1988).

Cascade Simulation of Ultrarelativistic Collisions; G. Bertsch, M. Gong, L. McLerran, V. Ruuskanen and E. Sarkkinen, Phys. Rev. D37, 1202 (1988).

Physical Review Letters

Exotic Radioactivity as a Superfluid Tunneling Phenomenon; F. Barranco, R.A. Broglia and G.F. Bertsch, Phys. Rev. Lett. 60, 507 (1988).

Observation of a Non-Spherical Pion Source in Relativistic Heavy-Ion Collisions; A.D. Chacon, J.A. Bisterlich, R.R. Bossingham, H.R. Bowman, C.W. Clawson, K.M. Crowe, T.J. Humanic, J.M. Kurck, C.A. Meyer, J.O. Rasmussen, O. Hashimoto, W.C. McHarris, J.P. Sullivan and W.A. Zajc, Phys. Rev. Lett. 60, 780 (1988).

Comment on "Giant M1 Resonance in ^{90}Zr "; C. Glashauser and A. Galonsky, Phys. Rev. Lett. 60, 1201 (1988).

Polarization, Dynamics and Nonequilibrium Complex-Fragment Emission; M.B. Tsang, W.G. Lynch, R.M. Ronningen, Z. Chen, C.K. Gelbke, T. Nayak, J. Pochodzalla, F. Zhu, M. Tohyama, W. Trautmann and W. Dünneweber, Phys. Rev. Lett. 60, 1479 (1988).

Nuclear Stopping at Intermediate Beam Energies; W. Bauer, Phys. Rev. Lett. 61, 2534 (1988).

Extended Emission Sources Observed via Two-Proton Correlations; T.C. Awes, R.L. Ferguson, F.E. Obenshain, F. Plasil, G.R. Young, S. Pratt, Z. Chen, C.K. Gelbke, W.G. Lynch, J. Pochodzalla, and H.M. Xu, Phys. Rev. Lett. 61, 2665 (1988).

Nuclear Level Densities in the Static-Path Approximation; B. Lauritzen, P. Arve and G.F. Bertsch, Phys. Rev. Lett. 61, 2835 (1988).

Physics Letters

Possible Dynamical Limitations to Excitation Energy Storage in Nuclei; F. Saint-Laurent, A. Kyanowski, D. Ardouin, H. Delagrangé, H. Doubre, C. Gregoire, W. Mittig, A. Peghaire, J. Peter, G. Bizard, F. Lefebvres, B. Tamain, J. Quebert, Y.P. Viyogi, J. Pochodzalla, C.K. Gelbke, W. Lynch and M. Maier, Phys. Lett. B202, 190 (1988).

Energy Dependence of $^{12}\text{C} + ^{12}\text{C}$ Single-Neutron Transfer Cross Sections; J.S. Winfield, S.M. Austin, G.M. Crawley, C. Djalali, C.A. Ogilvie, R.J. Smith, Z. Chen and M. Torres, Phys. Lett. B203, 345 (1988).

Collective Inertia in Paired Systems; P.O. Arve and G.F. Bertsch, Phys. Lett. B215, 1 (1988).

Temperatures from Intermediate Energy Heavy-Ion Collisions; H-W. Barz, H. Schulz and G.F. Bertsch, Phys. Lett. B217, 397 (1989).

Miscellaneous

An Adjustable Permanent Magnet Focusing System for Heavy Ion Beams; A.F. Zeller, J.A. Nolen Jr., R.T. Swanson and R.D. Hay, IEEE Trans on Mag, MAG-24, 990 (1988).

Operation of Liquid Helium Level Sensors at Elevated Pressures; A.F. Zeller, H. Laumer and J.A. Nolen Jr., *Adv. in Cryogenic Eng.* **33**, 267 (1988).

Energetic γ -Rays in Coincidence with Light Fragments from Collisions of 35 MeV/u ^{14}N Ions; F. Deák, A. Kiss, Z. Seres, G. Caskey, A. Galonsky and B. Remington, *Acta Physica Hungarica* **64**, 219 (1988).

Evidence for Persisting Mean Field Effects at E/A-60 MeV from Particle- Particle Correlation Measurements and Theoretical Investigations with the Landau Vlasov Equation; D. Ardouin, Z. Basrak, P. Schuck, A. Peghaire, H. Delagrange, H. Doubre, C. Gregoire, A. Kyanowski, W. Mittig, J. Peter, F. Saint-Laurent, B. Zwieglinski, Y.P. Viyogi, C.K. Gelbke, W.G. Lynch, M. Maier, J. Pochodzalla, J. Quebert, G. Bizard, F. Lefebvres and B. Tamain, *Z. Phys.* **A329**, 505 (1988).

