Anthony K. Hyder

Professor of Physics
University of Notre Dame

Academic Origins

Doctor of Philosophy, Physics, 1971, Air Force Institute of Technology
Dissertation: "An Experimental and Theoretical Investigation of the Odd-Parity Spectrum of the $C1^{34}$ Nucleus"
Master of Science, Physics, 1964, Air Force Institute of Technology
Thesis: "Resonances in the $S^{32, 33, 34}$ (p, γ) $C1^{33, 34, 35}$ Reaction for Bombarding Energies in the One to Two MeV Range"
Bachelor of Science, Physics, 1962, University of Notre Dame

Appointments at Notre Dame

(2006-)
Professor of Physics, Director of Undergraduate Studies, Associate Department Chair, Department of Physics, University of Notre Dame.
Member of the department of Physics with responsibilities in graduate and undergraduate teaching, research, and outreach. Administrative responsibility for the programs of study for all Physics majors at the University.

(1993-2006)
Associate Vice President for Graduate Studies and Research, Professor of Physics, University of Notre Dame.
Serves the Vice President for Graduate Studies and Research in executing the Vice President's responsibilities, under the Provost, for the development and academic integrity of all post-baccalaureate work in the University, and for the overall administration of The Graduate School, its programs, courses of study, recruiting and admissions, fellowship, assistantship and stipend allocations, and other wide-ranging activities. Serves as the Provost's principal overseeing the operations of the tri-military ROTC program. For one year (2003) served as the interim Director of the Notre Dame-Department of Energy Radiation Laboratory.

(1991-1993)
Associate Vice President for Research, Professor of Aerospace Engineering, University of Notre Dame.
Responsible for the development and administration of the research activities of the University; for strategic planning and formulation of University policy related to research, industrial activities, and research compliance issues; for the evaluation of research quality and infrastructure; for decisions related to the commitment of University resources to research activities; and for representing the University on research and associated graduate-studies matters. Assisted the Vice President for Graduate Studies and Research by performing a variety of duties and exercising such authority as was delegated.

(1991-1995)
Research Fellow, Space Power Institute, Auburn University.
(Concurrent with the Notre Dame appointment)
During this period, completed several research-related activities underway at the time of accepting the appointment at Notre Dame, including editing a book on the nature of the space environment; advising graduate students; and investigating space applications of advanced batteries and fuel cells, radioisotope thermoelectric generators, and high-power microwave tubes. The Space Power Institute is the largest and most successful interdisciplinary research center at Auburn University and has been the primary source of support for almost 300 graduate students since its founding.

University Committees at Notre Dame

Committee on Research and Sponsored Programs (1991-2006)

President's Committee on Scholarship, Research, and Infrastructure (1993-1994)

University Committee on Washington Representation (1998-2004)

Chair, Joint Indiana University School of Medicine-University of Notre Dame Committee on the Combined M.D.-Ph.D. Program (1992-1994)

Graduate Council, observer (1993-2006)

D.C. Strategic Planning Group (1995-2002)

Jesse H. Jones Program Review Panels (1991-1993)

Faculty Research Program Review Panels (1994-2006)

Office of Information Technologies Strategic Planning Group (1996-2005)

Department of Energy–University of Notre Dame Radiation Laboratory Accelerator Readiness Review Team Chair (1994-1995)

Selected National Activities

In the recent past, served as an external reviewer for the National Academy of Sciences and National Research Council, the National Aeronautics and Space Administration, the American Institute of Aeronautics and Astronautics, and the Institute for Defense Analyses. In previous years, also served as a reviewer for the National Science Foundation, the Air Force Office of Scientific Research, the Army Research Office, the Office of Naval Research, and the Advanced Research Projects Agency.

Chaired the Science Panel of the Air Force Scientific Advisory Board. This panel reviews, for scientific quality, all basic research supported by the United States Air Force. In fiscal year 1994, Air Force support of basic research, principally at universities, exceeded a quarter of a billion dollars.

Awarded the Air Force Award for Exceptional Civilian Service (the highest award for service that can be presented to a civilian) by the Secretary of the Air Force.

