

# AAni Aprahamian

## Frank M. Freimann Professor of Physics



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### Education

Ph.D. Clark University, Worcester, Massachusetts 1986  
 B.A. Clark University, Worcester, Massachusetts 1980

### Experience (recent)

2017 Physical and Life Sciences External Review, LLNL  
 NSF panel, NNSA centers of excellence panel

2016-2017 **Vice-Chair of National Academies Committee on the “Science of the EIC”**

2016 Chair of External Review of Physics Department, IU Bloomington

2016 External Review of Physics Department, Texas A&M University

2015-present U.S. Liaison for the International Union of Pure and Applied Physics (IUPAP)  
 Commission on Nuclear Science (C-12)

2015-present Member of IUPAP Working Group-10 on Astro-Particle Physics (APpic)

2014 Chair of American Institute of Physics, “Physics Today” Advisory Board

2014 Chair of the APS Division of Nuclear Physics

2014 Member of Nuclear Science Advisory Committee

2010 **Vice-Chair of National Academies Decadal Survey of Nuclear Physics (NP2010)**

2010-2015 Member of Board of Directors for South Dakota Science and Technology  
 Authority (Sanford Underground Laboratory)

2008-2010 Co-Chair of NSAC subcommittee on **Isotope Production and Applications**

2006-2010 Chair of Scientific Council of GANIL (Caen, France)

2006-2008 Program Director for **Nuclear Physics** and **Particle & Nuclear Astrophysics** at the  
 National Science Foundation

## Honors, Awards, and Professional Memberships

**Elected as secretary general of the International Union of Pure & Applied Physics Commission on Nuclear Physics: C-12, October, 2017.**

**Recognized by the American Physical Society as an “Outstanding Referee”, January 2016**

**Election to the International Union of Pure & Applied Physics Commission on Nuclear Physics: C-12, January 2015 –present**

**Elected to the IUPAP International committee on AstroParticle Physics, ApPIC, WG- 10, 2016**

**Appointed by Associate Laboratory Director for Nuclear & Particle Physics to Search committee for permanent Director of the BNL Isotope Program, 2014**

**Appointed to Institute of Physics panel to evaluate health of physics research in the UK, 2011-2012**

**Appointed Science Advisory Board to Alikhanyan National Laboratory by prime minister of Armenia, 2011**

**Elected as advisor to the Mexican Physical Society, 2011**

**Appointed to the Board of Directors of South Dakota Science and Technology Authority for Sanford Laboratory, 2010-2021**

**National Science Academy of Republic of Armenia Elected Foreign member, 2008**

**NSF Director’s Award for Collaborative Integration, 2008**

**Provost’s Recognition Award, ND vs. Pitt Football game on the field, 2008**

**College of Arts & Letters Award of Appreciation, Notre Dame, 2006**

**Presidential Award, University of Notre Dame, 2003**

**Women in Science** 1 of 3 panelists at session of “**Most Influential Women in Science and Scientific Publishing**” at the 49<sup>th</sup> Annual Meeting of the Council of Science Editors, May 21, 2006

**Fellow** Elected Fellow of the **AAAS**, 2008

Elected Fellow of the **American Physical Society**, 1999

**Reilly Center for Science, Technology and Values**, Notre Dame, 2006

**The Collegium Common Room** (The Liberal Arts and the 21<sup>st</sup> Century Intellectual Quest), 2007, 2008, 2009, 2010

**Member** AAAS, ACS, APS, Sigma Xi, New York Academy of Science, Mexican Physical Society

**Academy Member** Science Academy of Republic of Armenia, Foreign Member

<b>Reviewer</b>	<p>Phys. Rev. Lett., Phys. Rev. C, Phys. Lett. B, Nucl. Phys. A, European Physics Journal, Physica Scripta, Nature Physics, NIM</p> <p>U.S. Civilian Research &amp; Development Foundation (CRDF)</p> <p>International Science &amp; Technology Center, 2005-2006, (ISTC: Non-proliferation through Science Cooperation)</p> <p>National Science Foundation</p> <p>American Institute of Physics</p> <p>Department of Energy</p> <p>Institute of Physics (United Kingdom)</p> <p>Fondazione Cassa di Risparmio di Padova e Rovigo (Italy)</p> <p>National Research Councils (US and Canada)</p>
<b>Editor</b>	<p><b>Capture Gamma-Ray Spectroscopy and Related Topics</b>, AIP Conference Proceedings, Vol. 819, 2006.</p> <p><b>Mapping the Triangle</b>, AIP Conference Proceedings 638, 2002.</p> <p>Journal of Research of the National Institute of Standards and Technology, 2000</p>

## External Committees - International

### Scientific Advisory Committees

JINA-CEE	<b>International Advisory Committee, 2015-2017</b> <b>MA-1 Coordinator, 2015-2017</b>
CAARI IUPAP	<b>Conference on Applications of Accelerators in Research &amp; Industry, 2016</b> <b>US representative to C-12 (Nuclear Physics) and member of WG-10 (Astroparticle Physics)</b>
JINA	<b>International Advisory Committee, 2012-2015, 2015-2020</b>
NNSA	<b>Center of Excellence for Stockpile Stewardship, 2015-2018</b>
TUNL	<b>Science Advisory Committee to TUNL, 2014, 2016</b>
IOP	<b>Review of Physics in the United Kingdom, 2011-2012</b>
ANL	<b>Science Advisory Board for Alikhanian National Laboratory (ANL), Republic of Armenia, 2011</b>
FRIB	<b>Facility for Rare Isotope Beams- Science Advisory Committee (2009-present)</b>
InComEx	<b>International committee of experts to evaluate science in Armenia (2009)</b>
FUSTIPEN	<b>Board member, France-US collaboration on Theory, 2009-present</b>

- NSF** Committee to write policies on International Collaborations for the Mathematical and Physical Sciences Directorate as a representative of Physics Division (2008)
- OECD** Nuclear Science Representative on OECD global Nuclear Forum (2007)
- GSI** JINA representative to the **EMMI** Helmholtz Alliance to study “Extremes of Density and Temperature: Cosmic Matter in the Universe”, Germany (2007-2012), 2013- present
- GANIL** **Chair** of scientific council, Caen, France (2007-2011)
- ISTC Collaboration with Armenia: 2006-2011**
- “Radiological Characterization and Database Creation in Support of ANPP Decommissioning Planning”

## External Committees – National

### National Academies

**Co-Chair, NRC committee on the Science of the EIC, 2017-2018**

**Vice-Chair, NRC committee for decadal survey of Nuclear Physics 2010, (2010-2012)**

NRC Committee on **Smaller Facilities**, 2003-2005

**FRIB Science Advisory Committee, 2014- present**

### Nuclear Science Advisory Committee

Member of Long Range Plan Writing Group, 2015

Ex-officio member of NSAC as the chair of the Division of Nuclear Physics (APS-DNP), 2014-2015

Co-chair, NSAC Subcommittee on Isotope Production and Applications, 2008-2010

DOE/NSF Nuclear Science Advisory Committee (NSAC), 2004-2006

NSAC Subcommittee on **revisiting priorities of the 2002 LRP for Nuclear Science**, 2005

### American Institute of Physics

#### American Physical Society

**Chair of the DNP Fellowship Committee, 2016**

**Appointed to Physics Policy Committee of the APS** January 1, 2013-December 31, 2015

**“Physics Today” Advisory Committee** 2011-2012, 2012-2015

**“Physics Today” Advisory Committee Chair**, 2015

**Hans Bethe Prize Committee Chair**, 2014

**Committee on Informing the Public, 2010-2012**

**Forum on International Physics: Nomination Committee, 2010**

**Tom W. Bonner Prize Selection Committee, Chair, 2007**

**Tom W. Bonner Prize Selection Committee, Vice Chair, 2006**

**Committee on International Freedom of Scientists, 2002-2006**

**Search Committee to find a successor for Editor of Reviews of Modern Physics, 2005**

**APS Committee on the Status of Women**

**SDSTA South Dakota Science and Technology Authority, 2009-present**

**RTUVT Radiological Technologies University-VT Advisory Board , 2016-present**

**American Physical Society's Division of Nuclear Physics**

**Chair of DNP Fellowship Selection Committee, 2016**

**Chair of DNP, 2014**

**DNP Chair line duties, 2012-2016**

**Chair of Mentoring Award Committee, 2010, 2011, 2014**

**Chair of Dissertation Selection Committee, 2014**

**Member of Dissertation Selection Committee, 2015**

**Program Committee Chair, 2012, 2013**

**Elected as VICE-Chair, APS Division of Nuclear Physics, 2012**

**Hans-Bethe Award Selection Committee (2012, 2013, 2014)**

**Program Committee (2012-2013)**

**Fellowship Committee, 2008-2010**

**Executive Committee, 2005-2007**

**Program Committee, 2002-2004**

**WECAN (Women Encouraging Competitive Advancement in Nuclear Science) Steering Committee of the Division of Nuclear Physics, 2003-2005**

## **Facility/Center Executive Committees**

**RIBSS Advisory Committee, Center for RadioActive Ion Beam Studies for Stewardship Science, NNSA center of excellence, 2015-present (Chair in 2016, 2017)**

**TUNL (Triangle Universities Nuclear Laboratory) Science Advisory Committee, 2011, 2013, 2014**

**FUSTIPEN board member (France-US Theory Collaboration), 2010 - present**

**Facility for Rare Isotope Beams, Science Advisory Committee, 2009-2012, 2013-2016**

**FRIB Users Executive Committee, 2009-2012**

**NSCL Program Advisory Committee, 2009-2015**

**JINA** (Joint Institute for Nuclear Astrophysics), Executive Committee, 2002-present

**ATLAS** Users Executive Committee (Argonne National Laboratory), 2004-2006 (served as chair 2005)

**National Laser Users Facility** Steering Committee, University of Rochester, 2004-2006

**NSCL** Users Executive Committee, 2002-2005

**LANSCÉ**, Nuclear Physics PAC, Los Alamos National Lab, 2002-2005

**HRIBF**, Holifield Radioactive Ion Beam Facility Users Group, Oak Ridge National Laboratory, Oak Ridge, TN (served as chair 2002-2003)

**GEANIE** Detector Council, Los Alamos National Laboratory, 2000-2002

## Advisory Committees for Conferences in the past 10 years

**International Advisory Committee for Advances in Radioactive Isotope Science**, Keystone, CO, May28-June2, 2017

**International Advisory Committee for Capture  $\gamma$ -ray Spectroscopy**, Shanghai, China, September 18-22, 2017.

**International Advisory Committee for the p-process workshop**, Notre Dame, IN, June 29-July 1, 2017

**International Advisory Committee** for NIC XIV to take place in Niigata, Japan, June 19-24, 2016.

**International Advisory Committee** for Latin American Symposium on Nuclear Physics and Applications, Medellin, Columbia, November 30-December 4, 2015.

