

## Michael C.F. Wiescher

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### Educational Record

Abitur:	Gymnasium Münchberg, Bayern,	1969
Vordiplom in Physics	Universität Münster, Physikalisches Institut,	1972
Diplom in Solid State Physics	Universität Münster, Physikalisches Institut,	1975
Ph.D. in Nuclear Physics (summa cum laude)	Universität Münster, Institut für Kernphysik,	1980

### *Present Positions*

- Freimann Chair Professor of Physics  
University of Notre Dame
- Director of the Joint Institute for Nuclear Astrophysics, JINA,  
University of Chicago, Michigan State University,  
University of Notre Dame
- Director of the Nuclear Science Laboratory, NSL  
University of Notre Dame, USA
- Adjunct Professor, Michigan State University, USA
- Concurrent Professor, University of Surrey, UK

### *Honors*

Fellow of the American Physical Society,	1998
American Physical Society, Hans Bethe Prize of the DNP & DAP	2003
Presidential Award, University of Notre Dame,	2004
Fellow of the Center of Social Concerns, University of Notre Dame,	2005-2008
Fellow of the Reilly Center of Science, Technology, and Values, University of Notre Dame,	2006-

Edmond P. Joyce Award for Excellence in Undergraduate Teaching, University of Notre Dame,	2007
Humboldt-Forschungspreis (Humboldt Research Award), Alexander von Humboldt Stiftung, Bonn, Germany	2007
Faculty Fellow, John A. Kaneb Center for Teaching and Learning	2009-2010
Fellow of the American Association for the Advancement of Science AAAS	2010

## **Professional Activities**

### ***Schools***

- Invited Lectures at the International Summer School on Nuclear Astrophysics, Tianjin, P.R. China August 1991
- Invited Lectures at the Lake Louise Winter School on Subatomic Physics, Lake Louise, Canada February 1997
- Invited Lectures at the Mexican Summer School on Nuclear Astrophysics, Guanajato, Mexico July 1997
- Invited Lecture at International School on Structure of Particles and Nuclei and their Interactions, Tashkent, Uzbekistan October 1997
- Invited Lectures at Université Catholique de Louvain la Neuve, Louvain la Neuve, Belgium June 1999
- Invited Lectures at UK Astrophysics School, University of Surrey and University of York April 2001
- Invited Lecture at the XIX Autumn School on “New Perspectives with Nuclear Radioactivity,” Lisbon, Portugal October 2001
- Invited Lectures at the XI Jorge André Swieca Summer School “Nuclear Physics,” São Paulo, Brazil February 2003
- Invited Lectures at the Marie Curie Training Program for Nuclear Physics at the European Centre for Theoretical Studies in Nuclear Physics and Related Areas (ECT), Trento, Italy September 2003
- Invited Lectures at the 16<sup>th</sup> Jyväskylä Summer School in Physics, Jyväskylä, Finland July 2006
- Invited Lecture at the 4<sup>th</sup> Santa Tecla Summer School in Nuclear Astrophysics, Santa Tecla, Sicily, Italy September 2007
- Invited Lectures at Workshop cum School on Nuclear Astrophysics, Kolkata, India February 2008
- Invited Lecture at the National Nuclear Physics Summer School Michigan State University, East Lansing MI, USA July 2009
- Invited lectures at the WE-Heraeus Summer School on Nuclear Astrophysics in the Cosmos July 2010

### ***National & International Research and Steering Committees***

- National Steering Committee for a Radioactive Ion Beam Facility, 1990 – 2008
- National Steering Committee for a Nuclear Astrophysics Data Center, 1995 – present
- NuPECC Working Group on Nuclear and Particle Astrophysics, 1996 – 1998