Coulomb-Nuclear Interference Measurements of Hexadecapole Deformations in ^{168}Yb and $^{178,180}\text{Hf}$; W.G. Nettles, A.V. Ramayya, J.H. Hamilton, R. Soundranayagam, H. Yamada, T. Humanic, J.X. Saladin, A. Hussein, R.B. Piercey and R.M. Ronningen, *J. Phys.* **G14**, L223 (1988).

Status of the Nuclear Shell Model; B.A. Brown and B.H. Wildenthal, *Ann. Rev. Nucl. Part. Sci.* **38**, 29 (1988).
Progress with the Superconducting Cyclotron Neutron Therapy Facility for Harper-Grace Hospitals; R.L. Maughan, H.G. Blosser, W.E. Powers, E.B. Blosser, G.F. Blosser, J. Vincent, G.A. Ezzel, C.G. Orton and D.P. Ragan, *Radiation Protection Dosimetry*, **23**, 357 (1988).

A Guide to Microscopic Models for Intermediate-Energy Heavy-Ion Collisions; G.F. Bertsch and S. Das Gupta, *Phys. Rep.* **160**, L89 (1988).

Rotating Superfluidity in Nuclei; G.F. Bertsch, R.A. Broglia and R. Schrieffer, *Il Nuovo Cimento*, **A100**, 283 (1988).

Abstracts and/or Titles of Talks at American Physical Society Meetings and Other Meetings and Conferences (1988)

Proceedings of the XVI International Workshop on Gross Properties of Nuclei and Nuclear Excitations *Hirschegg, Austria, January 18-22, 1988*

Complex Fragment Emission in Intermediate-Energy Heavy-Ion Reactions; C.K. Gelbke.

Polarization and Dynamical Fluctuations in Complex Fragment Emission; W. Dunnweber, M.B. Tsang, W.G. Lynch, R.M. Ronningen, Z. Chen, C.K. Gelbke, T. Nayak, J. Pochodzalla, F. Zhu, M. Tohyama and W. Trautmann, p. 200.

Proceedings of the Winter Workshop on Nuclear Dynamics V *Sun Valley, Idaho February 22-26, 1988*

Light Particle Correlations in Heavy-Ion Reactions; W. Bauer

Conference on High-Spin Nuclear Structure and Novel Nuclear Shapes *Argonne, Illinois, April 13-15, 1988*

Doubly-Decoupled Bands in Odd-Odd Nuclei: Experimental Results Compared with IBFFA Calculations; W.-T. Chou, W.A. Olivier, R. Aryaeinejad, W.C. McHarris and O. Scholten, p. 292.

Spring APS Meeting *Baltimore, Maryland, April 18-21, 1988.*

Design of an Extraction System for a 250 MeV Superconducting Synchrocyclotron; X.Y. Wu and M. Gordon, *Bull. Am. Phys. Soc.* **33**, 906 (1988).

Studies on the $\nu_r + 2\nu_z = 3$ Coupling Resonance in Q Superconducting Cyclotron; M. Mallory and P. Miller, *Bull. Am. Phys. Soc.* **33**, 908 (1988).

New Effective Interactions for the fp Shell; B. Brown, W. Richter and R. Julies, *Bull. Am. Phys. Soc.* **33**, 929 (1988).

New Effective Interactions for the p Shell; B. Brown, W. Richter and R. Julies, *Bull. Am. Phys. Soc.* **33**, 931 (1988).

Excitation of 2p-1h High Spin-States in ^{45}Sc (p,n) ^{45}Sc (p,n) ^{45}Ti at 136 MeV; M. Mostajboddá, B.D. Anderson, A.R. Baldwin, M. Elaasar, R. Maday, D.M. Manley, N. Tamami, J.W. Watson, W.M. Watson, W.M. Zhang, C.C. Foster and B. Brown, *Bull. Am. Phys. Soc.* **33**, 962 (1988).

Gamow-Teller Strength in the ^{54}Fe (p,n) ^{54}Co Reaction at 135 MeV; B.D. Anderson, C. Lebo, A.R. Baldwin, T. Chittrakarn, R. Maday, J.W. Watson, C.C. Foster, B.A. Brown, *Bull. Am. Phys. Soc.* **33**, 962 (1988)

Two-Particle Correlations from 500 MeV Protons on Silver; D. Cebra, W. Benenson, Y. Chen, E. Kashy, D.J. Morrissey, A. Pradhan, A. Vander Molen, G. Westfall, K. Wilson, R. Tickle, R. Kortlerling, R. Helmer, *Bull. Am. Phys. Soc.* **33**, 963 (1988).