**International Science Organizing Committee** for 21<sup>st</sup> International Conference on Few Body Problems in Physics, Chicago, IL, May 18-22, 2015.

**International Advisory Committee** for CGS-15 "Capture Gamma-Rays and Related Topics", Dresden, Germany, August 25-29, 2014.

**International Advisory Committee** for "Nuclear Structure 2014" at Triumf, Vancouver, Canada, July 20-25, 2014.

**International Advisory Committee** for ARIS\_2014, Advances in Radio-isotope Science, June 1-6, 2014, ITO International research center, University of Tokyo, Tokyo, Japan.

**International Advisory Committee** for “Nuclear Data for Science and Technology”, NY, NY, March 4-8, 2013.

**International Advisory Committee** for “Beauty in Physics: Theory and Experiment” held in Cocoyoc, Mexico in Honor of the 70<sup>th</sup> Birthday of Franco Iachello, May 14-18, 2012.

**International Advisory Committee** for “Horizons of Innovative Theories, Experiments, and Supercomputing in Nuclear Physics” New Orleans, LA, June 2012.

**International Advisory Committee** for “14th International Symposium on Capture Gamma Ray Spectroscopy and Related Topics” held at the University of Guelph, Guelph, Ontario, Canada, August 28-September 2, 2011.

**International Advisory Committee** for “p-process workshop” held in Istanbul, Turkey, May 25-27, 2011.

**International Advisory Committee** for “Rutherford Centennial Conference on Nuclear Physics” held August 8-12, 2011 at the University of Manchester, Manchester UK.

**International Advisory Committee** for “21st European Conference on Few-Body Problems in Physics”, held August 29-September 3 in Salamanca, Spain, 2010.

**International Advisory Committee** for 10<sup>th</sup> Topical Conference on Giant Resonances, “Collective motion in nuclei under extreme conditions” (COMEX 3), East Lansing, MI, June 2-5, 2009

**International Advisory Committee** for ENAM’08, 5<sup>th</sup> International Conference on Exotic Nuclei and Atomic Masses, held in Poland in 2008.

**International Advisory Committee** for Capture Gamma-Ray Spectroscopy 13, in Koeln, Germany, August 25-29, 2008.

**International Advisory Committee** for the 2007 International Conference on Nuclear Data for Science and Technology, Nice, France, April 22-27, 2007.

**International Advisory Committee** for the conference on exotic nuclei, Sanibel Island, FL, November 11-17, 2007.

**International Advisory Committee** for 9<sup>th</sup> Topical Conference on Giant Resonances, “Collective motion in nuclei under extreme conditions” (COMEX 2), Germany, June 20-23, 2006.

**International Advisory Committee** for International Conference on Nuclear Data for Science & Technology, Santa Fe, NM, September 2004.

## Organizer

**Nuclear Astrophysics sessions, Gordon Research Conferences, Nuclear Chemistry, New London, NH, June 18-23, 2017.**

**CAARI 2016 organizer, (Conference on application of Accelerators in Research & Industry”, Fort Worth, TX, Oct. 30 - Nov. 4, 2016**

**“Low metallicity nucleosynthesis and neutron capture processes”, JINA-CEE Virtual Mini-Workshop, December 11, 2014**

**“Nuclear Science and Society”, ND London, October 27-29, 2014**

**“Climate Change and the Common Good: Security, Sustainability, Policy” University of Notre Dame, Notre Dame, IN, April 8-10, 2013**

**“Beauty of Physics Theory and Experiment” Hacienda Cocoyoc, Morelos, Mexico, May 14-18, 2012**

**“Nuclear Structure 2012”, Argonne National Laboratory, August 13-17, 2012**

**“Waltzing to the Nuclear Limits”** A symposium in honor of Lee Riedinger, Hilton Head Island, SC, February 25-27, 2011

**International Technical Program Committee (IPC) of ND-2007** to take place in Nice, France, April 22-27, 2007

**CGS-12**, International Conference on Capture  $\gamma$  Spectroscopy & Related Topics, Notre Dame, IN, September 4-9, 2005

APS Session **“Nuclear Structure in Astrophysics,”** Denver, CO, May 1-4, 2004

ACS Symposium on **“Nucleosynthesis 2000,”** Washington, DC, August 20-25, 2000

International Conference on **“Applications of High-Precision Gamma-Spectroscopy”**, Notre Dame, IN, July 1-3, 1998

**“Cosmology: Physics and Philosophical Perspectives,”** Notre Dame, IN, April 20, 2005

**First JINA Workshop on the r-process**, Gull Lake, MI, October 5-6, 2002

**Working group on Nuclear Structure in Astrophysics**, Division of Nuclear Physics Long Range Plan meeting, Oakland, CA, November 9-12, 2000

**Midwest Workshop on New Frontiers in Nuclear Astrophysics**, Apr. 18-20, 2000

**International Workshop on the Interface between Nuclear Structure and Heavy-Ion Reaction Dynamics**, Notre Dame, IN, May 24-26, 1990

**International Conference on Nuclei in the Cosmos**, Notre Dame, IN, June 24-27, 1996

## University committees (Department, College, University)

### Departmental Committees

Undergraduate Research Committee Chair 2017-2018

Advisor to the Physics Majors class of 2020

Physics Department Committee on Honors Dissertation (2015, 2016, 2017)

Physics Department Undergraduate Research Committee (2011-2017)

Committee on Appointments and Promotions, 2013-2016

Education and Outreach 2011-2014

Awards, 2011-2012

Outreach, 2011-2016

Medical Physics Advisory Committee (2010)

Awards Committee (2010-2011)



Outreach Committee (2010-2011)  
 Publication Committee (2010-2011)  
 Graduate Recruitment Committee (2010-2011)  
 Awards Committee (2010-2011)  
 Long Range Strategic Planning Committee (2009-2010)  
 Outreach Committee (2009-2010)  
 Academic Advisor to the Class of 2007 (2004-2007)  
 Committee on Appointments and Promotions (01, 02, 03, 04, 05)  
 Chair of Graduate Recruitment & Publicity (00, 01, 02, 03, 04)  
 Member of Recruitment Committee (96, 97, 00, 01, 02, 03, 04)  
 Instructional laboratories (95, 96, 97, 98, 00, 01, 02)  
 Chair of Graduate Admissions (95, 96, 97)  
 Curriculum Committee (95)  
 Academic Advisor to the Class of 1998 (94-98)

### College of Science Committees

Endowed Chair Professor Evaluation Committee (2016, 2017)  
 Web page Committee (2005)  
 Jordan Hall of Science Furnishings, Fixtures, Equipment (FFE)  
 Comm. for classrooms and common spaces (2005)  
 Selection of Business Manager for College of Science (2003)

### University Committees

International Programs Reviewer (2018)  
 Provost's Advisory Committee (2016-2019)  
 Provost's SPF and Research Faculty Promotion (2017)  
 College of Science Dean Search Committee (2014-2015)  
 University Committee on Internationalization (2012-2015)  
 VPR Evaluation Committee (2011-2012)  
 Provost's Committee on "Latin America" (2010-2011)  
 Provost's Committee on launching "Institute for Global Development" (2010-2011)  
 Limited Submissions Committee for the Office of Research (2011-2012)  
 Standing Committee of the Graduate School on NSF (2009-2010)  
 Graduate Council at University of Notre Dame (2009-2010, 96-98, 01-03)  
 Provost's Awards Committee (2007, 2006)  
 Selection Committee for Associate Vice President of Marketing, 2004  
 McNair Scholars Advisory Board (2002-2005)  
 Advisory Board for the Arts and Letters Science Honors Program, 2002  
 Subcommittee on Finance and Fundraising, 2001  
 Selection Committee of the Graduate School's Outstanding Research Award, 2001  
 Academic and Student Life Advisory Committee (elected 01, 02, 03, 04, 05)  
 Academic Affirmative Action Committee (98, 99, 00, 01, 02)  
 Committee on Women Faculty and Students (96-98)  
 Selection Committee for the appointment of V.P. of Research and Dean of the Graduate School (96)  
 Provost's Review Panel for Appeals Concerning Sexual Discrimination (94-96)  
 Executive Committee of the Distinguished Visiting Faculty  
 Radiation Control Committee (94-2001)  
 Luce Professorship - Search Committee (94/95)  
 Graduate School Liaison for the recruitment of minorities for the Physics graduate program (94-05)  
 Campus Climate Subcommittee (93-94)  
 Cultural Diversity (93-96)

Academic Life Committee for the Colloquy 2000 (92-93)  
Colloquy 2000 (92-93)

### **Cross-College/Department/Interdisciplinary Interactions**

College of Engineering Energy Center collaboration  
Board of RTUVT Medical Physics Program (2014-present)  
Isotopes project with SPECTRON (2008-2012)  
Center for Social Concerns – Urban Plunge  
    -- Alternative Energy group  
Research in the feasibility of Hydrogen Fuel Cells in the Michiana Area  
    Zhelun Li (David), Mendoza College of Business (Accounting)  
    James Brown, Mendoza College of Business (Marketing)  
Co-Organizer of “Climate Change and the Common Good: Security, Sustainability, and Policy”  
    April 8-10, 2013, Notre Dame

### **Significant Initiatives as Physics Department Chair**

1. Tripled the number of Physics majors (from an avg. of 11 to 32)
2. Increased the number of graduate students by 25%
3. Launched PR magazine to publicize faculty/research of Physics Department at Notre Dame  
**(Interactions)**
4. Open Doors of the Physics Department (events every month to publicize physics on and off-campus in the Michiana Area)
5. Garnered funds to renovate the physics building
6. Garnered funds to build common meeting areas in the department to enhance collaboration/communication

## Dissertations

### Ph.D.

**Clark Casarella, Ph.D. (March, 2017) May 2017 Graduation**

“Lifetime Measurements and the Feasibility of Vibrational Phonon Configurations in Deformed Rare Earth Nuclei”

**Mallory Smith, Ph.D. (July, 2016) May 2017 Graduation**

“Chasing Triaxiality: Probing Nuclear Structure near A=110”

**Armen Gyurjinyan, Ph. D. (June, 2016)**

Nuclear Science Laboratory at Notre Dame Jointly with Alikhayan National Science Laboratory  
“Studying atomic nuclei based on symmetry and cluster models”

**Anthony Battaglia, Ph.D. (May 2015)**

“Conversion coefficient measurements of  $^{176}\text{Lu}$  using iceball”

**Brian Bucher, Ph.D. (May 2014)**

“On the production of the light heavy elements”

**Sergio Almaraz-Calderon, Ph.D. (Sept. 2011: Graduated May 2012)**

“Study of Resonance Reactions in light nuclei for nuclear astrophysics”

**Mathew Quinn, Ph.D. (May 2010)**

“Beta-Decay Half-lives of Neutron-Rich Isotopes in the Ge-Br Region”

**Boris Skorodumov, Ph.D. (May 20, 2007)**

“Resonance Reactions Induced by Light Radioactive Beams”

**Plamen Boutachkov, Ph.D. (May 15, 2005)**

Co-winner of 2005 Physics Department **Outstanding Dissertation Award** entitled “Toward Understanding of the Nuclear Force via Detailed Spectroscopy of  $^{208}\text{Bi}$  and Development of New Techniques for Studies of Neutron Rich Exotic Nuclei: Spectroscopy of  $^7\text{He}$ ”

**Shelly Leshner, Ph.D. (May 2004)**

Co-director at University of Kentucky

**Rob Catharinus de Haan, Ph.D. (November 16, 2001)**

“K=0<sup>+</sup> Excitations in Deformed Nuclei”

**Susan M. Fischer, Ph.D. (December 1, 1994)**

“Spectroscopic Studies of the  $^{195}\text{Au}$  Nucleus” Recognized as **most outstanding Ph.D. dissertation** at graduation May 1995.