- National Steering Committee on Opportunities in Nuclear Astrophysics, 1999 – present
- NSAC Long Range Plan Working Committee, 2001
- Site Selection Committee for a U.S. Underground National Facility, 2001
- National Steering Committee for the Radioactive Ion Accelerator RIA, 2001 – 2004
- RIA Theory Working Group, 2002 – 2004
- Topical Theory Working Group “Nuclear Astrophysics” (chair), 2003 – 2004
- Particle and Nuclear Astrophysics and Gravitation International Committee (PaNAGIC) of the International Union of Pure and Applied Physics (IUPAP), 2004 – 2007
- National Academy; Rare Isotope Science Assessment Committee, RISAC, 2005 - 2006
- National Research Council, Canada; Advisory Committee for TRIUMF, ACOT, 2005 –
- NSAC Nuclear Physics Long Range Plan Writing Committee, 2007
- Planning Committee for a NASA Small Explorer SMEX Mission of an Advanced Compton Telescope, UC Berkeley, 2007 – 2008
- Wissenschaftlicher Rat (Academic Council) der Gesellschaft für Schwerionenforschung GSI, GmbH, Darmstadt, Germany, 2008 –
- Board of Physics and Astronomy, National Academies, 2009 –
- Co-Chair of Steering committee on Basic Research Directions on User Science at the National Ignition Facility 2010 –

### ***National Research Steering Activities***

- Presentation of the RIA Science case at DOE to Dr. R. Orbach, January 2003
- Presentation and Review of Nuclear Astrophysics with RIA for DOE site visit (Dr. R. Orbach) at ANL
- Presentation on the Science Case of RIA at OSTP to the Presidential Science Advisor Dr. Marburger, Nov. 2003
- Presentation on the relevance of RIA for Astronomy at OMB and OSTP, February 2004
- Presentation to the National Science Foundation (NSF) on the Science Case for an Accelerator Facility in the Deep Underground Laboratory, DUSEL, November 2006

### ***National & International Program and Facility Review Committees***

- Long Range Planning Committee, TRIUMF Laboratory Vancouver, 1996 – 1997
- Director’s Advisory Committee, Berkeley National Laboratory, 1996 – 1997
- NSAC Review Committee for DOE & NSF Low Energy Facilities, 2001 – 2002
- Member of Study Group for the “International Accelerator Facility for Beams of Ions and Antiprotons” of the German Wissenschaftsrat, 2001 – 2003
- NSAC Sub-Committee of Visitors to DOE, 2003
- NSAC Sub-Committee on Comparing the Rare Isotope Accelerator and the Gesellschaft für Schwerionenforschung (GSI) Facility, 2003 – 2004
- Review Panel of the Program of the Helmholtz Society (Germany) on “Physics of Hadrons and Nuclei,” 2003 – 2004

### ***American Physical Society Committees***

- DNP Executive Committee, 1999 – 2001

- DNP Webpage Committee (chair), 1999 – 2003
- Bethe Prize Committee, 2003
- Bonner Prize Committee, 2003 – 2005
- DNP Program Committee, 2006 – 2008
- AIP Committee on the Physics and Astronomy Classification Scheme, 2006

### ***User Executive and Program Advisory Committees***

- User Executive Committee, NSCL, Michigan State University, 1993 – 1996
- Program Advisory Committee, Atlas, Argonne National Laboratory, 1994 – 1996
- Experiment Evaluation Committee, TRIUMF Laboratory Vancouver, 1997 – 2001
- User Executive Committee, HRIBF, Oak Ridge National Laboratory, 1997 – 2000
- User Executive Committee, Atlas, Argonne National Laboratory, 1997 – 2001
- Working Group Astrophysics GSI, Darmstadt, 1997 – 1999
- Oak Ridge National Laboratory, Physics Division Advisory Committee, 1998 – 2001
- Program Advisory Committee, Oak Ridge HRIBF facility, 2000 – 2004
- Terascale Supernova Center, External Advisory Panel, 2001 – 2006
- Science Advisory Committee of the Department of Energy SciDAC  
Supernova Science Center of the University of California Santa Cruz,  
the University of Arizona, Lawrence Livermore National Laboratory,  
and the Los Alamos National Laboratory, 2002 – 2006
- Institute for Nuclear Theory (INT), Program Advisory Committee, 2003 – 2006
- Director's Advisory Committee, DOE Triangle University Nuclear Laboratory (TUNL),  
Duke University, 2004 - present
- Program Advisory Committee for Nuclear Structure and Nuclear Astrophysics for the  
International Facility for Antiproton and Ion Research (FAIR) at GSI, Darmstadt,  
Germany, 2004 - present
- Team Leader in the n-ToF collaboration at CERN, Geneva, Switzerland, 2004-2007
- User Executive Committee, RIA, 2005 – present
- International Advisory Committee, HUSEP, 2006 – 2007
- Program Advisory Committee, RIKEN Tokyo, Japan, 2007