Static Path Approximation to the Nuclear Partition Function; P. Arve, G. Bertsch, B. Lauritzen and G. Puddu, *Bull. Am. Phys. Soc.* **33**, 963 (1988).

Relative Contributions of Equilibrated and Non-Equilibrated Sources for IMF Emission in $E/A = 20/50$ MeV ^{14}N -Induced Reactions; D.E. Fields, K. Kwiatkowski, D. Bonser, R.W. Viola, V.E. Viola, B. Tsang, J. Pochodzalla, B. Lynch, C.K. Gelbke and D.J. Fields, *Bull. Am. Phys. Soc.* **33**, 978 (1988).

- High-Energy Gamma Ray Emission in Heavy-Ion Collisions; J. Stevenson, W. Benenson, J. Clayton, E. Kashy, A. Lampis, D.J. Morrissey, M. Samuel, R.J. Smith, A. Tam, J.S. Winfield, *Bull. Am. Phys. Soc.* **33**, 978 (1988).
- Experimental Test of a Newly Proposed Relationship Between Ex and Γ of the Giant Quadrupole Resonance and the Neutron Binding Energy; U. Garg, A. Braun, K.B. Beard, L. Goettig, R. Tighe, D. Ye, A. Galonsky, T. Murakami, J.S. Winfield, Y.-W. Lui and D.H. Youngblood, *Bull. Am. Phys. Soc.* **33**, 979 (1988).
- Neutron Emission in $^{14}\text{N} + \text{Ag}$ Reactions at 35 MeV/Nucleon; H. Schelin, A. Galonsky, C.K. Gelbke, L. Heilbronn, B. Lynch, T. Murakami, B. Tsang, X. Yang, G. Zhang, F. Deák, Z. Seres, A. Kiss, J. Kasagi, B. Remington, *Bull. Am. Phys. Soc.* **33**, 979 (1988).
- Study of ($^{12}\text{C}, ^{12}\text{N}$) and ($^{12}\text{C}, ^{12}\text{B}$) Reactions at $E/A = 70$ MeV; N. Anantaraman, S.M. Austin, C. Djalali, J.A. Nolen, Jr., J.S. Winfield, A. Gillibert, Z.W. Long, and W. Mittig, *Bull. Am. Phys. Soc.* **33**, 979 (1988).
- Studies of Rotational Bands in Odd-Odd ^{174}Re ; W. Olivier, R. Aryaeinejad, W.T. Chou, W. McHarris, *Bull. Am. Phys. Soc.* **33**, 982 (1988).
- Ion-Optic Focusing for Production of a Uniform Charged-Particle Field; J. Bailey, C. Leakeas, E. Kashy, B. Sherrill, *Bull. Am. Phys. Soc.* **33**, 985 (1988).
- Extension of Second-Order Beam Optical Achromat Principle to Include Electrostatic Elements; D. Ioanovicu and J.A. Nolen Jr., *Bull. Am. Phys. Soc.* **33**, 986 (1988).
- Hadronic Excitation of the Delta-Resonance in Nuclei; P. Arve, G. Bertsch, *Bull. Am. Phys. Soc.* **33**, 991 (1988).
- Validity of DWBA for Intermediate-Energy Transfer Reactions; J.S. Winfield, E. Adamides, S.M. Austin, G.M. Crawley, C.A. Ogilvie, S. Robbins, B. Sherrill, M. Torres, and G. Yoo, *Bull. Am. Phys. Soc.* **33**, 1021 (1988).
- An Advanced Superconducting ECR Ion Source for Highly Charged Heavy Ions; *Bull. Am. Phys. Soc.* **33**, 1026 (1988).
- Inclusive Neutron Spectra at 0° from Nb-Nb and An-An Collisions at 800 MeV; N. Madey, W.M. Zhang, B.D. Anderson, A.R. Baldwin, B.S. Flanders, W. Pairsuwan, J. Varga, J.W. Watson, G. Westfall, *Bull. Am. Phys. Soc.* **33**, 1060 (1988).
- Superconducting Heavy-Ion Cyclotrons -- Recent Achievements; H. Blosser, *Bull. Am. Phys. Soc.* **33**, 1072 (1988).
- Resolution Tests of CsI(Tl) Scintillators Read Out by PIN Diodes; W.G. Gong, Y.D. Kim, G. Poggi, Z. Chen, C.K. Gelbke, B. Lynch, M. Maier, T. Murakami, B. Tsang, H.M. Xu, and K. Kwiatkowski, *Bull. Am. Phys. Soc.* **33**, 1078 (1988).
- Elastic Scattering of 210 MeV ^6Li Ions from ^{28}Si and ^{40}Ca ; A. Nadasen, A. McMaster, J. Tavormina, F.D. Becchetti, J.W. Janecke, P. Schwandt, J. Winfield, and R.E. Warner, *Bull. Am. Phys. Soc.* **33**, 1101 (1988).
- Mass of ^{39}Sc via the $^{40}\text{Ca}(^7\text{Li}, ^8\text{He})$ Reaction; M.F. Mohar, E. Adamides, W. Benenson, B.A. Brown, J. Clayton, E. Kashy, J.A. Nolen, Jr., B. Sherrill, J. Stevenson, and J.S. Winfield, *Bull. Am. Phys. Soc.* **33**, 1101 (1988).
- The $^{208}\text{Pb}(^7\text{Li}, ^6\text{Li}), (^7\text{Li}, ^6\text{He})$ Reactions at $E(^7\text{Li}) = 140$ MeV and the Single-Particle Levels and Stability of Heavy Nuclei ($A > 200$); F.D. Becchetti, D.A. Roberts, J.W. Janecke, A. Nadasen, J.S. Winfield, and C.A. Ogilvie, *Bull. Am. Phys. Soc.* **33**, 1101 (1988).
- DWBA and Coupled-Channel Analyses of Inelastic Scattering of 210 MeV ^6Li Ions to the First (2^+) Excited States of ^{12}C and ^{58}Ni ; M. McMaster, A. Nadasen, M. Finghal, F.D. Becchetti, J. Janecke, J. Winfield, R.M. Ronningen, P. Schwandt, and R.E. Warner, *Bull. Am. Phys. Soc.* **33**, 1102 (1988).
- Mass of ^{39}Sc via the $^{40}\text{Ca}(^7\text{Li}, ^8\text{He})$ Reaction; M.F. Mohar, E. Adamides, W. Benenson, B.A. Brown, J. Clayton, E. Kashy, J.A. Nolen, B. Sherrill, J. Stevenson, J.S. Winfield, C. Bloch, M. Lowe, W.E. Ormand, and J. van der Plicht, *Bull. Am. Phys. Soc.* **33**, 1102 (1988).
- Gamow-Teller Strength Distributions from Delayed Particle Emission of Nuclei Far From Stability: A Forecast for the Future; D. Mikolas, B.A. Brown and L. Zhao, *Bull. Am. Phys. Soc.* **33**, 1558 (1988).