**Xiang Wu, Ph. D. (January 14, 1994)**

“Investigations of Multi-phonon Vibrational States in Deformed Nuclei”

### M.S.

**Nancy Paul, M.S. (December 2014)**

“Trapping Radionuclides for the r-process”

**Adam Cummins, M.S.** (ESTEEM, 2010)

“A new medical diagnostic tool”

**Samuel Brett**, M.S., University of Surrey, UK (2010)

“Sensitivity Studies of nuclear masses for the r-process”

**Timo Griesel**, M.S. (Diplome) (December 1, 2005)

“Isomers in the rp-process: Waiting points  $^{68}\text{Se}$  and  $^{64}\text{Ge}$ ”

**Artur Teymurazyan**, M.S. (January 4, 2003)

**Kelly Vaughan**, M. Phys. (May 2003), University of Surrey, United Kingdom

**Jose Luis Galache**, M. Phys. (May 2002), University of Surrey, United Kingdom

**Victoria Barnard**, M. Phys. (May 2001), University of Surrey, United Kingdom

**Honnavalli S. Santosh**, M.S. (July 28, 1997)

## **B.S.**

**Anna Susalla**, Physics, **Outstanding Research Award** (May 99)

**Nathan Cuka**, **Physics Honors Thesis** (May 96)

“Mass and  $B(E2:2^+ \rightarrow 0^+)$  Transition Probability Predictions for the A=80 Region of Nuclei with the  $N_p N_n$  Scheme”, Recognized as one of two **most outstanding honors thesis** projects at graduation.

**Ana Delia Becerril**, UNAM, Mexico City, Mexico (2004)

**Nancy Paul**, **Physics Honors Thesis** (May 2012)

**Michael Robbe**, **Physics Honors Thesis** (May 2014)

“Theoretical Assessment of the Viability of Implementing Cyclotrons in Large-Scale Production of  $^{99m}\text{Tc}$ ”.

**Patrick Fasano**, Physics Honors Thesis (May 2016)

“Nuclear Lifetime Measurements with the Notre Dame Plunger and Low Cost Electronics”

## **Current Graduate Students**

**Bryce Frentz**

**Kevin Siegl**

**Sabrina Strauss**

## **Current Undergraduate Students**

**Trenton Kuta**

**William S. Porter**

**Mark Radell**

**Mark Spretnjak**

**Anne Stratman (Luce Scholar)**

### Postdoctoral Fellows Supervised

**Dr. Timothy Johnson** (9/94 – 4/96), presently working in industry

**Dr. Joachim Doering** (9/96 – 9/98), at GSI

**Dr. Stuart Vincent** (10/98 – 5/00), UK Naval Academy

**Dr. Mark Shawcross** (9/00 – 4/02), UK Patent Office

**Dr. Andreas Woehr** (6/03-8/06), University of Saarlandes Hosp., Head of Radiation Safety (Germany)

**Dr. Scott Marley** (9/2012-8/2015)

**Dr. Matthew Mumpower** (9/2012 -8/2015)

### Research and Visiting Faculty Supervised

**Dr. Henryk Mach** (2012)

**Dr. Rebecca Surman** (2011, 2012)

**Dr. Shelly Leshner** (2010, 2011)

**Dr. Wanpeng Tan** (2007-present)

**Dr. Henryk Mach** (2006-2008)

**Dr. Andreas Woehr** (10/02 – 10/2006)

**Dr. Grisha Rogachev** (2/03 – 8/04)

**Dr. Nina Demekhina** (Armenia)

**Dr. Anna Georgieva** (Bulgaria)

**Prof. Tsanka Venkova** (Bulgaria)

## Additional Mentoring

### **CANDAX-McNair** Research programs for minorities in Science and Engineering (summers of 92-93)

92 Alicia Webb  
 93 Diedre Pinkney  
 95 Antwan Pinckney

### **Minority students in the colleges of science and engineering**

89-93 Kelli Barber (class of 93)  
 89-93 Gregory Crowley (class of 93)  
 92-94 Sherida DuBoise (class of 94)

### **Research Experience for High School Teachers**

00 Kevin Johnston, Jimtown High School, Indiana  
 01 Kevin Johnston, Jimtown High School, Indiana  
 02 Kevin Johnston, Jimtown High School, Indiana  
 03 Kevin Johnston, Jimtown High School, Indiana

### **Undergraduate Research-Academic Year**

92 Robert Winarski  
 Jose Maria Castro Ceron  
 93 Ken O'Hara  
 94 Nathan Cuka  
 Alejandro Gadala-Maria  
 95 Nathan Cuka  
 Alejandro Gadala-Maria  
 Eric Snyder  
 Anna Susalla  
 Shelly Leshner  
 96 Shelly Leshner  
 Anna Susalla  
 Arthur Cunningham  
 Eva Rzepniewski  
 97 Arthur Cunningham  
 Anna Susalla  
 Shelly Leshner  
 98 Anna Susalla  
 Shelly Leshner  
 99 Anna Susalla  
 Shelly Leshner  
 00 Mathew Quinn  
 01 William Lahnemann  
 02 Dominic Antonelli  
 Eric Chitambre  
 03 Shelece Easterday  
 Paul Strycker  
 Daniel Wasikowski  
 Graham Konecki  
 Krystie Traudt  
 05 Krystie Traudt  
 Jonathan Poelhuis

08 Nancy Paul  
Anamaria Baluyut  
Andrew J. McGauley  
Fred Jung

09 Nancy Paul  
Fred Jung

10 Kailin Lou  
Fred Jung  
Nancy Paul  
Nicholas Anderson  
Holden Lombard

11 Nancy Paul  
Fred Jung  
Holden Lombard  
Julie Cass  
Giusseppe Passucci  
Kailin Lou  
Sean Pennino

12 Julie Cass  
Mike Harrison  
Sean Howard  
Holden Lombard  
Giusseppe Passucci  
Nancy Paul  
Michael Robbe  
Daniel Winnike

13 Holden Lombard  
Patrick Fasano  
Michael Robbe  
Zhelun Li  
Kaykay Nyong Essien (Hesburgh Yusko Scholar)  
Trenton Kuta  
Tim khouw

14 Patrick Fasano  
Michael Robbe  
Trenton Kuta  
Timothy Khouw  
Kevin Lee  
Trevor Sprouse

15 Andre Bermudez Perez – ND Electrical Engineering  
Patrick Fasano – ND Physics  
Benjamin Guerin – ND Physics  
Timothy Khouw – ND Physics  
Trenton Kuta – ND Physics  
Kevin Lee – ND Physics  
Ethan Sauer – ND Physics  
Trevor Sprouse – ND Physics

16 Anne Stratman – ND Physics  
Patrick Fasano – ND Physics  
Benjamin Guerin – ND Physics  
Trenton Kuta – ND Physics & Electrical Engineering  
Kevin Lee – ND Physics  
Sam Porter – ND Physics

Mark Radell – ND Physics  
 Ethan Sauer – ND Physics  
 17 Anne Stratman –ND Physics  
 William S. Porter – ND Physics  
 Mark Radell – ND Physics  
 Ethan Sauer – Research Assistant  
 Kevin Lee- Research Assistant

### Summer Research Opportunities for Undergraduates (REU program)

92 Jose Maria Castro Ceron – ND  
 93 Kenneth O’Hara – ND  
 94 Rachel Fricke  
 95 Israel Owens  
 95 Nathan Cuka – ND  
 96 Laura Glennie  
 97 Anna Susalla  
 98 Shelly Leshner  
 99 Mathew Quinn  
 00 Annette Villa  
 01 William Horowitz  
 02 Paul Strycker  
 02 Brian Hirsch  
 03 Jaime Wallace  
 04 Lara Street (winner of Goldwater Scholarship/Rhodes Scholar in 2005)  
 05 Beverly Lau  
 09 Raul Chavarria – FIU  
 Nancy Paul – ND  
 Fred Jung – ND  
 10 Nick Anderson – ND  
 Fred Jung – ND  
 Nancy Paul – ND  
 Patrick Copp – U Wisc. LaCrosse  
 Xiao Lor – U Wisc. LaCrosse  
 11 Andrew Arend – U Wisc. LaCrosse  
 Nancy Paul – ND  
 12 Michael Robbe – ND  
 Daniel Winnike – ND  
 13 Bryce Frentz – Concordia College  
 Zachary Tully – U Wisc. LaCrosse  
 14 Patrick Fasano – ND  
 Timothy Khouw – ND  
 Trevor Sprouse – ND  
 Kevin Lee – ND  
 Luis Abrego - UNAM  
 Andre Bermudez Perez – ND Elect. Engineering  
 Trenton Kuta – ND Elect. Engineering  
 Marcus Lowe – U Wisc LaCrosse  
 15 Patrick Fasano (Hichwa summer fellowship)  
 Benjamin Guerin (private funds: Aprahamian)  
 Trenton Kuta (private funds: Aprahamian)  
 Kevin Lee (COS)  
 Ethan Sauer (COS)



- Trevor Sprouse (COS)
- 16 Carter Hughes (U of Wisconsin- LaCrosse)  
William Samuel Porter (ND- Physics)  
Mark Raddell (ND-Physics)
- 17 Anne Stratman (ND- Physics)  
William S. Porter (ND-Physics)  
Mark Raddell (ND – Physics)

### **Orientation Program for Entering Freshmen (1990-present)**

#### **Summer Minority Engineering Program (Prof. McComas, Director)**

Introductory Physics lectures for two sessions each summer

- 92 “Don’t Worry, Be Happy”  
93 “A Career in Physics”  
94 “Is Physics for You?”  
96 “What’s New in Physics?”