### ***Editorial and Scientific Review Activities***

- Editorial board of
  - Physical Review C, 1997 – 2000
  - Dictionary of Physics, Stockton Press, 1997 – 2001
  - Nuclear Physics A, Elsevier Publishing House, 1998 – present
- Associate Editor      Nuclear Physics A, 2000 – present

- Book Editions
  - Nuclei in the Cosmos, North-Holland, Amsterdam 1997
  - Nuclear Astrophysics, Elsevier, Amsterdam, 2006
- Reviewer for
  - European Journal of Physics
  - Nuclear Physics A
  - Physical Review C
  - Physical Review Letters
  - Astrophysical Journal
  - Zeitschrift für Physik
  - Journal of Physics G
  - Reviews of Modern Physics

### ***Conference Program Advisory and Organizing Committees***

- International Advisory Committee: 2<sup>nd</sup> Conference on Radioactive Beams, Louvain la Neuve, Belgium, 1991
- International Advisory Committee: Gull Lake Conference, Gull Lake, MI, 1996
- Program Committee: 9<sup>th</sup> International Conference on Capture Gamma-Rays, 1996
- Chair of Organizing Committee: 4<sup>th</sup> Symposium on Nuclei in the Cosmos, Notre Dame, IN, USA, 1996
- Coordinator Astrophysics Session: 6<sup>th</sup> Conference on the Intersections of Particle and Nuclear Physics, 1997
- Coordinator Astrophysics Session: International Conference on Nuclear Data for Science and Technology, Trieste, Italy, 1997
- International Advisory Committee: 2<sup>nd</sup> Conference on Nuclear Physics in the Universe, Oak Ridge, TN, 1997
- Scientific Advisory Committee: 5<sup>th</sup> Conference on Nuclei in the Cosmos, Volos, Greece, 1998
- Organizing Committee: Applications of High Precision  $\gamma$  Spectroscopy, Notre Dame, IN, 1998
- Organizing Committee: NSF Town Meeting on Future of Nuclear Astrophysics, Notre Dame, IN, 1999
- International Advisory Committee: Oaxtepec Symposium on Nuclear Physics, Oaxtepec, Taxco, Mexico, 1999 - 2003
- International Advisory Committee: 10<sup>th</sup> Conference on Capture Gamma Rays, Santa Fe, NM, 1999
- Scientific Advisory Committee: 6<sup>th</sup> Conference on Nuclei in the Cosmos, Arhus, Denmark, 2000
- Organizing Committee: 3<sup>rd</sup> Workshop on Frontiers in Nuclear Astrophysics, 2000
- Convener: Astrophysics Working Group at the RIH2000 Town Meeting, 2000