Alpha Particle Emission from the Reactions of 35 to 93 MeV/u ^{16}O with ^{nat}Ni ; P.L. Gonthier, B. Bouma, D. Bleitz, T. Koppenol, P. Harper, G.D. Westfall, Z.M. Koenig, D. Fox, K. Wilson and D. Cebra, *Bull. Am. Phys. Soc.* **33**, 1562 (1988).

Populations of Neutron Unbound States Created in Heavy-Ion Reactions; L. Heilbronn, A. Galonsky, C.K. Gelbke, W. Lynch, T. Murakami, H.R. Schelin, M.B. Tsang, X. Yang, F. Deák, A. Kiss, Z. Seres, B.A. Remington and J. Kasagi, *Bull. Am. Phys. Soc.* **33**, 1572 (1988).

^{12}C -induced Transfer Reactions at $E/A = 50$ MeV; J.S. Winfield, E. Adamides, S.M. Austin, G.M. Crawley, M.F. Mohar, C.A. Ogilvie, B. Sherrill, M. Torres, G. Yoo, and A. Nadasen, *Bull. Am. Phys. Soc.* **33**, 1572 (1988).

Decay of Particle-Unbound Fragmentation Products in $^{14}\text{N} + \text{Ag}$ Reactions at 35 MeV/nucleon; T. Murakami, T.K. Nayak, W.G. Lynch, K. Swartz, D.J. Fields, C.K. Gelbke, Y.D. Kim, J. Pochodzalla, M.B. Tsang, F. Zhu and K. Kwiatkowski, *Bull. Am. Phys. Soc.* **33**, 1572 (1988).