Appointments at Auburn University

(1984-1991)
Associate Vice President for Research, tenured faculty appointments in Physics and Aerospace Engineering, Auburn University.
Responsible for developing the research capabilities of the university-at-large, for strategic planning and formulation of policy related to research, and for the administration of the university's research programs. Represented the university and the Vice President for Research on and off the campus on all research-related issues. In fiscal year 1990, awards for research grants and contracts reached $27 million and expenditures for research exceeded $64 million.

(1989-1991)
Auburn University Director, NASA Space-Grant College Program for Alabama.
Auburn is a member of a five-university consortium designated as a Space-Grant Consortium by the National Aeronautics and Space Administration. Each campus director is responsible for all space-grant activities on the respective campus, including administration of the space-grant fellowship program, curriculum development, research initiatives, and extension activities. The five campus directors constitute a board of directors responsible for the day-to-day activities of the consortium.

(1986-1990)
Founding Director, Center for Advanced Technologies, Auburn University.
The center was established as the primary umbrella organization on campus for interdisciplinary research through a $10 million-dollar, four-year research contract, the largest in the university's history. The center established an international collaboration of 11 universities and supported research in space-rated materials, space-qualified microelectronics, and space-environment simulation. Prepared the proposal on the basis of which the center grant was renewed in 1991.

(1985)
Founding Director, Space Power Institute, Auburn University.
The Space Power Institute is an interdisciplinary research center formed with an initial four-year base funding in excess of $8 million. Annual funding has averaged more than $5 million per year. The institute has simultaneously involved more than 60 faculty and graduate students in the study of technologies related to high-power electrical systems for use on spacecraft. At the time the award was made, it was the largest single research contract in the history of the university.

1982-1984)
Director of Contract and Grant Development, Office of the Vice President for Research and Dean of the Graduate School, and Associate Professor of Physics, Auburn University.
Responsible for the development of research in all schools and colleges of the university. Expenditures for research on campus grew from $6 million in fiscal year 1981 to more than $34 million in fiscal year 1985.

While at Auburn University

Served on the research committees of five Ph.D. candidates.

Taught each year in the Department of Physics (mechanics, modern physics, electricity and magnetism, optics, thermodynamics), or in the Department of Aerospace Engineering (the space environment). In recognition of teaching excellence, was selected by the Auburn University Circle of Omicron Delta Kappa, the national leadership honor society, as one of four faculty members inducted in 1986.

Founding Director of the University Center for Advanced Technologies, which united 25 faculty members and graduate students from six academic departments of the university and faculties of 11 other universities in an interdisciplinary research program focused on the behavior of systems in the space environment. Auburn was the leader of this international consortium which also included York University and the University of Toronto in Canada and, in the United Kingdom, the Royal Holloway and Bedford New College of the University of London, Aston University, University of Kent, St. Andrews University, Oxford University, Strathclyde University, University College of Swansea, University of Newcastle, and the Scottish Research Center.

Founding Director of the University Space Power Institute, which initially drew together more than 20 faculty and 40 graduate students in eight academic departments and 10 universities worldwide. Since 1984, the institute has received more than $47 million in research awards and has supported the work of 300 students. More than 150 master's theses and 60 Ph.D. dissertations have been completed through institute support.

Initiated and served as primary author of Auburn University's first long-range plan for research and graduate education. School, college, and department strategic plans were subsequently developed as extensions of the university plan. Auburn University research awards grew from $5.8 million to more than $25 million annually. Research expenditures grew from $24 million to more than $75 million annually.

Served as the university representative to a five-university consortium which developed a successful proposal to the National Aeronautics and Space Administration to be designated a Space-Grant University Consortium.

Served for five years (1986-1991) on the Board of Directors of the Southeastern Universities Research Association, which designed, constructed, and operates the Continuous Electron Beam Accelerator Facility (now the Thomas Jefferson National Accelerator Laboratory.) CEBAF is a $600-million high-energy electron accelerator operating in Newport News, Virginia, for the Department of Energy.

Authored the successful State of Alabama proposal to the Department of Energy EPSCoR (Experimental Program to Stimulate Competitive Research) program.