#### **Guest Lecturer for Gender in Science Studies**

- October 30, 96 “Scientist, warriors, and sexual language”  
February 5, 97 “Molding of a scientist”  
October 17, 97 Philosophy 232, “Women: Alternative Philosophical Perspectives”  
October 17, 97 Philosophy 354, “Gender and Science: What Kind of Enterprise Is Science?”  
October 12, 98 Philosophy 232, “Women in Science”  
October 8, 01 Philosophy 232, “A Woman Scientist in Charge” APS Panel

#### **Other lectures or panels**

- Oct. 10, 2002 “Being a Woman Nuclear Scientist: Option after a Ph.D.” DNP Meeting, East Lansing, MI  
Feb. 2, 2010 “Culture and Diversity in the Classroom”, Kaneb Center Workshop for International TAs  
Aug. 18, 2010 “International Perspective on being a TA”, Kaneb Center Orientation for International Students

## **Summer Schools in Nuclear Science**

**Pan-American Advanced Studies Institute on Rare Isotopes**, Joao Pessoa, Brazil, August 1-13, 2010

**Rare Isotope Accelerator Summer School**, East Lansing, MI, August 11-15, 2007

**American Chemical Society summer school on Nuclear Chemistry**

Brookhaven National Laboratories, Upton, NY, June 26, 2003

Lecture 1: “Stardust: We are all made of Stardust”

Lecture 2: “Why our sun takes billions of years to burn up instead of minutes”

“**Cosmology: What We Learned in 111 Years,**” Armenian Church of the Martyrs Anniversary Banquet, Worcester, MA (October 5, 2003)

## Student Life at Notre Dame

November 3, 2003	“Women professionals: How to Balance Life, Work, Family,” McGlinn Hall
September 17, 2003	Participant in the “Irish Inquisition” sponsored by ND Student Government
December 2, 2004	Discernment Dinner for Walsh and Dillon Halls
August 2005-May 2006	Residential Scholar to St. Edwards’ Hall
June 27, 2006	“How I became a nuclear physicist,” lunch talk to Sensing Our World program of middle school children. Sponsored by JINA and the College of Science at the University of Notre Dame.
July 17, 2006	“Life of a scientist,” talk, Balfour Scholars Program, University of Notre Dame
April 4, 2007	“What does the light from stars tell us?” Collegium Common Room Lecture
2008 - 2010	Residential Scholar Program, Fellow of Collegium Common Room
September 16, 2009	“Research: Who pays for it, How?” ND Physics Junior Seminar
February 7, 2011	“How to choose a career”, discernment dinner (Fisher-Pangborn)
April 19, 2011	“Science Play” open questions in Nuclear Science and Society, Prof. Phillips class
September 26, 2012	“The Future of Energy and Energy Technologies” Center for Social Concerns Energy Policy group
September 29, 2012	“Scientific Leadership” Jordan Hall of Science – Leadership Class by Dean Crawford
October 3, 2012	“What is nuclear physics all about” Junior Physics Majors
January 27, 2013	Urban Plunge Discussion –Center for Social Concerns
Feb. 20, 2013	“How to talk to different communities” Career Development seminar for graduate students, ND
July 27, 2013	“Journey across continents and disciplines: The Origin of the Heavy Elements”, pre-college Leadership Seminar, ND.
November 7, 2013	“At the heart of Matter”, Nuclear Physics decadal study and where the Nuclear Science Laboratory at Notre Dame fits in.
March 28, 2014	Discernment evening with Freshman at home.
April 10, 2014	Scientia conversations, Nuclear Science and Society.

## Outreach and Education (High School)

**2010** In order to encourage students to enter college into STEM disciplines, I have taken the initiative to adopt a local high school starting at 9<sup>th</sup> grade level with annual meetings.

### Washington High School in South Bend, IN

**2011** Washington High School Astronomy Students at ND, January 27

**2011** Washington High School, Expand Your Horizons at Notre Dame, Career Day for Girls, April 30

**2013 Science Alive networking with educators/exhibitors, February 1**

**Siemens Science Competition invited lecture, November**

**2014 Davis-Bahcall Scholars Lecture on Underground Science, Lead, SD, June 20**

**Physics of Atomic Nuclei Lectures, June 25**

## **“Popular” Press**

1. “Nuclear Scientist and World Citizen?” Chapter in an on-line book entitled “Blazing the Trail: Essays by leading women in Science” on the lives and experiences of Women in Physics in the USA, Aprahamian chapter **“Physicist as a Cosmopolitan Citizen”**, 2013.
2. **Forum on International Physics, March 2011 Newsletter:** Physics in the Republic of Armenia”, A. Aprahamian.
3. **Physics and Society: “Isotopes for the Nation’s Future”**, D. Geesaman and A. Aprahamian, April 2010. (Vol. 39, No. 2)
4. **Nature Physics:** “Nuclear physics: Long live isomer research,” A. Aprahamian and Y. Sun, Nature Physics 1, news & views, 81-82 (2005).
5. **Physics Today:** “Beating the odds: How we increased our female component at ND,” to be submitted (2005).
6. Physics at University of Notre Dame: History and Introduction (**Physics Department Brochure (2005)**).
7. **Interactions I and II:** Journal of Physics Fall 2004 and Fall 2005.
8. **Nuclear Physics News International:** “Women in Physics,” Vol. 13, No. 3 (2003).
9. **Physics World:** “Nuclear Astrophysics: a new era,” Physics World, 33 (2002).
10. **Nuclear Physics News International:** Portrait of Nuclear Physics at Notre Dame, Vol. 12, No. 4 (2002).

## Invited Talks (International and National Conferences, Seminars, Colloquia)

1. "Intruders in the Cd Isotopes and a Simple Explanation," **invited talk**, Workshop on Interacting Boson-Boson and Boson-Fermion Systems, Kellogg Conference Center, Gull Lake, MI, May 28-30, 1984.
2. "The Neutron-Rich Cadmium Isotopes," **invited talk**, ACS Symposium on Nuclei Off the Line of Stability, Chicago, IL, September 8-13, 1985.
3. "A perfect U(5) nucleus:  $^{118}\text{Cd}$ ," **invited talk**, International Conference on Nuclear Structure, Reaction, and Symmetries, Dubrovnik, Yugoslavia, June 5-14, 1986.
4. "Masses along the r-process path," **invited talk**, Symposium on the Origin and Distribution of the Elements, New Orleans, LA, August 31-September 4, 1987.
5. "Binding Energies and Masses in the IBA," **colloquium**, Nuclear Chemistry Div., Lawrence Livermore National Laboratory, Livermore, CA, November 11, 1987.
6. "Nuclear Properties Far from Stability," **colloquium**, Univ. of Arizona, Tucson, AZ, January 22, 1988.
7. "First Observation of a Vibrational Nucleus," **seminar**, Univ. of Pennsylvania, Philadelphia, PA, February 24, 1988.
8. "Anharmonic Vibrational Motion and  $^{118}\text{Cd}$ ," **seminar**, Univ. of Wisconsin, Madison, WI, March 3, 1988.
9. "Predictions of Nuclear Properties Far from Stability," **seminar**, Nuclear Science Division, Lawrence Berkeley Laboratory, Berkeley, CA, March 18, 1988.
10. "Nuclear Masses and Binding Energies Along the r-process Path," **seminar**, Institute of Geoplanetary Physics, Lawrence Livermore Laboratory, Livermore, CA, April 22, 1988.
11. " $^{118}\text{Cd}$ : First Observation of a U(5) Nucleus," **colloquium**, University of Notre Dame, Notre Dame, IN, May 2, 1988.
12. "The Universe, Nuclei and Radiation," **colloquium**, Armenian Scientists and Engineers, Hollywood, CA, July 15, 1988.
13. "Supersymmetry in Nuclei," **seminar**, University of Notre Dame, Notre Dame, IN, December 4, 1989.
14. "A brief introduction to Nuclear Physics," **seminar**, summer school for minority students in science and engineering, University of Notre Dame, Notre Dame, IN, July 13, 1990.
15. "Vibrational Excitation in Defined Nuclei," **invited talk**, XIV Nuclear Physics Symposium, Cuernavaca, Mexico, January 7-10, 1991.

16. "Nuclear lifetimes in the femtoseconds," **seminar**, University of Notre Dame, Notre Dame, IN, February 4, 1991.
17. "Double-Phonon Vibrations in Deformed Nuclei," **invited talk**, ACS Symposium on Recent Advances in Nuclear Structure Research, Atlanta, GA, April 15-19, 1991.
18. "Multi-phonon vibrations or nuclear lifetimes in the femtoseconds," **seminar**, Michigan State University Nuclear Structure Cyclotron Laboratory, East Lansing, MI, May 8, 1991.
19. "Vibrations in Deformed Nuclei," **seminar**, Florida State University, Tallahassee, FL, January 17, 1992.
20. "Vibrational States of Deformed Nuclei," **seminar**, University of Pittsburgh, Pittsburgh, PA, January 20, 1992.
21. "Radioactive Ion Beams and Vibrations in Deformed Nuclei," **invited talk**, Symposium on Radioactive Nuclear Beams, San Francisco, CA, April 6-10, 1992.
22. "Vibrational Degrees of Freedom in Deformed Nuclei," **invited talk**, Sixth International Conference on Nuclei Far From Stability and the Ninth International Conference on Atomic Masses and Fundamental Constants, Bernkastel-Kues, Germany, July 19-24, 1992.
23. "Nuclear Shapes and Vibrations of Deformed Nuclei," **invited talk**, ACS Symposium on Nuclear Shapes, Washington, DC, August 24-28, 1992.
24. "Gamma Ray Induced Doppler Broadening and Nuclear Lifetimes in the Femtoseconds," **seminar**, Argonne National Laboratory, Argonne, IL, October 12, 1992.
25. "Vibrational Degrees of Freedom in Deformed Nuclei," **invited talk**, XVI Nuclear Physics Symposium, Oaxtepec, Mexico, January 5, 1993.
26. "Vibrational Degrees of Freedom in Nuclei," **colloquium**, University of Pittsburgh, Pittsburgh, PA, March 18, 1993.
27. "Multi-phonon Vibrational Band in Deformed Nuclei," **invited talk**, American Physical Society Invited Talk on Open Questions in Nuclear Structure Physics, Washington, DC, April 15, 1993.
28. "A Possible New Signature for the Characterization of Vibrational Bands," **invited talk**, ACS Symposium on Technical and Scientific Issues of Radioactive Beams, Chicago, IL, August 26, 1993.
29. "Identical Dynamic Moments of Inertia as a Possible Signature of Vibrational Bands," **invited talk**, Brighton-Surrey Workshop on Nuclear Structure, Brighton, England, September 15, 1993.
30. "A Possible New Signature for Vibrational Bands of Deformed Nuclei," **seminar**, University of Liverpool, Liverpool, England, September 17, 1993.
31. "Multi-Phonon Quadrupole Vibrational States in Deformed Nuclei," **invited talk**, Plenary Session of the Eighth International Symposium on Capture Gamma-Ray Spectroscopy, Fribourg, Switzerland, September 20-24, 1993.