Analysis of CCD-Recorded Central Collisions in a Streamer Chamber; C.A. Ogilvie, C. Djalali, S. Howsen, D. Krofcheck, A. Vander Molen, G. Westfall, K. Wilson and R. Tickle, *Bull. Am. Phys. Soc.* **33**, 1578 (1988).

Optical Model Potentials for 210 MeV $^6\text{Li} + ^{90}\text{Zr}$, ^{208}Pb ; A. Nadasen, P. Schwandt, J.S. Winfield, M.F. Mohar and R.E. Warner, *Bull. Am. Phys. Soc.* **33**, 1581 (1988).

Initial Performance of the NSCL K800 Superconducting Cyclotron; J.A. Nolen Jr., H.G. Blosser and the NSCL Cyclotron Group, *Bull. Am. Phys. Soc.* **33**, 1589 (1988).

High-Energy Gamma Ray Production in Light-Ion Induced Reactions; C.L. Tam, J. Stevenson, W. Benenson, J. Clayton, Y. Chen, E. Kashy, A.R. Lampis, D.J. Morrissey, M. Samuel, and J.S. Winfield, *Bull. Am. Phys. Soc.* **33**, 1601 (1988).

High-Energy Gamma Ray Production in the Reaction $^{136}\text{Xe} + \text{Sn}$ at Laboratory Energies of 66, 89 and 124 MeV/nucleon; J. Clayton, J. Stevenson, W. Benenson, Y. Chen, E. Kashy, A.R. Lampis, M.F. Mohar, D.J. Morrissey, T.K. Murakami, M. Samuel, B. Sherrill, and J.S. Winfield, *Bull. Am. Phys. Soc.* **33**, 1601 (1988).

Doubly-Decoupled Bands in Deformed Odd-Odd Nuclei; W.C. McHarris, W.-T. Chou and W.A. Olivier, *Bull. Am. Phys. Soc.* **33**, 1604 (1988).

Third International Conference on Nucleus-Nucleus Collisions *Saint-Malo, France, June 6-11, 1988*

Signals of a Phase Transition in Nuclear Fragmentation; W. Bauer.

^{12}C -Induced Transfer Reactions at Intermediate Energies; J.S. Winfield, E. Adamides, S.M. Austin, G.M. Crawley, C.A. Ogilvie, B. Sherrill, M. Torres, and G. Yoo.

Study of ($^{12}\text{C}, ^{12}\text{N}$) and ($^{12}\text{C}, ^{12}\text{B}$) Reactions at $E/A = 70$ MeV; N. Anantaraman, J.S. Winfield, S.M. Austin, E. Adamides, C. Djalali, J.A. Nolen, Jr., A. Gillibert, Z.W. Long, and W. Mittig.

Study of ($^{12}\text{C}, ^{12}\text{N}$) and ($^{12}\text{C}, ^{12}\text{B}$) Reactions at $E/A = 70$ MeV; N. Anantaraman, J.S. Winfield, S.M. Austin, E. Adamides, C. Djalali, J.A. Nolen Jr., A. Gillibert, Z.W. Long and W. Mittig.

Extended Emission Sources Observed via Two-Proton Correlations; T.C. Awes, Z. Chen, R.L. Ferguson, C.K. Gelbke, W.G. Lynch, F.E. Obenshain, F. Plasil, J. Pochodzalla, S. Pratt, H.M. Xu, and G.R. Young.

Relative Strengths of Equilibrated and Non-equilibrated Sources of IMF's in $E/A = 20-50$ MeV ^{14}N -Induced Reactions; K. Kwiatkowski, D.E. Fields, D. Bonser, R.W. Viola, V.E. Viola, C.K. Gelbke, D.J. Fields, W.G. Lynch, J. Pochodzalla, and M.B. Tsang.

Two-Body Collisions Energy Dependence; D. Ardouin, P. Schuck, A. Peghaire, Z. Basrak, G. Bizard, H. Delafrange, H. Doubre, C.K. Gelbke, C. Gregoire, A. Kyanowski, F. Lefebvres, W.G. Lynch, W. Mittig, J. Peter, J. Pochodzalla, J. Quebert, F. Saint-Laurent, B. Remaud, F. Sebille, B. Tamain, and Y.P. Viyogi.

Target Residues of the Interaction of copper with Intermediate-Energy ^{12}C Ions; N.T. Porile, S.Y. Cho, Y.H. Chung and D.J. Morrissey.

Interferometry Measurements in Heavy-Ion Reactions; W.G. Lynch.

Proceedings of the International Conference on Contemporary Topics in Nuclear Structure Physics
Cocoyoc, Mexico, June 9-14, 1988

Isospin Nonconservation in Light Nuclei; B.A. Brown, p. 395.