Appointments at Other Organizations and Institutions

(1981-1982)
Scientific Advisor to the Director for Research, Office of the Secretary of Defense (Research and Advanced Technology), Washington, D.C.
The Office of the Secretary of Defense (Research and Advanced Technology) developed policy and oversaw implementation of all basic research supported by the Department of Defense, a program which exceeded $700 million in fiscal year 1982. This office also

established policy for the $1-billion Defense Industrial Research and Development Program.

Designed, in 1981, the Department of Defense University Research Instrumentation Program, which has provided more than $150 million directly to universities for research equipment upgrades each year since 1982.

(1980-1982)
Physics Program Manager, Air Force Office of Scientific Research, Washington, D.C.
Established the national program of basic research supporting the advanced accelerator technology base, space-based power systems, plasma physics, and pulsed-power technologies. Established program goals in multidisciplinary research areas and exercised complete management authority for selecting and monitoring more than $6 million in basic research at more than 30 research institutions, primarily universities.

Established and coordinated multimillion-dollar, multidisciplinary research program for the federal government involving 40 university faculty at 25 academic institutions to advance fundamental research in accelerator design and plasma physics.

(1975-1979)
Chief, Atmospheric Branch, United States Air Force Technical Applications Center, Cocoa Beach, Florida.
Managed a major scientific component of the U.S. Atomic Energy Detection System. Directly managed a worldwide network of sensors, collection equipment, analysis laboratories, and evaluation groups involving more than 100 scientific personnel. Supervised 13 scientists and managed an annual budget of $5 million.

(1975-1979)
Adjunct Professor of Physics, Florida Institute of Technology; Adjunct Professor of Physics, Rollins College.
At the Florida Institute of Technology, taught graduate-level courses in physics and served on the thesis committee for three students. At Rollins College, taught undergraduate courses in mathematics and physics. Created three successful undergraduate science courses, based on the history of physics and the study of physics as a liberal art, which consistently attracted non-technical majors.

(1972-1975)
Associate Professor of Physics, United States Air Force Academy.
Selected to the tenured faculty position in Physics in 1975. At that time, each academic department was limited to one tenured faculty member in addition to the department chair. Originated two advanced laboratory courses for physics majors and taught eight undergraduate physics courses: engineering physics, quantum mechanics (two semesters), electricity and magnetism (two semesters), third-year physics laboratory, classical mechanics, and modern physics.

Developed safe and accurate methods of detecting covert obesity in humans and monitoring fluid loss in burn patients.

Developed methods for the rapid, accurate assay of nanogram quantities of deuterium in support of the national laser fusion program.

Received the United States Air Force Research and Development Award for 1974. (No more than five awards are made annually.)

Selected twice to be a Summer Research Associate at the Los Alamos National Laboratory.

(1972-1975)
Director, Radiation Laboratory, United States Air Force Academy.
Created a series of nuclear-physics experiments suitable for undergraduates. Constructed a 500-keV Van de Graaff accelerator and devised a laboratory course for undergraduates based on proton scattering and proton capture. Constructed a Cf^{252} neutron activation facility for faculty research and undergraduate laboratory experiments.

(1972-1975)
Director of Research, Department of Physics, United States Air Force Academy.
Developed the research plan for a 35-member faculty, evaluated program goals and progress, assisted faculty members in securing research funding, coordinated research funding for faculty and student programs, and established the policies and procedures governing faculty research activities.

Outside funding tripled and faculty and student publications doubled during the subsequent two-year period.

(1964-1972)
Staff Scientist, Aerospace Research Laboratories, Dayton, Ohio.
Designed and performed experiments in proton-capture and nuclear-structure physics, and performed theoretical calculations based primarily on the nuclear shell model. Directed maintenance and scheduling for a two-MeV particle accelerator facility. Installed and was responsible for the acceptance testing of an eight-MeV ICT tandem accelerator. (*Historical note: This was the last machine Robert Van de Graaff designed before his death.*)

Published hallmark experimental and theoretical studies of the structure of medium-mass nuclei and the properties of nuclear isotopic-analog states in s-d shell nuclei.