- Organizing Committee: DNP/DOE Town Meeting on the Future of Nuclear Structure and Nuclear Astrophysics, Oakland, CA, 2000
- Advisory Committee: XVII and XVIII International Nuclear Physics Divisional Conference “Nuclear Physics and Astrophysics,” 2001, 2004
- Scientific Advisory Committee: 7<sup>th</sup> International Conference on “Nuclei in the Cosmos,” Tokyo, Japan, 2002
- International Advisory Committee: 11<sup>th</sup> Conference on Capture Gamma Rays, Prague, Czech Republic, 2002
- Organizing Committee: Workshop on TRIUMF-TRAP, Vancouver, Canada, 2002
- Organizing Committee: Topical Workshop on “Nuclear Astrophysics at the Limits of Stability,” DNP/APS fall meeting, East Lansing, MI, 2002
- International Advisory Committee: 3<sup>rd</sup> International Conference on “Fission and Properties of Neutron-Rich Nuclei,” Sanibel Island, Florida, 2002
- Convener: Working Group on Solar Neutrinos and Stellar Nuclear Reactions International Workshop on “Neutrinos and Subterranean Science” NeSS2002, Washington, D.C., 2002
- Convener: Astrophysics Session at the LOWq-03 Workshop on Electromagnetic Nuclear Reactions at Low Momentum Transfer, Halifax, Nova Scotia, July, 2003
- Organizing Committee: Workshop on Underground Accelerators for Nuclear Astrophysics, Tucson, AZ, October, 2003
- Organizing Committee: Workshop on Nuclear Astrophysics, ECT Trento, Italy, May 24-28, 2004
- International Advisory Committee: 7<sup>th</sup> International Conference on “Nuclei in the Cosmos,” TRIUMF, Vancouver, Canada, July 19-23, 2004
- International Advisory Committee: 4<sup>th</sup> International Conference on Exotic Nuclei and Atomic Masses (ENAM2004), Callaway Gardens in Pine Mountain, Georgia USA, September 12-16, 2004
- Organizer: R-Matrix School at Notre Dame, University of Notre Dame, USA, October 4-15, 2004
- International Advisory Committee: XXVIII Symposium on Nuclear Physics, Cocoyoc, Morelos, Mexico, January 4-7, 2005
- International Advisory Committee: International Conference on the Interface between Nuclear Structure, Astrophysics and Reactions (NUSTAR05), University of Surrey, Guildford, UK, January 5-8, 2005
- Organizing Committee: JINA r-Process Discussions, University of Notre Dame, USA, January 28-29, 2005
- Organizing Committee: Cosmology: Physics and Philosophical Perspectives, Center of Continuing Education, Notre Dame, USA, April 20, 2005
- Organizing Committee: The Workshop on Classical Novae and Type 1a Supernovae, Santa Barbara, CA, USA, May 20-21, 2005
- Organizing Committee: The Physics of the s-Process, Center for Physics, Aspen, Colorado, USA, May 29-June 12, 2005
- Organizer: The School on Tools and Toys in Nuclear Astrophysics, University of Notre Dame, IN, USA, June 20-July 1, 2005
- International Advisory Committee: ICNRP’05 – 5<sup>th</sup> International Conference on Nuclear and Radiation Physics, Almaty, Republic of Kazakhstan, September 26-29, 2005
- Local Organizing Committee: 12<sup>th</sup> Conference on Capture Gamma Rays, Notre Dame, IN, October, 2005