32. "Multi-phonon Vibrational Excitation in Deformed Nuclei," **seminar**, Niels Bohr Institute, Copenhagen, Denmark, September 28, 1993.
33. "Vibrational Degrees of Freedom in Nuclei," **seminar**, Nuclear Research Center, Studsvik, Sweden, October 5, 1993.
34. "Two-Phonon Vibrational Bands in the Deformed Rare-Earth Region of Nuclei," **seminar**, Theoretical Physics Institute, University of Lund, Lund, Sweden, October 8, 1993.
35. "Vibrational Multi-Phonon Excitations and Identical Bands," **seminar**, Nuclear Physics Institute, University of Köln, Köln, Germany, October 19, 1993.
36. "Vibrational Degrees of Freedom in Deformed Nuclei," **seminar**, Rutgers University Department of Physics and Astronomy, NJ, February 21, 1994.
37. "Vibrational Degrees of Freedom in Deformed Nuclei," **seminar**, Clark University Department of Physics and Chemistry, Worcester, MA, April 4, 1994.
38. "Vibrational Degrees of Freedom in Deformed Nuclei," **seminar**, University of Rochester, Rochester, NY, April 29, 1994.
39. "Rotation and Vibrations in Nuclei," **colloquium**, Texas A&M University, College Station, TX, May 3, 1994.
40. "The Role of Gender in the Physical Sciences," **invited talk**, Women's History Month celebrations, University of Notre Dame, February 1995.
41. "Nuclear Dynamics: Rotations and Vibrations," **seminar**, University of Surrey, Guildford, United Kingdom, July 7, 1995.
42. "A woman physicist," visiting lectures to class in Gender Studies (Phil. 354), University of Notre Dame, September 15 and October 4, 1995.
43. "Exotic beams and nuclear structure in the A=80 region of nuclei," **invited talk**, at the XIX Symposium on Nuclear Physics, Oaxtepec, Morelos, Mexico, January 3, 1996.
44. "Opening Remarks," International Conference on Nuclei in the Cosmos, Notre Dame, IN, June 20-27, 1996.
45. "The A=80 Region of Nuclei and Radioactive Beams," **invited talk**, at the International Workshop on Physics of Unstable Nuclear Beams, São Paulo, Brazil, August 28-31, 1996.
46. "Exotic Beam and Nuclear Structure near the limits," **seminar** at the Erevan Physics Institute, Erevan, Armenia, September 12, 1996.
47. "The A=80 Region of Nuclei and Experiments with Radioactive Ion Beams," **colloquium**, Flerov Laboratory of Nuclear Reactions, Dubna, Russia, September 17, 1996.

48. "Patriarchy, Scientists and Nuclear Warriors," **invited talk**, Women: Alternative Philosophical Perspectives (Phil 232), October 10, 1996.
49. "The Astrophysical rp-process and Nuclear Structure in the A=80 Region of Nuclides," **invited talk**, at the 9th International Conference on Neutron-Capture Studies and Related Topics, Budapest, Hungary, October 10, 1996.
50. "Nucleosynthesis of the Elements and Nuclear Structure," **seminar**, Hope College, Hope, MI, November 13, 1996.
51. "Vibrational Excitation in Nuclei: A Status Report," **seminar**, Rutgers University, Piscataway, NJ, February 25, 1997.
52. "Nucleosynthesis in Explosive Scenarios via the rp-process," **colloquium**, Rutgers University, Piscataway, NJ, February 25, 1997.
53. "Experiments with detectors at the FMA focal plane," **invited talk**, at Workshop II on the Science and Operation of Gammasphere at ATLAS, Argonne National Laboratory, May 10, 1997.
54. "Nucleosynthesis in Explosive Astrophysical Scenarios," **seminar**, Czech Technical University, Prague, Czech Republic, May 15, 1997.
55. "Nuclear Masses in the A=80 Region," **invited talk**, at the International Conference for Nuclear Data in Science and Technology, Trieste, Italy, May 19, 1997.
56. " $K=0^+$  excitations in Nuclei," **invited talk**, at the Workshop on Nuclear Physics with GEANIE at LANSCE, Taos, NM, June 23, 1997.
57. "rp-process nucleosynthesis and RIBs," **invited talk**, at the Workshop on the Science for an Advanced ISOL facility, Columbus, OH, July 31, 1997.
58. "Vibrational Dynamics in Nuclei," **seminar**, Ohio University, Athens, OH, February 24, 1998.
59. "Collective  $K = 0^+$  Vibrational Excitations in Nuclei," **invited talk**, at the Plenary Session of the International Conference on Nuclear Structure at the Extremes on the Occasion of the 40th Anniversary of SU(3) Symmetry in Nuclear Physics in Lewes, United Kingdom, June 17-19, 1998.
60. "Vibrational Excitation in the A=80 region of Nuclei," **invited talk**, at the ACS Symposium on Nuclear Structure at Low Excitation Energies on the Occasion of Bill Walter's 60th Birthday, Boston, MA, August 23-27, 1998.
61. " $K=0^+$  Excitations in Nuclei," **invited talk**, New Physics for the New Millennium Conference, Faure, South Africa, January 22, 1999.
62. "Explosive Nucleosynthesis and Structure of N=Z Nuclei," **seminar**, University of Liverpool, United Kingdom, February 23, 1999.
63. "Multiphonon Vibrational Excitations in Nuclei," **seminar**, University of Manchester, Manchester, United Kingdom, April 21, 1999.

64. "From Exploding Stars to Nuclear Structure," **seminar**, University of Surrey, Guildford, United Kingdom, April 28, 1999.
65. "N=Z Nuclei and Exploding Stars," **seminar**, University of Bordeaux, Bordeaux, France, April 30, 1999.
66. "Status of observed multiphonon vibrational excitation in nuclei," **invited talk**, Int. Workshop on Double Giant Resonances and Multiphonon Vibrations in Nuclei at the European Center for Theoretical Physics, Trento, Italy, May 10-21, 1999.
67. "Explosive Nucleosynthesis and Structure of N=Z Nuclei," **seminar**, Nuclear Physics Institute, Laboratori Nazionale di Legnaro, Legnaro, Italy, May 14, 1999.
68. "From Exploding Stars to the Laboratory: Nuclear Structure at Notre Dame," **invited talk**, Biennial Yale Workshop 1999, New Haven, CT, June 10-12, 1999.
69. "From Explosions to the Laboratory," **seminar**, Los Alamos Neutron Science Center, Los Alamos National Laboratory, NM, August 13, 1999.
70. "Stellar Explosions and the Structure of N=Z Nuclei," **seminar**, Los Alamos Theory Division, Los Alamos National Laboratory, NM, August 19, 1999.
71. "K=0<sup>+</sup> Excitations in Deformed Nuclei: Lifetimes with GRID," **invited talk**, 10<sup>th</sup> International Conference on Capture Gamma-Spectroscopy and Related Topics, Santa Fe, NM, August 30 – September 3, 1999.
72. "Vibrations in Nuclei: K = 0<sup>+</sup> bands in Deformed Nuclei," **seminar**, Centre de Spectrométrie Nucléaire et de Spectrométrie de Masse, Orsay, France, November 25, 1999.
73. "From Exploding Stars to the Laboratory: Structure and Lifetimes of N=Z Nuclei," **seminar**, Grand Accélérateur National d'Ions Lourds, Caen, France, December 7, 1999.
74. "Nuclear Dynamics," **colloquium**, Institute for Theoretical Physics, Gent, Belgium, December 16, 1999.
75. "Spectroscopy with Radioactive Ion Beams," **invited talk**, American Chemical Society Symposium on New Nuclear Science with New Techniques in this Millennium, San Francisco, CA, March 26-31, 2000.
76. "Exploding Stars and the Structure of N=Z nuclei," **seminar**, University of Kentucky, Lexington, KY, April 13, 2000.
77. "The Nature of K=0<sup>+</sup> Excitations in Deformed Nuclei," **invited talk**, 19<sup>th</sup> International Nuclear Theory Workshop, Rila, Bulgaria, June 12-17, 2000.
78. "From Exploding Stars to the Laboratory...Nucleosynthesis in accreting binary stars," **colloquium**, Johannes Gutenberg University of Mainz, Germany, July 3, 2000.



79. "Lifetimes of the  $N=Z$  Waiting Point Nuclei," **invited talk**, International Conference on Nuclear Structure 2000, East Lansing, MI, August 15-18, 2000.
80. "Nucleosynthesis in the rp-process: A new Semi-empirical mass model," **invited talk**, 2<sup>nd</sup> Euroconference on Atomic Physics at Accelerators: Mass Spectrometry, Cargèse, Corsica (France), September 19-23, 2000.
81. " $K=0^+$  Excitations in Deformed Nuclei," **seminar**, Institute of Nuclear Theory, University of Washington, November 2, 2000.
82. "From Exploding Stars to the Laboratory," **colloquium**, Florida State University, Tallahassee, FL, February 15, 2001.
83. "Nuclear Masses and Nucleosynthesis," **seminar**, Michigan State University, East Lansing, MI, February 21, 2001.
84. "Isomeric States in Nuclei and Their Influence on the rp-process," **invited talk**, Workshop on "RISING (Rare Isotope Investigations at GSI) Physics with Stopped Beams," Gottingen, Germany, March 8-9, 2001.
85. "Nuclear Masses," **invited talk**, "Symposium on Rare Isotope Research – Past, Present and Future" at the 221<sup>st</sup> ACS National Meeting, San Diego, CA, April 1-5, 2001.
86. "Nuclear Masses and Abundances of the Elements in the Universe," **invited talk**, APS National Meeting, Washington, DC, April 28-May 1, 2001.
87. "Exploding Stars to the Laboratory," **seminar**, Physics N-Division, Lawrence Livermore National Laboratory, Livermore, CA, August 22, 2001.
88. "Nuclear Masses and Nucleosynthesis," **seminar**, National Superconducting Cyclotron Laboratory, Michigan State University, East Lansing, MI, February 6, 2002.
89. "What is the nature of  $K=0^+$  Bands in deformed nuclei?" **invited talk**, International Conference on Nuclear Structure, Mapping the Triangle, Grand Teton National Park, WY, May 22-25, 2002.
90. "Nuclear Masses in Nucleosynthesis," **invited talk**, Symposium in Honor of Daeg Brenner at the 224<sup>th</sup> ACS National Meeting in Boston, MA, August 20, 2002.
91. "Nuclear Structure Effects in Astrophysics," **invited talk**, Eleventh International Symposium on Capture Gamma-Ray and Related Topics, Pruhonice, Czech Republic, September 1-4, 2002.
92. "Nuclear Physics at Notre Dame," **invited talk**, National Academies, National Research Council, Washington, DC, May 12, 2003.
93. "Stardust: We are all made of stardust," **invited talk**, ACS Summer School in Nuclear Science, Brookhaven National Laboratory, Upton, NY, June 26, 2003.
94. "Why our sun takes billions of years to burn up instead of minutes," **invited talk**, ACS Summer School in Nuclear Science, Brookhaven National Laboratory, Upton, NY, June 26, 2003.