Beta Decay of ^{18}N to Alpha-Emitting States in ^{18}O and a Search for Parity Violation in ^{18}O ; Z. Zhao, M. Gai, B.J. Lund, S.M. Rugari, D. Mikolas, B.A. Brown, J.A. Nolen Jr. and M. Samuel.

Beta-Delayed Multi-Particle Emission in Light Unstable Nuclei: New Experimental Techniques and Shell Model Predictions; D. Mikolas and B.A. Brown, p. 31.

International Symposium on Heavy Ion Physics and Nuclear Astrophysical Problems
July, 1988

Heavy Ion Physics at the NSCL; S.M. Austin.

Fifth International Conference on Clustering Aspects in Nuclear and Subnuclear Systems
Kyoto, Japan, July 25-29, 1988

Levels in ^{16}O Relevant to $^{12}\text{C}(\alpha, \gamma)$ Helium Burning Studied with $^{12}\text{C}(^7\text{Li}, t)$ at $E(^7\text{Li}) = 70$ and 101 MeV; F.D. Becchetti, M.L. Dowell, P.M. Lister, J.W. Janecke, A. Nadasen, and J.S. Winfield.

Nuclear Reactions, Primordial Nucleosynthesis and the Solar Neutrino Problem; S.M. Austin.

Clustering and Beta Delayed Particle Emission in Mass 9; D. Mikolas, B.A. Brown and L. Zhao.

Beta Decay of ^{18}N to Alpha-Emitting States in ^{18}O and a Search for Parity Violation in ^{18}O ; Z. Zhao, M. Gai, B.J. Lund, S.M. Rugari, D. Mikolas, B.A. Brown, J.A. Nolen Jr. and M. Samuel.

Decay of Particle-Unbound Fragmentation Products in $^{14}\text{N} + \text{natAg}$ Reactions at 35 MeV/nucleon; T. Murakami, T.K. Nayak, W.G. Lynch, K. Swartz, D.J. Fields, C.K. Gelbke, Y.D. Kim, K. Kwiatkowski, J. Pochodzalla, M.B. Tsang, and F. Zhu.

1988 Applied Superconductivity Conference
San Francisco, CA, August 21-25, 1988

The Effects of Insulation on Potted Coils; A. Zeller, J. Dekamp, C. Magsig, J. Nolen, and A.D. McInturff.
Superconducting Cyclotron for Medical Application; H. Blosser, J. Bailey, R. Burleigh, D. Johnson, E. Kashy, T. Kuo, F. Marti, J. Vincent, A. Zeller, E. Blosser, G. Blosser, R. Maughan, Wm. Powers, and J. Wagner.

Magnetic Structure for a Superconducting Variable Frequency Electron Cyclotron Resonance Ion Source; T.A. Antaya, A.F. Zeller, N.M. Moskalik, G.H. Blosser, J.A. Nolen, and K.A. Harrison.

Complex Fragments Emitted in Excited States; C.K. Gelbke.

A Review of Studies for the Variable Frequency Superconducting ECR Ion Source Project at MSU; T.A. Antaya.

Fall 1988 APS Meeting
Santa Fe, New Mexico, October 13-15, 1988

Gamow-Teller Strength Distributions from Delayed Particle Emission of Nuclei Far from Stability: A Forecast for the Future; D. Mikolas, B. Brown and L. Zhao, *Bull. Am. Phys. Soc.* **33**, 1558 (1988).

Populations of Neutron-Unbound States Created in Heavy-Ion Reactions; L. Heilbronn, A. Galonsky, C.K. Gelbke, B. Lynch, T. Murakami, H. Schelin, B. Tsang, X. Yang, F. Deák, A. Kiss, Z. Seres, B. Remington and J. Kasagi, *Bull. Am. Phys. Soc.* **33**, 1572 (1988).

Decay of Particle-Unbound Fragmentation Products in $^{14}\text{N} + \text{Ag}$ Reactions at 35 MeV/nucleon; T. Murakami, T. Nayak, B. Lynch, K. Swartz, D.J. Fields, C.K. Gelbke, Y.D. Kim, J. Pochodzalla, B. Tsang, F. Zhu, and K. Kwiatkowski, *Bull. Am. Phys. Soc.* **33**, 1572 (1988).

Analysis of CCD-Recorded Central Collisions in a Streamer Chamber; C. Ogilvie, G. Crawley, C. Djalali, S. Howden, D. Krofcheck, A. Vander Molen, G. Westfall, K. Wilson, and R. Tickle, *Bull. Am. Phys. Soc.* **33**, 1578 (1988).