- Organizer: Lecture Series on “Perspectives on Nuclear Weapons and Warfare,” Notre Dame, IN, August-December 2005
- International Advisory Committee: OMEG05, Origin of Matter and Evolution of Galaxies, University of Tokyo, Tokyo, Japan, November 8-11, 2005
- International Advisory Committee: XXIX Symposium on Nuclear Physics, Cocoyoc, Morelos, Mexico, January 4-7, 2006
- Organizing Committee: Workshop on Massive Stellar Progenitors "The Final Days of Burning", Santa Barbara, USA, March 9 - 10, 2006
- Organizing Committee: NSCL workshop on low energy nuclear astrophysics accelerator, East Lansing, MI, May 23-25, 2006
- Organizing Committee: A NIC-IX Satellite Workshop on "Compiled Data Requirements for Modeling in Nuclear Astrophysics," Basel, Switzerland, June 23-2, 2006
- International Advisory Committee: NIC IX – International Symposium on Nuclear Astrophysics “Nuclei in the Cosmos,” CERN, Geneva, Switzerland, June 25-30, 2006
- Organizing Committee: JINA Workshop on " The Status of  $^{12}\text{C}(\alpha,\gamma)^{16}\text{O}$ , the 'Holy Grail' of Nuclear Astrophysics," Caltech, Pasadena, December 15, 2006
- International Advisory Committee: XXX Symposium on Nuclear Physics, Cocoyoc, Morelos, Mexico, January, 2007
- International Advisory Committee on the 21st International Nuclear Physics Divisional Conference of the European Physical Society: Nuclear Physics in Astrophysics III, Dresden, Germany, March 26-31. 2007
- Advisory Board: Workshop on experimental opportunities for nuclear astrophysics at the Frankfurt neutron source of the Stern-Gerlach-Zentrum - The FRANZ Neutron Source -, Frankfurt, Germany, May 21 – 23, 2007
- Organizing Committee: CARINA - JINA meeting on “Nuclear Physics Data Compilation for Nucleosynthesis Modeling” Trento, Italy, May 29 – June 1, 2007
- International Advisory Committee: INPC2007, International Nuclear Physics Conference, Tokyo International Forum, Japan, June 3-8, 2007
- International Advisory Committee: “Nuclear Astrophysics Beyond the First 50 Years,” Caltech, Pasadena, July 24-27, 2007
- Organizing Committee: 2<sup>nd</sup> JINA Conference Frontier 2007, Notre Dame, IN August 19-21, 2007
- International Advisory Committee: Carpathian Summer School “ Exotic nuclei & Nuclear/Particle Astrophysics,” Sinaia, Romania, August 20-31, 2007
- Organizing Committee: Workshop on “Nuclear Astrophysics at the National Ignition Facility,” Livermore, CA, August 27-30, 2007
- International Advisory Committee: 4<sup>th</sup> Intl Conference on Fission and Properties of Neutron Rich Nuclei, Sanibel Island, FL, November 11-17, 2007
- International Advisory Committee: XXXI Symposium on Nuclear Physics, Cocoyoc, Morelos, Mexico, January, 2008
- Organizing Committee: Workshop on “R-Matrix and Nuclear Reactions in Stellar Hydrogen and Helium Burning,” Santa Fe, New Mexico, USA, April 21 - 23, 2008
- International Advisory Committee: 10th Symposium on Nuclei in the Cosmos, Mackinac Island, MI, July 27 - August 1, 2008
- International Advisory Committee: 13<sup>th</sup> Conference on Capture Gamma Rays, Köln, Germany, 2008

- Organizing Committee: Workshop on Solar Fusion Cross Sections for the pp Chain and CNO Cycle; INT, Seattle, WA, USA, January 21 – 23, 2009
- Organizing Committee: Challenge for Laboratory Nuclear-Astrophysics in Underground and Surface CLAUS 2009; Anacapri, Italy, April 27 – 29, 2009
- International Advisory Committee: Radioactive Nuclear Beams Conference, RNB8; Grand Rapids, MI, USA, May 26 – 30, 2009
- International Advisory Committee: The 10<sup>th</sup> International Conference on Nucleus-Nucleus Collisions, Beijing, China, August 16 – 21, 2009
- International Advisory Committee: Santa Tecla School on Nuclear Astrophysics, Catania, Sicily, Italy, September 2009
- International Advisory Committee: Third joint meeting of the Division of Nuclear Physics of the American Physical Society and the Physical Society of Japan; Waikalola Village, Hawaii, USA, October 13-17, 2009
- International Advisory Committee: VIII Latin American Symposium on Nuclear Physics and Applications; Santiago de Chile, Chile, December 15-19, 2009
- International Advisory Committee : International Symposium on Origin of Matter and Evolution of the Galaxies (OMEG10), Osaka, Japan March 8-10, 2010
- International Advisory Committee: Carpathian Summer School of Physics 2010, Sinaia, Romania, June 20-July 3, 2010
- Session Convenor: INPC2010, International Nuclear Physics Conference, TRIUMF, Vancouver Canada, July 4-9, 2010
- International Advisory Committee: NIC XI – International Symposium on Nuclear Astrophysics “Nuclei in the Cosmos,” Heidelberg, Germany, July 19-23, 2010
- Organizing Committee: Nuclear Physics in High Density Environments, London, UK March 13-15, 2011
- International Advisory Committee: Nuclear Physics in Astrophysics 5 (NPA5) Conference in Eilat, Israel, April 3-8, 2011
- Organizing Committee: Workshop on Basic Research Directions on User Science at the National Ignition Facility (NIF), Washington, DC, May 9-12, 2011
- Organizing Committee: Nuclear Physics of the Astrophysical p-Process, Istanbul, Turkey, May 25-27, 2011
- International Advisory Committee: IX Latin American Symposium on Nuclear Physics and Applications; Quito, Ecuador, July 15-19, 2011
- International Advisory Committee: 14<sup>th</sup> Conference on Capture Gamma Rays, Guelph, Canada, August 2011
- International Advisory Committee: Santa Tecla School on Nuclear Astrophysics, Catania, Sicily, Italy, September 2011
- International Advisory Committee: NIC XI – International Symposium on Nuclear Astrophysics “Nuclei in the Cosmos,” Melbourne, Australia, August 5-10, 2012