Professional Activities

As the Director or Co-Director of the Conference

Army Science Board 2004 Summer Study, Critical Technologies and Capabilities for FCS in Urban Combat and Stabilization Operations (2004-2005)

NATO Advanced Studies Institute on Multisensor Data Fusion, Pitlochary, Scotland (2000)

NATO Advisory Group on Aerospace Research and Development Symposium on Multispectral Sensing and Data Fusion, Lisbon, Portugal (1998)

NATO Advanced Studies Institute on High-Brightness Accelerators, Pitlochry, Scotland (1986)

NATO Advanced Studies Institute on the Behavior of Systems in the Space Environment, Pitlochry, Scotland (1991)

NATO Advanced Studies Institute on Defense Conversion Strategies, Pitlochry, Scotland (1995)

NATO Advisory Group on Aerospace Research and Development Symposium on Multisensor Systems and Data Fusion for Telecommunications, Remote Sensing, and Radar, Instituto de Defensa Nacional, Lisbon, Portugal (1997)

First Air Force Conference on Research Needs in Space Prime Power (1982)

Fifth Tamarron Conference on Foreign Switch Technology (1984)

Sixth Tamarron Conference on High-Current EML Switches (1986)

First Prospector Conference on Issues Pacing Space Technology (1990)

Army Research Office Conference on Mobile Power Systems (1990)

As a Member of the Technical Program Committee

Army Science Board 2009 Summer Study, the Future of the Manned Vehicles (2008-2009)

Army Science Board 2003 Summer Study, Challenges in Developing Increments II and III of FCS (2003-2004)

NATO RTA SET Panel Program Committee for the Symposium on Target Tracking and Sensor Data Fusion for Military Observation Systems, Budapest, Hungary, (2003)

NATO Advisory Group on Aerospace Research and Development 45th Anniversary Symposium on Future Aerospace Technology of Service to the Alliance, Ecole Polytechnique, Paris, France (1997)

NATO Advisory Group on Aerospace Research and Development Symposium on Remote Sensing, Ecole Nationale Superieure de l'Aeronautique it de l'Espace, Toulouse, France (1996)

American Institute of Aeronautics and Astronautics 34th Aerospace Sciences Meeting (1996)

International Topical Conference on Electron and Ion Beam Research and Development (Fifth,1982; Seventh, 1987)

International IEEE Pulsed Power Conference (Third, 1981; Fourth, 1983; Fifth, 1985; Sixth, 1987; Seventh, 1989; Eighth, 1991; Ninth, 1993; Tenth, 1995)

Tenth International Conference on High-Power Particle Beams (1994)

Second Tamarron Conference on Diffuse Discharge Switches (1982)
Third Tamarron Conference on Spark Gap Switches (1983)
Seventh Tamarron Conference on EML Diagnostic Techniques (1987)
Eighth Tamarron Conference on High-Power Spacecraft Electrical Systems (1988)

NATO Advanced Studies Institute on Fast Electrical and Optical Diagnostics Techniques, Castlevecchio, Italy (1983)

NATO Advanced Studies Institute on Radiative Processes in Discharge Plasmas, Pitlochry, Scotland (1985)

The First International Conference on the Applications of Diamond Films and Related Materials, Auburn University (1991)

Appointments to National and International Advisory Panels

Missile Defense Agency Advisory Board, member (2005-2009)

Defense Intelligence Agency MASINT Advisory Board (2005-)

Defense Intelligence Agency, Advanced Signatures Advisory Board (2003-)

National Ground Intelligence Center, University Expert (2005-)

North Atlantic Treaty Organization Research and Technology Agency, NATO Member-at-large, Sensor and Electronics Technology Panel (1998-2007)

North Atlantic Treaty Organization Advisory Group for Aerospace Research and Development (1994-1998)

Defense Intelligence Agency Advisory Board, member (1993-2005))

Editor, Imperial College Press Series on Space Technology, (1998-)

AIAA Journal of Power and Propulsion, Editorial Advisory Board (2000-2004)

Army Science Board, member (1998-2004, 2007-)

Air Force Scientific Advisory Board, member (1990-1994)
Chair, Science Panel, Air Force Scientific Advisory Board (1993-1994)
Chair, Panel on Technology Investments to Improve National Space Launch Capabilities, Air Force Scientific Advisory Board (1993-1995)
Advisor, Committee on Space Power Technology, Air Force Scientific Advisory Board (1989-1990)
Ad Hoc Member, Panel on Availability and Survivability of Militarily Relevant Commercial Space Systems, Air Force Scientific Advisory Board (2001)