95. "From Ripples to Tidal Waves: Low Lying Vibrational Motion in Nuclei," **invited talk**, International Conference on Collective Motion in Nuclei Under Extreme Conditions (COMEX1), University of Paris, La Sorbonne, Paris, France, July 10-13, 2003.
96. "The Nature of Low-lying  $K=0^+$  Bands in Nuclei," **invited talk**, International Conference on Nuclear Structure and Related Topics, NSRT03, Dubna, Russia, September 2-6, 2003.
97. "Nuclear Astrophysics: a new era?" **seminar**, Yerevan State University, Yerevan, Armenia, September 9, 2003.
98. "JINA, Joint Institute for Nuclear Astrophysics," **invited talk**, National Superconducting Cyclotron Laboratory Users Workshop, East Lansing, MI, September 28, 2003.
99. "Structure of Heavy Helium Isotopes via the Isobaric Analog States in Lithium," **invited talk**, **G.V. Rogachev**, P. Boutachkov, A. Aprahamian, M. Quinn, J.J. Kolata, B. Skorodumov, A. Woehr, V.Z. Goldberg, G. Chubarian, A. Fomichev, M.S. Golovkov, Yu. Ts. Oganessian, A. Rodin, R.S. Slepnev, G. Ter-Akopian, R. Wolski, W.H. Trzaska, P.A. DeYoung, G.F. Peaslee, F.D. Becchetti, and Y. Chen, RNB-6, Argonne National Laboratory, Argonne, IL, September 22-26, 2003.
100. "Nuclear Astrophysics and the Cosmos," **invited talk**, First ND-ANL Collaboration Workshop, University of Notre Dame, Notre Dame, IN, January 22-23, 2004.
101. "The Origin of the Elements," International Advisory Board of JINA, Notre Dame, IN, April 30, 2004.
102. "Nuclear Physics and the Origin of the Elements," **seminar**, QuarkNet lecture to local high school teachers, QuarkNet Center, South Bend, IN, May 10, 2004.
103. "The Nature of the first excited  $K=0^+$  band in Deformed Nuclei," Workshop on New Descriptions of Transitional Nuclei held at the Lawrence Berkeley National Laboratory, Berkeley, CA, October 21-23, 2004.
104. "Low energy  $0^+$  excitations in  $^{158}\text{Gd}$ ," **invited talk**, **J.G. Hirsh**, G. Popa, C.E. Vargas, S.R. Leshner, A. Aprahamian, XXVIII Symposium on Nuclear Physics, Cocoyoc, Mexico, January 4-7, 2005.
105. "The Nature of  $K=0^+$  Bands in Deformed Nuclei: Dynamics from ripples to Tidal Waves," **invited talk**, NUSTAR'05 (An international conference on the interface between Nuclear Structure, Astrophysics and Reactions, held at the University of Surrey, Guildford, United Kingdom, January 5-8, 2005.
106. "Following the Light in the Universe: Nuclear Structure in Nuclear Astrophysics," **seminar**, Indiana University Cyclotron Facility, Bloomington, IN, February 25, 2005.
107. "Cosmology: Ernan McMullin with Physics and Philosophy at Notre Dame," **invited talk**, Cosmology Workshop, Notre Dame, IN, April 20, 2005.
108. "What is the nature of  $K=0^+$  bands in deformed nuclei? A challenge to nuclear structure for four decades," **invited talk**, IV Latin American Symposium on Nuclear Physics and Applications, Iguazu, Argentina, October 3-7, 2005.

109. "Following the light in the Universe," **colloquium**, University of North Carolina, Chapel Hill, NC, November 14, 2005.
110. "Users of low-energy nuclear physics facilities on RIA," **talk**, presented to the National Academies RISAC Committee on the Science of RIA, December 16, 2005.
111. "Nuclear Physics: Following the Light in the Universe," **invited talk**, 2006 Joint Annual Conference of National Society of Black and Hispanic Physicists," San Jose, CA, February 17, 2006.
112. "JINA at Notre Dame," **invited talk**, 22<sup>nd</sup> Winter Workshop on Nuclear Dynamics, La Jolla, CA, March 11-19, 2006.
113. "Deformed Nuclei and  $K=0^+$  Excitations," **invited talk**, symposium on Contemporary Frontiers in Nuclear Structure at the 231<sup>st</sup> ACS meeting, Atlanta, GA, March 26-30, 2006.
114. "Nuclear Physics in Action: Following the Light in the Universe," **colloquium**, Western Kentucky University, Bowling Green, KY, April 3, 2006.
115. "How we did it at Notre Dame," **invited talk**, 49th Annual Conference of Science Editors held in Tampa, FL. 1 of 3 panelists at a session on "Influential Women in Science," May 21, 2006.
116. "The science of JINA," **invited talk**, to high school teachers participating in the JINA sponsored PIXE-PAN program held at the University of Notre Dame Institute for Structure and Nuclear Astrophysics, June 15, 2006.
117. "News & Views from the Users of ATLAS," **invited talk**, A. Aprahamian, ATLAS Science & Technology Review, Argonne National Laboratory, June 20-21, 2006.
118. "Light and Dark Matter," **seminar**, University of Richmond, February 14, 2007.
119. "Introduction to Nuclear Astrophysics I, II, III," **invited talks**, RIA Summer School, Michigan State University, East Lansing, MI, August 11-15, 2007.
120. "Nuclear Structure Aspects in Nuclear Astrophysics," **seminar**, Physics Department, University of Maryland, College Park, MD, October 17, 2007.
121. "Nuclear masses and what they imply for neutron-rich nuclei," **invited talk**, 4<sup>th</sup> International Conference on Fission and Properties of Neutron-rich Nuclei, Sanibel Island, FL, November 16, 2007.
122. "Physics of the Universe: From Dark Energy to the Origin of Life", **special talk** to Presidential awardees for High School Teachers from all 50 states, NSF, Arlington, VA, April 29, 2008.
123. "Origin of the heavy elements," colloquium, Physics Department, Ohio University, Athens, OH, May 9, 2008.
124. "The life of a physicist", talk to New Buffalo, MI Area High School students and teachers, Notre Dame, IN, August 11, 2008.

125. "Expanding Universe, Shrinking Budgets", **colloquium**, Physics Department, Michigan State University, East Lansing, September 18, 2008.
126. "Rotations and Vibrations", **invited talk**, symposium in honor of Joe Hamilton's 50 years of Teaching and Research, Vanderbilt University, October 2-3, 2008.
127. "Nuclear Structure Aspects in Nuclear Astrophysics: The Origin of the Heavy Elements", **invited talk**, International Workshop on High Density Nuclear Physics & QCD, Yerevan, Armenia, October 6-10, 2008.
128. "Expanding Universe with Shrinking Budgets: What does that mean to planning your research?", **colloquium**, Physics Department, University of Notre Dame, Notre Dame, IN, December 3, 2008.
129. "Nuclear Physics at the Frontiers of Knowledge", **seminar**, Physics Department, Yale University, New Haven, CT, February 23, 2009.
130. "In a Universe not so far away...", **colloquium**, Catholic University of America, Washington, DC, March 31, 2010.
131. "The Origin of the Heavy Elements", **colloquium**, Rutgers University, Piscataway, NJ, April 28, 2010.
132. "Isotopes for the Nation's Future", **seminar**, Rutgers University, Piscataway NJ, April 28, 2010.
133. "The origin of the heavy elements: What does Nuclear Physics have to do with it?", **invited speaker**, Pan American Advanced Student Institute on Rare Isotopes, Joao Pessoa, Brazil, August 9, 2010.
134. "Isotopes: What is the fuss all about?", **seminar**, University of Notre Dame Nuclear Science Laboratory, August 30, 2010.
135. "The Most Compelling Research Isotopes", **invited talk**, Workshop on Harvesting Isotopes at FRIB, Santa Fe, NM, September 29-October 1, 2010.
136. "Isotope Production Policies", **invited talk**, Radiological Technologies University VT, South Bend, IN, November 17, 2010.
137. "r-process nucleosynthesis and nuclear masses", **invited talk**, XXIV Symposium on Nuclear Physics, Cocoyoc, Morelos, Mexico, January 5, 2011.
138. "Sensitivity of the r-process", **invited talk**, r-process workshop, Russbach, Austria, March 12-19, 2011.
139. "Women of Nuclear Chemistry and Exotic Beams" **invited talk**, Francis P. Garvin-John M. Olin Symposium in Honor of Sherry Yennello, March 28, 2011.
140. "The Elements Beyond Iron and what Nuclear Physics has to say", **colloquium**, Worcester State College, Worcester, MA, April 4, 2011.