Optical Model Potentials for 210 MeV $^6\text{Li} + ^{903}\text{R}$, ^{208}Pb ; A. Nadasen, M. McMaster, M. Fingal, J. Tavormina, F.D. Becchetti, J.W. Janecke, P. Schwandt, J. Winfield, M. Mohar and R.E. Warner, *Bull. Am. Phys. Soc.* **33**, 1581 (1988).

Initial Performance of the NSCL K800 Superconducting Cyclotron; J.A. Nolen, Jr., H.G. Blosser and NSCL Cyclotron Group, *Bull. Am. Phys. Soc.* **33**, 1589 (1988).

High-Energy Gamma Ray Production in the Reaction $^{136}\text{Xe} + \text{Sn}$ at Laboratory Energies of 66, 89 and 124 MeV/nucleon; J. Clayton, J. Stevenson, W. Benenson, Y. Chen, E. Kashy, A. Lampis, M. Mohar, D. Morrissey, T.K. Murakami, M. Samuel, B. Sherrill, and J. Winfield, *Bull. Am. Phys. Soc.* **33**, 1601 (1988).

High-Energy Gamma Ray Production in Light-Ion-Induced Reactions; A. Tam, J. Stevenson, W. Benenson, J. Clayton, Y. Chen, E. Kashy, A. Lampis, D.J. Morrissey, M. Samuel, and J. Winfield, *Bull. Am. Phys. Soc.* **33**, 1601 (1988).

Doubly-Decoupled Bands in Deformed Odd-Odd Nuclei; Wm. McHarris, W.T. Chou and W. Olivier, *Bull. Am. Phys. Soc.* **33**, 1604 (1988).

Damping of Giant Resonances in Time-Dependent Density Matrix Theory; M. Tohyama and M. Gong.

10th Conference on the Application of Accelerators in Research and Industry
Denton, Texas, November 7-9, 1988

Tribology Studies Implantation of ^7Be in a Ceramic Test Sample; Wm. McHarris, M. Mallory, R. Ronningen, B. Sherrill, Y. Dardenne.

Compact Superconducting Synchrocyclotron Systems for Proton Therapy; H.G. Blosser.

Implanted ^7Be for Wear Studies; M.L. Mallory.

Use of Multipole Magnetic Fields for Making Fields, for Making Uniform Irradiations with Charged Particles; B. Sherrill.

Commissioning Experience with the Largest Superconducting Cyclotron, the NSCL K800; J. Nolen.

Invited Talks

Workshop on Nuclear Structure at Finite Temperature, KVI
Groningen, January 13-15, 1988

Fluctuations at High Excitation Energy; G. Bertsch.

XVI International Workshop on Gross Properties of Nuclei and Nuclear Excitations
Hirschegg, Kleinwalsee, Austria, January 18-22, 1988

Cascade Model; G. Bertsch.

Complex Fragment Emission in Intermediate-Energy Heavy-Ion Reactions; C.K. Gelbke.

Winter Workshop on Nuclear Dynamics V
February 22-26, 1988, Sun Valley, Idaho

Fluid Dynamical Model of Ultrarelativistic Heavy-Ion Collisions; L. Csernai, M. Gong, D.D. Strottman.

Transport Theory of Intermediate-Energy Heavy-Ion Reactions; W. Bauer.

Pion Production at Intermediate Energies; W. Benenson.

High-Energy Gamma Ray Production in Heavy-Ion Collisions; J. Stevenson.

22nd Fysilkan Paivat
Jyvaskyla, Finland, March 1988

A Review of ECR Sources for Applications in Nuclear and Atomic Physics; T.A. Antaya.

Spring Meeting of the APS
Baltimore, Maryland, April 18-21, 1988

Superconducting Heavy Ion Cyclotrons -- Recent Achievements; H.G. Blosser.

Second International Spring Seminar on Nuclear Physics -- Shell Model and Nuclear Structure: Where Do We Stand?
May 16-20, 1988, Capri, Italy

Theoretical Implications of the Empirical Modifications to One- and Two-Body Operators in the sd-Shell Region; B.A. Brown.

Fifth Gull Lake Nuclear Physics Conference
Gull Lake, Michigan, May 23-28, 1988

Nuclear Stopping at 100 MeV/Nucleon -- A Multipole Analysis; W. Bauer.