National Aeronautics and Space Administration
Glenn Research Center, Power and Propulsion Review Committee (2003-2005)

National Research Council
Member, Panel on Predicting the Emergence of Disruptive Technologies (2007-)
Member, USSOCOM Standing Committee (2007-2009)
Panel on Enabling Concepts and Technologies within NASA's Pioneering Revolutionary Technology Program (2002-2003)
Committee on the Definition of a Research Program to Support UAV Technologies (1997-2000)
National Research Council Committee on the TOPAZ II International Program (1995-1996)
National Research Council Reviewer on the Space Station Project (1995)

Oak Ridge Associated Universities, Board of Directors (1994-1999)
Air Force Research Laboratory, Sensors and Electronics Materials Organizational Assessment Team, chair (1997-1998)
American Institute of Aeronautics and Astronautics (AIAA) Technology Management Committee, member (1997-)
The Air University Spacecast 2020 Advisory Board, Chairman (1993-1994)
The Air University Air Force 2025 Advisory Board, Chairman (1995-1996)
Institute for Defense Analysis, Air Force Laboratory Consolidation Advisory Group (1997)
Executive Committee, Power Systems Review Panel, Chair (1992-1994)
Technology Investment Strategy Planning Group (1995-1996)
National Technology Transfer Center, Office of Technology Applications, Technology Panel Chair (1989-)
California Institute of Technology Jet Propulsion Laboratory Advisory Board on Space Environmental Effects (1990-1995)
Southeastern Universities Research Association Board of Directors (1986-1991)
Alabama Space-Grant Consortium Board of Directors (1989-1991)

Honors and Professional Societies

Phi Beta Kappa Alumnus Member (Epsilon of Indiana), (Fall, 2006)
Distinguished Alumnus Award, Air Force Institute of Technology (2005)
United States Air Force Research and Development Award (1974)
Air Force Award for Exceptional Civilian Service, Secretary of the Air Force (1994)
Patriotic Civilian Service Award, Secretary of the Army (1999, 2001)
2002 Distinguished Alumnus Award, Tau Beta Pi (Ohio Eta)
Air Force Institute of Technology Ph.D. Fellow (1967-1971)
Los Alamos National Laboratory Summer Fellow (1973 and 1974)
Institute of Electrical and Electronics Engineers, Senior Member
American Institute of Aeronautics and Astronautics, Senior Member
American Physical Society (1962-1987, 2000-)
Sigma Xi (Research Honor Society)
Tau Beta Pi (Engineering Honor Society)
Sigma Pi Sigma (Physics Honor Society)
Omicron Delta Kappa (Leadership Honor Society)
Certified Clockmaker, National Association of Watch and Clock Collectors, 2000

Consulting Activities

Toffler Associates, Manchester, MA
National Research Council, Washington, D.C.
MITRE, McLean, VA
National Ground Intelligence Center, Charlottesville, VA
Defense Intelligence Agency, Washington, DC

Major Research Grants

North Atlantic Treaty Organization, Scientific Affairs Division, principal director, "to organize and conduct an Advanced Studies Institute on multisensor data fusion theory and applications," $210 thousand from NATO and the US and Canadian Departments of Defense, and industry (1999-2000)

North Atlantic Treaty Organization, Scientific Affairs Division, principal director, "to organize and conduct an Advanced Studies Institute on high-brightness accelerators," 1.9 million Belgian Francs, plus $65 thousand from the Office of Naval Research and $50 thousand from the Advanced Research Projects Agency (1985-1986)

Department of Defense, project director, "to establish the Auburn University Space Power Institute and to conduct interdisciplinary research related to the generation, transport, conditioning, and storage of electrical power aboard a spacecraft," $5.7 million (1985-1990)

Department of Defense, project director, "to conduct a broad-based, interdisciplinary, and inter-institutional research program on space-rated materials, space-qualified microelectronics, and space-environment simulation," $9.9 million (1986-1991)

NASA Center for the Commercial Development of Space, principal author, "to establish a Center for the Commercial Development of Space Power which will identify technologies critical to the economic deployment of power systems and advance the state-of-the-art of those technologies," $5 million (1988-1992). Renewed 1992-1997.