141. "The frontiers and applications of Nuclear Science, what it could mean for Armenia", **invited talk**, National Science Academy of Republic of Armenia, April 15, 2011.
142. "Setting Priorities and Articulating Grand Scientific Challenges in Nuclear Science", **invited talk**, NIF workshop, Washington, DC, May 11, 2011.
143. "Evolution of nuclear structure and its impact on masses for the p-process", **invited talk**, Istanbul, Turkey P-process workshop, May 25, 2011.
144. "Nuclear Physics at the Frontiers", **invited talk**, 45<sup>th</sup> Anniversary of Brazilian Physical Society, Foz de Iguazu, Brazil, June 8, 2011.
145. "NP2010: Decadal Review of Nuclear Physics for the National Science Academies", Super-User meeting, August 18, 2011, NSCL, East Lansing, MI.
146. "r-process Mass Sensitivities", **invited talk**, CGS-14, Guelph, Ontario Canada, August 29, 2011.
147. "Sensitivity of the r-process to masses", seminar, Physics Division, Argonne National Laboratory, Argonne, IL, November 7, 2011.
148. "Mass sensitivities of the r-process", seminar, Physics Department, University of Surrey, Guildford, UK, January 12, 2012.
149. "Sensitivities of the r-process to nuclear structure", **invited talk**, IOP Nuclear Physics Conference, University of Brighton, Brighton, UK, April 2-4, 2012.
150. "Nuclear Structure and the r-process: Experiment and Theory", **invited talk**, **Beauty in Physics: Theory and Experiment**, Conference in honor of Franco Iachello on the occasion of his 70<sup>th</sup> Birthday, Cocoyoc, Mexico, May 14-18, 2012.
151. "Origins of the Heavy Elements", **invited talk**, CEU, Division of Nuclear Physics Meeting, Newport Beach, CA, October 29, 2012.
152. "Extreme Matter and the Origin of the Heavy Elements", **invited talk**, EMMI Physics Days, GSI Frankfurt, Germany, November 14, 2012.
153. "The heaviest elements in the universe...where did they come from?" **colloquium**, Illinois State University, Noble, IL, February 5, 2013.
154. "Nuclear Structure and Mass Sensitivities for the r-process", **invited talk**, Nuclear Data 2013, NY, NY, March 7, 2013.
155. "Origin(s) of the Heavy Elements", **colloquium**, Thomas Jefferson National Laboratory, Newport News, VA, March 13, 2013.
156. "Where are the heavy elements made in the Universe?", **seminar**, Department of Physics, University of Wisconsin, LaCrosse, WI, April 3, 2013.

157. "r-process mass sensitivities and the F-spin toy mass model in nucleosynthesis" **invited talk**, Heraeus-Seminar on 'Nuclear Masses and Nucleosynthesis' at the Physikzentrum Bad Honnef/Germany, April 23-26, 2013.
158. "Journey across continents and disciplines: the origin of the heavy elements", **invited talk**, Notre Dame Leadership Seminar, 101 Jordan Hall of Science, July 27, 2013.
159. "The heavy elements in the Cosmos", **colloquium**, Manchester College, Manchester, IN, November 4, 2013.
160. "Our Story: Past, Present, Future and where does Nuclear Physics at Notre Dame step in?", **keynote speaker**, Siemens Math, Science, & Technology Competition (Final round of regional competitions), Jordan Hall of Science, Notre Dame, IN, November 9, 2013.
161. "Sensitivities of the r-process: nuclear masses, beta decay rates, and neutron capture rates", invited talk, XXXVIIth symposium on Nuclear Physics, Cocoyoc, Mexico, January 6-9, 2014.
162. "Isotopes for health, wealth, and stealth", **seminar**, RTUVT, South Bend, IN, March 21, 2014.
163. "Nuclear Science and Society", Scientia conversations, Jordan Hall of Science, April 10, 2014.
164. "Sensitivity studies for the main r-process: nuclear masses, beta decay rates, neutron capture rates in three astrophysical scenarios", **invited talk**, Workshop in Nuclear Astrophysics, Institute of Advanced Studies, University of Sao Paulo, Sao Paulo, Brazil, April 14-16, 2014.
165. "Nuclei, the r-process, and Constraints", **invited talk**, Nuclear Symmetries and Stewardship Science, Lawrence Berkeley National Laboratory, Berkeley, CA, May 1-2, 2014.
166. "Pros/Cons of Underground science in the USA at SURF and in Italy at Gran Sasso", **invited talk**, Davis-Bahcall scholars, Lead, South Dakota, June 20, 2014.
167. "Following the light in the Universe", **invited talk**, Physics of Atomic Nuclei lecture, Jordan Hall, Notre Dame, June 25, 2014.
168. "Setting Constraints on the r-process?", **invited talk**, A. Aprahamian, International NUBA conference on Nuclear Physics and Nuclear Astrophysics, Antalya, Turkey, September 15-21, 2014.
169. "The Frontiers of Nuclear Physics in the 21<sup>st</sup> Century" **invited talk**, A. Aprahamian, Workshop on Thunderstorms and Elementary Particle Acceleration (TEPA-2014), Byuragan, Armenia, September 22-26, 2014.
170. "Interfaces of Nuclear Astrophysics with Fundamental Symmetries", **invited talk**, Fundamental Symmetries Town meeting, Chicago, IL, September 23, 2014.
171. "Nuclear Science, Exploring the heart of matter, serving society, and educating the next generation of innovators", **keynote speaker** at SigmaPiSigma event, Central Michigan University, April 9, 2015.

172. "Where is the site of the r-process", **invited talk**, Nucleus-Nucleus 2015, University of Catania, Catania, Italy, June 21-26, 2015.
173. "Can we use nuclear structure to constrain the sites of the r-process?", **invited talk**, Reflections on the Atomic Nucleus, University of Liverpool, Liverpool, UK, July 28-30, 2015.
175. "Stellar explosive Nucleosynthesis: interesting measurements that could be done at SPES", **invited talk**, SPES Nuclear Astrophysics Workshop, Reggia di Caserta, Caserta, Italy, November 13, 2015.
176. "FRIB: The Facility for Rare Isotope Beams and the R-process", **invited talk**, SPES Nuclear Astrophysics Workshop, Reggia di Caserta, Caserta, Italy, November 14, 2015.
178. "Nuclear Science: Exploring the heart of matter, serving society, educating the next generation of innovators", **invited talk**, Honolulu, Hawaii, ACS meeting of U.S. and Japan, Pacifichem, December 15-20, 2015
179. "Individual nuclear properties and their impact on r-process nucleosynthesis", invited talk, Workshop on Nuclear Astrophysics, Russbach, Austria (March 6-12, 2016)
180. "The origin(s) of the heavy elements in the universe and what Nuclear Physics has to say about it", **colloquium**, Old Dominion University, Norfolk, VA, March 29, 2016.
181. "Connecting FRIB to the Cosmos: Measurements of Nuclear Input Parameters for the r-process", **invited talk**, r-process workshop duration May 30-June 17, East Lansing, MI. I attended June 1-7, 2016.
182. "Neutrons and the Origin of the Heavy Elements", **invited talk**, "Program for the Neutron Nuclear Data Directions Into the Next Half Century", August 5, 2016, Santa Fe, New Mexico.
182. "The Nature of  $0^+$  states in Deformed Nuclei", **invited talk**, International Nuclear Physics Conference 2016, September 11-16, 2016, Adelaide, Australia.
183. "Vibrations or Coexisting Shapes?  $0^+$  states in Deformed Nuclei", **invited talk**, Heavy Ion Accelerator Symposium 2016, Sept. 18-20, 2016, Australian National University, Canberra, Australia.
184. "Nuclei in the Cosmos: Experiments on Earth", **colloquium**, Sept. 30, 2016, University of Wisconsin, Madison, WI.
185. "The life and death of stars: Nuclei in the Cosmos", **invited plenary talk**, International Conference on Fission and Properties of Neutron Rich Nuclei, Nov. 6-12, 2016, Sanibel, Florida.
186. "Nuclei as messengers of the Cosmos" **colloquium**, Nov. 28, 2016, North Carolina State University, Raleigh, NC.
187. "The evolution of Stars and the Synthesis of the Heavy Elements", **colloquium**, University of Jyväskylä, Finland, January 13, 2017.

188. “ Nuclear Physics in the Cosmos: Experiments on Earth”, **Arbeitstreffen Kernphysik**, Schleching, Germany, March 9, 2017.
189. “ Nature of 0+ states in Deformed Nuclei”, **invited talk**, International Conference on Advances in Radioactive Isotope Science (ARIS), Keystone, Colorado, May 30, 2017.
190. “ Stellar Helium Burning”, **invited talk** in place of Michael Wiescher, Gordon Conference on Nuclear Chemistry, Colby-Sawyer College, New London, NH, June 21, 2017.
191. “Low Lying Oscillations of Deformed Nuclei”, **invited talk**, International Conference on Capture Gamma Ray Spectroscopy and Related Topics, Shanghai, China, Sept. 18-22, 2017.
192. “Nature of 0+ Excitations in Nuclei”, **invited talk**, International Workshop on “Shapes and Dynamics of Atomic Nuclei: Contemporary Aspects, Sofia, Bulgaria, Oct 5-7 2017.
193. “ Fundamental Oscillations of Deformed Nuclei”, **invited plenary talk**, LASNPA-WONP-NURT, 2017, Meeting of South American Physical Society, Havana, Cuba, Oct. 20-28, 2017.
194. “ Nuclei in the Cosmos: Gravitational waves and their implications to Nuclear Physics”, **invited talk**, Pan Armenian Scientific Forum, Yerevan, Armenia, Nov. 6-8, 2017.
195. “Nuclear Physics and the r-process”, **invited talk**, **Symposium on 50 years of Beam-Exploring the Nuclear Frontier**, College Station, TX, Nov. 15-17, 2017.
196. “Is the nucleus a normal quantum mechanical system?”, **colloquium**, Physics Department, University of Guelph, Guelph, Canada, January 30, 2018.
197. “The r-process, gravitational waves, and nuclear physics”, **colloquium**, Joint Institute of Nuclear Reactions, Dubna (Moscow Region), Russia, Feb. 9, 2018.

## Reviewed Publications in Journals

1. “Q Values for Neutron-Rich Rubidium and Lanthanum Isotopes,” D.S. Brenner, M.D. Martel, A. Aprahamian, R.E. Chrien, R.L. Gill, H.I. Liou, M. Shmid, M.L. Stelts, A. Wolf, F.K. Wohn, D.M. Rehfield, H. Dejbakhsh, and C. Chung, *Phys. Rev.* **C26**, 2166 (1982).
2. “Role of Finite Boson Number in the Interacting Boson Approximation Description of  $\square_g$  Transitions in Deformed Nuclei,” R.F. Casten, D.D. Warner, and A. Aprahamian, *Phys. Rev.* **C28**, 894 (1983).
3. “Decay of  $^{142}\text{Ba}$  to Levels of Odd-Odd  $^{142}\text{La}$ ,” C. Chung, W.B. Walters, D.S. Brenner, A. Aprahamian, A. Wolf, R.L. Gill, M. Shmid, R.E. Chrien, Z. Berant, and L.-J. Yuan, *Phys. Rev.* **C28**, 2099 (1983).
4. “Parabolic Energy Dependence of Odd-Odd Multiplets in N=83 Nuclides,” W.B. Walters, C. Chung, D.S. Brenner, A. Aprahamian, R.L. Gill, R.E. Chrien, M. Shmid, A. Wolf, L.-J. Yuan, *Phys. Lett.* **125B**, 351 (1983).
5. “Identification and Decay of  $^{124}\text{Ag}$ ,” J.C. Hill, F.K. Wohn, Z. Berant, R.L. Gill, R.E. Chrien, C. Chung, and A. Aprahamian, *Phys. Rev.* **C29**, 1078 (1984).
6. “Empirically Determined Limits on Absolute Boson Numbers for Well Deformed Nuclei,” R.F. Casten and A. Aprahamian, *Phys. Rev.* **C29**, 1919 (1984).
7. “Axial Asymmetry and the Determination of Effective Gamma Values in the Interacting Boson Approximation,” R.F. Casten, A. Aprahamian, and D.D. Warner, *Phys. Rev.* **C29** (Rapid Comm.), 356 (1984).