Nuclear Physics Summer School
Corvallis, Oregon, June 1988

Nuclear Fragmentation in Proton and Heavy-Ion Induced Reactions; W.G. Lynch.

CELSIUS Workshop
Uppsala, Sweden, June 1988

Pion Production Below Threshold; W. Benenson.

Third International Conference on Nucleus-Nucleus Collisions
Saint-Malo, France, June 6-11, 1988

Interferometry of Charged Particles in Intermediate-Energy Collisions; W.G. Lynch.

Gordon Conference on Nuclear Chemistry
New London, Connecticut, June 20-24, 1988

Pre-Equilibrium Neutron Emission at Intermediate Energies; A. Galonsky.

International Symposium on Heavy-Ion Physics and Nuclear Astrophysical Problems
Tokyo, July 21-23, 1988

Heavy Ion Physics at the NSCL; S.M. Austin.

Fifth International Conference on Clustering Aspects in Nuclear and Subnuclear Systems
Kyoto, July 25-29, 1988

Nuclear Reactions, Primordial Nucleosynthesis and the Solar Neutrino Problem; S.M. Austin.

1988 Applied Superconductivity Conference
San Francisco, California, August 21-25, 1988

Superconducting Cyclotron for Medical Application; H.G. Blosser.

International Conference on the Physics of Multiply-Charged Ions
Grenoble, France, September 1988

A Review of Studies for the Variable-Frequency Superconducting ECR Ion Source Project at MSU; T.A. Antaya.

American Chemical Society Symposium on the Interface Between Nuclear Structure and Reactions
Los Angeles, September 26-30, 1988

Heavy-Ion Charge Exchange as a Probe for Spin Strength; S.M. Austin.

Quark Matter 1988 Conference
Lenox, Massachusetts, September 26-30, 1988

Equation of State of Hadronic Matter; G. Bertsch.

Fall Meeting of the Physical Society of Japan
Ehime University, Matsuyama, Japan, October 3-6, 1988

Neutron Emission in Heavy-Ion Collisions; A. Galonsky.

Workshop on Microscopic Models in Nuclear Structure Physics
Oak Ridge, Tennessee, October 3-6, 1988

Present Status and Prospects for Shell Model Calculations; B.A. Brown.

International Workshop on Nuclear Dynamics at Medium and High Energies
Bad Honnef, West Germany, October 10-14, 1988

Subthreshold Pion Production; W. Benenson.

Pion Interferometry in Ultrarelativistic Collisions; G. Bertsch.

Complex Fragments Emitted in Excited States; C.K. Gelbke.

Fall APS Meeting
Sante Fe, New Mexico, October 13-15, 1988

Superconducting Heavy-Ion Cyclotrons -- Recent Achievements; H. Blosser.

1988 Science Computing and Automation Conference and Exposition
Philadelphia, October 25-27, 1988

A Network Protocol for Data Acquisition at NSCL; R. Fox.

International Workshop on EBIS Ion Sources
Brookhaven, New York, November 1988

ECR Ion Source Status 1988; T.A. Antaya.

Tenth International Conference on Applications of Accelerators in Research and Industry
Denton, Texas, November 1988

Operating Principles of Electron Cyclotron Resonance Ion Sources and a Survey of Current Areas of Development; T.A. Antaya.

ECR Ion Source Development for Super-Stripped Positive Ions in Accelerator and Atomic Physics Applications; T.A. Antaya.

Commissioning Experience with the Largest Superconducting Cyclotron, the NSCL K800; J.A. Nolen Jr.

Tribology Studies: ^7Be Implantation in a Ceramic Sample By Means of a Fragmented High-Energy ^{14}N Beam; M.L. Mallory.

Use of Multipole Magnetic Fields for Making Uniform Irradiations; B. Sherrill.

**Symposium on Nuclear Physics
Bombay, December 27-31, 1988**

Search for Exclusive Reaction Filters in Intermediate-Energy Heavy-Ion Collisions; N. Anantaraman.

Thesis Titles

Department of Physics (MSU)

Two-Particle Correlations at Small Relative Momenta, Measured for the Reactions $^{14}\text{N}+\text{Au}$ at $E/A=35$ MeV and $^{16}\text{O}+\text{Au}$ at $E/A=94$ MeV; Ziping Chen.

A Study of Statistical Equilibrium in a Nuclear System at Low Bombarding Energies; Jeong-Ho Lee.

Theses granted by other institutions based on research performed at the NSCL

Target Fragmentation in the Interaction of 12-16 MeV/nucleon ^{32}S with ^{165}Ho ; Coreen Casey.