NASA Space-Grant College, co-principal director, "to establish in the State of Alabama a consortium of universities collectively identified as space-grant institutions with the objective of promoting the contributions of the arts, humanities, science, and engineering disciplines to the national space agenda," $1.6 million (1989-1994)

North Atlantic Treaty Organization, Scientific Affairs Division, principal director, "to organize and conduct an Advanced Studies Institute on the behavior of systems in the space environment," 800 thousand Belgian Francs, plus $100 thousand (1990)

Department of Energy EPSCoR planning grant, principal director, "to develop a strong statewide academic and research infrastructure that will enhance and support the Department of Energy mission, primarily by improving the number of qualified, skilled students who enter and complete graduate programs in areas of critical need to energy-related research and improving the capability of the Alabama institutions to support the

DoE goal of supplying the nation with the energy resources, technologies, and information needed for economic progress and national security," $20 thousand (1991)

Department of Energy EPSCoR Graduate Fellowship Grant, principal director, "to establish graduate student fellowship grants designed to support and enhance graduate education in energy-related areas within the State of Alabama," $250 thousand (1991)

NASA research grant, principal investigator, "to conduct research on the application of micromechanical technologies to the autonomous operation of spacecraft," $30 thousand (1993)

North Atlantic Treaty Organization, Scientific Affairs Division, principal director, "to organize and conduct an Advanced Studies Institute on Defense Conversion Strategies with special emphasis on states of the former Soviet Union," 2.1 million Belgian Francs, plus additional support from the Office of Naval Research, $50 thousand; European Office of Aerospace Research and Development, $10 thousand; the British Ministry of Trade and Industry, £6.3 thousand; Army Research Office, $10 thousand; ICI Environmental, Inc., $10 thousand; and the National Technology Transfer Center, $60 thousand (1995-1996)

Argonne National Laboratory, principal director, "to implement promising strategies of defense conversion and assess the validity of the conversion activity within the framework of environmental issues," $15 thousand (1995)

Publications

Papers in Refereed Journals

"A Century of Aerospace Electrical Power Technology", (invited review article) *AIAA Journal of Power and Propulsion*, November, 2003.

"Novel Techniques for the Thermal Management of Space-Based, High-Power Microwave Tubes," co-authors M.F. Rose, R. F. Askew, L. Chow, A. S. Gilmour, and A. Faghri, *IEEE Transactions on Electron Devices,* Vol. 38, No. 10, October 1991.

"Repetitive Phenomena in Dielectrics," co-authors M. Trevenor and J. Laghari, *IEEE Transactions on Electrical Insulation, El-22,* No. 4, 517 (1987).

"Prime Power for High-Energy Military Space Systems," co-author P. J. Turchi, *Aeronautics and Astronautics,* September 1982.

"Simplified Body-Composition Analysis Using Deuterium Dilution and Deuteron Photodisintegration," co-author M. J. Stansell, *Aviation, Space, and Environmental Medicine, 47,* 839 (1976).

"Nondestructive Fuel Assay of Laser Targets II. Photonuclear D (γ, n) Method," co-authors J. T. Caldwell, H. F. Atwater, E. H. Farnum and R. J. Fries, *Nuclear Instruments and Methods, 126,* 293 (1975).

"A High-Precision Neutron Time-of-Flight Facility," co-authors D. W. Glasgow et al., *Nuclear Instruments and Methods, 114,* 541 (1974).

"Properties of Levels in Cl^{34}," co-author G. I. Harris, *Physical Review C, 4,* 2046 (1971).

"Properties of P^{30} Levels from the Reaction Si^{29} (p, γ) P^{30}: II," co-authors G. I. Harris and J. Walinga, *Physical Review, 187,* 1413 (1969).

"Reaction S^{36} (p, γ) Cl^{37} and Properties of Cl^{37}," co-authors G. I. Harris, J. Perrizo and F. Kendziorski, *Physical Review, 169,* 899 (1968).