8. "Observation of  $0^+$  States in  $^{118}\text{Cd}$  and the Systematics of Intruder States," A. Aprahamian, D.S. Brenner, R.F. Casten, R.L. Gill, A. Piotrowski, and K. Heyde, *Phys. Lett.* **140B**, 22 (1984).
9. "Study of the Three  $\beta^-$ -decaying Isomers of  $^{130}\text{In}$ ," B. Fogelberg, A. Aprahamian, R.L. Gill, H. Mach, and D. Rehfield, *Phys. Rev.* **C31**, 1026 (1985).
10. "The g-Factor of  $4^+_{11}$  States in the N=82 Isotones  $^{136}\text{Xe}$  and  $^{138}\text{Ba}$ ," Z. Berant, A. Wolf, J.C. Hill, F.K. Wohn, R.L. Gill, H. Mach, M. Rafailovich, H. Kruse, B.H. Wildenthal, G. Peaslee, A. Aprahamian, J. Golden, and C. Chung, *Phys. Rev.* **C31**, 570 (1985).
11. "g-Factor of the  $6^+_{11}$  State in  $^{132}\text{Te}$ ," B. Fogelberg, C. Stone, R.L. Gill, H. Mach, D.D. Warner, A. Aprahamian, and D. Rehfield, *Nucl. Phys.* **A451**, 104 (1986).
12. "First Observation of a Near Harmonic Vibrational Nucleus," A. Aprahamian, D.S. Brenner, R.F. Casten, R.L. Gill, and A. Piotrowski, *Phys. Rev. Lett.* **61**, 535 (1987).
13. "Levels of the Four Lowest Two-Particle Configurations in  $^{210}\text{Po}$  Studied by In-Beam gamma-Ray and Conversion-Electron Spectroscopy with the  $^{209}\text{Bi}(t, 2n)$  Reaction," L.G. Mann, K.H. Maier, A. Aprahamian, J.A. Becker, D.J. Decman, E.A. Henry, R.A. Meyer, N. Roy, W. Stoeffl, and G. Struble, *Phys. Rev.* **C38**, 74 (1988).
14. " $0^- \rightarrow 0^+$  Beta Decays of  $^{96}\text{Y}$  and the Collectivity of the  $0^+_{21}$  State in the Doubly Closed Subshell Nucleus,  $^{96}\text{Zr}$ ," H. Mach, G. Molnar, S.W. Yates, R.L. Gill, A. Aprahamian, and R.A. Meyer, *Phys. Rev.* **C37**, 254 (1988).
15. "Nuclear Structure of  $^{200}\text{Pt}$  from In-Beam Conversion Electron and  $\beta^-$ -ray Spectroscopy," S.W. Yates, E.M. Baum, E.A. Henry, L.G. Mann, N. Roy, A. Aprahamian, R.A. Meyer, R. Estep, *Phys. Rev.* **C37**, 1889 (1988).
16. "Electromagnetic Decay of  $10^+$  States and Yrast Isomers in  $^{208}\text{Pb}$ ," N. Roy, K.H. Maier, A. Aprahamian, J.A. Becker, D.J. Decman, E.A. Henry, L.G. Mann, R.A. Meyer, W. Stoeffl, and G.L. Struble, *Phys. Lett.* **B221**, 6 (1989).
17. "Picosecond Lifetime Measurements in  $^{116,118,120}\text{Cd}$  and the Structure of Normal and Intruder States," H. Mach, M. Moszynski, R.F. Casten, R.L. Gill, D.S. Brenner, J.A. Winger, W. Krips, C. Wesselborg, M. Büscher, F.K. Wohn, A. Aprahamian, D. Alburger, A. Gelberg, and A. Piotrowski, *Phys. Rev. Lett.* **63**, 143 (1989).
18. "Decay of the  $21/2^-$  Isomer in  $^{211}\text{Bi}$  and structure of the  $\nu g_{9/2}^2 \pi h_{9/2}$  Levels," K.H. Maier, A. Aprahamian, J.A. Becker, D.J. Decman, E.A. Henry, R.G. Lanier, L.G. Mann, R.A. Meyer, N. Roy, W. Stoeffl, and G. Struble, *Z. Phys.* **A332**, 263 (1989).
19. "Evidence for the existence of two-phonon collective excitations in deformed nuclei," H.G. Börner, J. Jolie, S.J. Robinson, B. Krusche, R. Piepenbring, R.F. Casten, A. Aprahamian and J.P. Draayer, *Phys. Rev. Lett.* **66**, 691 (1991).
20. "E1 transition in  $^{168}\text{Er}$ ," A. Aprahamian, *Phys. Rev.* **C64**, 2093 (1992).

21. "The enigma of  $^{114}\text{Cd}$ . A classical case of ambiguities in quantum mechanical state mixing," R.F. Casten, J. Jolie, H.G. Börner, D.S. Brenner, N.V. Zamfir, W.-T. Chou, and A. Aprahamian, *Phys. Lett.* **B297**, 19 (1992).
22. "Vibrations in Deformed Nuclei," A. Aprahamian, X. Wu, S.M. Fischer, W. Reviol, and J.X. Saladin, *Inst. Phys. Conf. Ser.* **No. 132**:Section 5, 585 (1993).
23. "Spectroscopy of  $^{96,97,98}\text{Ru}$ ," W. Reviol, U. Garg, I. Ahmad, A. Aprahamian, M.P. Carpenter, B.F. David, R.V.F. Janssens, T.L. Khoo, T. Lauritsen, Y. Liang, S. Naguleswaran, J.C. Walpe, D. Ye, *Nucl. Phys.* **A557**, 391C (1993).
24. "Vibrational Degrees of Freedom in Deformed Nuclei," A. Aprahamian, X. Wu, S.M. Fischer, W. Reviol, and J.X. Saladin, *Revista Mexicana Fisica* **39**, Suplemento 2, 1 (1993).
25. "Identical Bands and Multi-phonon Vibrations," X. Wu, A. Aprahamian, J. Castro-Ceron, and C. Baktash, *Phys. Lett.* **B316**, 235 (1993).
26. "Multiphonon Vibrational States in Deformed Nuclei," X. Wu, A. Aprahamian, S.M. Fischer, W. Reviol, G. Liu, and J.X. Saladin, *Phys. Rev.* **C49**, 1837 (1994).
27. "The STAR Experiment at the Relativistic Heavy Ion Collider," J.W. Harris et al., the STAR Collaboration, A. Aprahamian, N.N. Biswas and U. Garg, *Nucl. Phys.* **A566**, 277c (1994).
28. "Exotic Beams and Nuclear Structure in the A=80 Region of Nuclei," A. Aprahamian, A. Gadala-Maria, N. Cuka, *Revista Mexicana* **42**, 1 (1996).
29. "New High Spin States and Band Termination in  $^{83}\text{Y}$  and  $^{84}\text{Zr}$ ," T.D. Johnson, A. Aprahamian, C.J. Lister, D.J. Blumenthal, B. Crowell, P. Chowdury, P. Fallon, A.O. Machiavelli, *Phys. Rev.* **C55**, 1108 (1997).
30. "High-Spin States in  $^{76}\text{Br}$ ," D.F. Winchell, L. Wehner, J.X. Saladin, M.S. Kaplan, E. Landulfo, and A. Aprahamian, *Phys. Rev.* **C55**, 111-119 (1997).
31. "Study of excited states in  $^{208}\text{Pb}$  by particle-gamma coincidences with the  $^{207}\text{Pb}(d,p)^{208}\text{Pb}$  and  $^{209}\text{Bi}(t,\alpha)^{208}\text{Pb}$  reactions," M. Schramm, K.H. Maier, M. Rejmund, L.D. Wood, N. Roy, A. Kuhner, A. Aprahamian, J. Becker, M. Brinkman, D.J. Decman, E.A. Henry, R. Hoff, D. Manatt, L.G. Mann, R.A. Meyer, W. Stoeffl, G.L. Struble, and T.-F. Wang, *Phys. Rev.* **C56**, 1320-1337 (1997).
32. "The endpoint of the rp-process," H. Schatz, A. Aprahamian, J. Görres, M. Wiescher, F.K. Thielemann, T. Rauscher, J.F. Rembges, K.L. Kratz, B. Pfeiffer, P. Möller, H. Herndl, B.A. Brown, H. Rebel, *Nucl. Phys.* **A621**, 417c (1997).
33. "The Astrophysical rp-process and Nuclear Structure in the A=80 Region of Nuclides," **A. Aprahamian**, Proceedings of the 9th International Conference on Capture Gamma-Ray Spectroscopy and Related Topics, Springer, p. 535 (1997).
34. "Delayed  $g_{9/2}^2$  alignment in the N=Z nucleus  $^{72}\text{Kr}$ ," G. De Angelis, C. Fahlander, A. Gadea, W. Gelletly, A. Aprahamian, D. Bazzacco, F. Becher, P.G. Bizzeti, A. Bizzeti-Sona, F. Brandolini, D. de Acuña, M. De Poli, J. Eberth, D. Foltescu, S. Lenzi, S. Lunardi, T. Martinez, D.R. Napoli, P. Pavan,

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35. "Band crossing phenomena in  $N = Z$  nuclei - A probe to  $T = 0$  pairing correlations?" de Angelis G, Fahlander C, Gadea A, Farnea E, Gelletly W, Aprahamian A, Bazzacco D, Becker F, Bizzeti PG, Bizzeti-Sona A, Brandolini F, De Acuna D, De Poli M, Eberth J, Foltescu D, Lenzi SM, Lunardi S, Martinez T, Napoli DR, Pavan P, Petrache CM, Alvarez CR, Rudolph D, Rubio B, Skoda S, Spolaore P, Thomas G, Ur C, Weiszflog M, Wyss R, ACTA PHYSICA HUNGARICA NEW SERIES-HEAVY ION PHYSICS **6**, 269-273, (1997).
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