"Properties of P^{30} Levels from the Si^{29} (p, γ) P^{30} Reaction: I," co-author G. I. Harris, *Physical Review, 157,* 958 (1967).

"Isobaric Analog States with the $1f_{7/2}$ Configuration in Cl^{37}," co-author G. I. Harris, *Physics Letters, 24B,* 273 (1967).

"A Second O+, T+1 Level in P^{30}," co-author G. I. Harris, *Physics Letters, 25B,* 210 (1967).

"The Study of Nuclear Excited States by Means of the (p, γ) Reaction," *OAR Research Review, 6,* No. 4, p. 4, August 1966.

"The 1505-keV Resonance in Si^{29} (p, γ) P^{30} and Properties of P^{30} Levels," co-author G.I. Harris, *Physics Letters, 22,* 159 (1966).

Papers Appearing in Proceedings

" Power for a New Century in Space," co-author Y. Jones-King, Proceedings of the NATO RTO Sensors and Electronics Technologies Panel Symposium on Space-Based Observation Technologies (classified appendix), 16-18 October 2000, Samos, Greece.

"Innovations and Pitfalls in International Technology Transfer," co-authors J. Angelo, R. Post, and M. Wacks, *SPECTRUM '92,* Boise, Idaho, 1992.

"Space Power Education," co-authors L. Gordon and F. Rose, *Proceedings of the Seventh International IEEE Pulsed Power Conference,* Monterey, California, 1989.

"Report on the International Conference on Plasma Science and Technology, Beijing, China," co-author M. Kristiansen, *Office of Naval Research Far East Scientific Bulletin, 12,* No. 1, January 1987.

"Report on the Sixth International Conference on High-Power Particle Beams, Beams '86," co-author M. Kristiansen, *Office of Naval Research Far East Scientific Bulletin, 12,* No. 1, January 1987.

"Research Issues in Power Conditioning," co-authors M. Gundersen et al., *Proceedings of the 1986 (Seventeenth) Power Modulator Symposium,* Hyatt Seattle, Seattle, Washington, June 1986.

"Pulsed Power Education," co-authors M. Kristiansen et al., *Proceedings of the Fourth International IEEE Pulsed Power Conference,* Albuquerque, New Mexico, 1983.

"Modular Instructional Material in Pulsed-Power Technology," co-authors M. Kristiansen et al., *Proceedings of the Third IEEE International Pulsed Power Conference,* Albuquerque, New Mexico, June 1981.

"Deuterium Assay Using Deuteron Photodisintegration," co-authors A. Toich and K. Smith, *Journal of the Colorado-Wyoming Academy of Science, 7,* No. 6 (1975).

"The USAF Academy Van de Graaff Accelerator Facility," co-authors D. Blessinger and V. Webb, *Journal of the Colorado-Wyoming Academy of Science, 7,* No. 6 (1975).

"A Compton Scattering Student Laboratory Using Coincidence Techniques," co-authors D. Clements, J. Racher and B. Webb, *Journal of the Colorado-Wyoming Academy of Science, 7,* No. 6 (1975).

"A 4-π Neutron Detector for Deuterium Assay Studies," co-authors J. G. Baker and C. R. Fraime, *Journal of the Colorado-Wyoming Academy of Science, 7,* No. 5 (1974).

"Gamma- and X-Ray Studies in Ho^{164}," co-authors M. Hallada, K. Smith, J. Clifford, and J. Head, *Journal of the Colorado-Wyoming Academy of Science, 7,* No. 5 (1974).

"The Beta-Decay End-Point Energies of Ho^{164}," co-authors J. Debes, R. Echard and H. Clifford, *Journal of the Colorado-Wyoming Academy of Science, 7,* No. 5 (1974).

"Shell-Model Calculations in Mass 34 Nuclei," co-authors S. Maripuu and G. I. Harris, *Bulletin of the American Physical Society, 17,* 91 (1972).

"The S^{33} (p, γ) $C1^{34}$ Reaction and Properties of Levels in $C1^{34}$," co-author G. I. Harris, *Bulletin of the American Physical Society, 16,* 59 (1971).

"Shell-Model Calculations of Odd-Parity Levels in Mass 33 and 34 Nuclei," co-author G. I. Harris, *Bulletin of the American Physical Society, 16,* 59 (1971).

"Elastic and Inelastic Scattering of 8.0-MeV Neutrons from Calcium," co-authors J. C. Manthuruthil, J. D. Brandenberger, and K. C. Chung, *Third Conference on Neutron Cross Sections and Technology,* March 1971.

"Odd-Parity Levels in S^{34}/ $C1^{34}$ for the Shell Model," co-authors S. Maripuu and G. I. Harris, *Bulletin of the American Physical Society, 16,* 1166 (1971).

"Levels in $C1^{37}$ fron the S^{36} (p, γ) $C1^{37}$ Reaction," co-authors G. I. Harris and F. R. Kendziorski, *Bulletin of the American Physical Society, 12,* 92 (1968).

"Properties of P^{30} Levels," co-authors G. I. Harris and J. Walinga, *Bulletin of the American Physical Society, 13,* 1372 (1968).

"Energy Levels of P^{30}," co-author G. I. Harris, *Bulletin of the American Physical Society, 12,* 73 (1967).

"Properties of P^{30} Levels Determined by Angular Correlation Measurements in the Si^{29} (p, γ) P^{30} Reaction," co-authors L. W. Seagondollar and G. I. Harris, *Bulletin of the American Physical Society, 11,* 65 (1966).

"Gamma-ray Measurements at Resonances in the S^{36} (p, γ) $C1^{37}$ Reaction," co-authors F. R. Kendziorski, G. I. Harris, and J. J. Perrizo, *Bulletin of the American Physical Society, 11,* 80 (1966).

"A Novel Method for Accumulating Background-Free, Gamma-Ray Spectra," co-authors D. V. Brietenbecher and D. D. Watson, *Bulletin of the American Physical Society, 11,* 605 (1966).

"Resonances in the S^{36} (p, γ) $C1^{37}$ Reaction for Proton Energies in the 800-1800 keV Range," co-authors J. J. Perrizo, G. I. Harris and F. R. Kendziorski, *Bulletin of the American Physical Society, 11,* 604 (1966).

"Resonances in the $S^{32, 33, 34}$ (p, γ) $C1^{33, 34, 35}$ Reactions," co-authors W. A. Anderson and G. I. Harris, *Bulletin of the American Physical Society, 9,* 440 (1964).

Representative Technical Reports

"Technology Challenges to Improve National Space Launch Capabilities," principal author, Air Force Scientific Advisory Board Ad Hoc Panel Study, Washington, 1995.

"Information Systems Architectures," co-author, Air Force Scientific Advisory Board Summer Study, Newport Beach, California, 1993.

"Proceedings Workshop on Applications of Microelectromechanical Devices," with C. Johnson et al., Auburn University Space Power Institute Special Report, Park City, Utah, 1993.

"Advanced Technology Options for Delay and Denial," co-author, Air Force Scientific Advisory Board Ad Hoc Panel Study, Washington, 1992.

"Proceedings of Prospector III: Radioisotope Thermoelectric Generator Power Application Workshop," with M. F. Rose et al., Auburn University Space Power Institute Special Report, Park City, Utah, 992.

"Proceedings of Prospector II: High-Energy-Density Power Sources," co-author with M. R. Rose et al., Auburn University Space Power Institute Special Report, Auburn, Alabama, 1992.

"Technology Investment Options to Support the Strategy of Global Reach-Global Power," co-author, Air Force Scientific Advisory Board Summer Study, San Diego, 1992.

"Air Force Space Power Technology Options," co-author, Air Force Scientific Advisory Board Ad Hoc Panel Study, Washington, 1991.

"Proceedings of Prospector I: Key Issues in Space Technology. Thermal Management of Space-Based High Power RF Sources," with M. F. Rose, Space Power Institute Special Report, Auburn University, 1990.

"Proceedings of the Workshop on Mobile Power Sources," co-author with M. F. Rose, Auburn University Space Power Institute Special Report, Duke University, 1990.

"Thermal Management of Space-Based, High-Power Microwave Tubes," co-authors M. F. Rose et al., U. S. Air Force Rome Air Development Center, Rome, New York, 1989.

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