## Scientific Reports

1. Report of the North American Steering Committee for the IsoSpin Laboratory; 1991, “The IsoSpin Laboratory, Research Opportunities with Radioactive Nuclear Beams”  
<http://www.nsl.msu.edu/future/ria/process/whitepapers/isospin1-15.pdf>
2. Report of the North American Steering Committee for the IsoSpin Laboratory, 1995, “Overview of research opportunities with radioactive nuclear beams”  
<http://www.nsl.msu.edu/future/ria/process/whitepapers/isl95.pdf>
3. Report of the Working Group on Nuclear and Particle Astrophysics to the Nuclear Physics European Collaboration Committee (NuPECC), Basel 1997, “Nuclear and Particle Astrophysics”  
<http://quasar.physik.unibas.ch/nupecc/> and  
[http://www.nupecc.org/report97/report97\\_pre/report97\\_pre.html](http://www.nupecc.org/report97/report97_pre/report97_pre.html)
4. “Report on Scientific Opportunities with fast radioactive beams from RIA”  
<http://www.nsl.msu.edu/future/ria/process/whitepapers/opportunitiesffbeam.pdf>
5. Report on the Town Meeting in Nuclear Astrophysics at Notre Dame, IN, 1999, “Opportunities in Nuclear Astrophysics”  
[http://www.nd.edu/%7Ensl/Research\\_Facilities/KN\\_site/KN\\_files/whitep.pdf](http://www.nd.edu/%7Ensl/Research_Facilities/KN_site/KN_files/whitep.pdf)
6. Report on the Town Meeting in Physics with RIA at Duke University, NC, 2000, “RIA Physics White Paper”  
<http://www.phy.anl.gov/div/rib/ria-whitepaper-2000.pdf>
7. Report on the DNP Town Meeting of the NSAC Subcommittee in Oakland, CA, 2000, “Nuclear Structure and Astrophysics”  
<http://www.star.bnl.gov/STAR/nsac/papers/nuclear-structure.pdf>
8. Report on RIA to the National Academy, 2000, “The Rare Isotope Accelerator RIA”  
<http://www7.nationalacademies.org/bpa/1RIA.pdf>
9. The DOE/NSF Nuclear Science Advisory Committee Report, 2002, “Opportunities in Nuclear Science: A Long Range Plan for the Next Decade”  
[http://www.sc.doe.gov/production/henp/np/nsac/LRP\\_5547\\_FINAL.pdf](http://www.sc.doe.gov/production/henp/np/nsac/LRP_5547_FINAL.pdf)
10. Report of the National Underground Laboratory Committee; Berkeley, CA, 2001, “The Bahcall Report”  
<http://int.phys.washington.edu/NUSL/underground.html>
11. Report on Underground Science; 2001, “Underground Science”  
<http://www.sns.ias.edu/~jnb/Laboratory/science.pdf>
12. Report of the NSAC Subcommittee Low Energy Nuclear Physics, 2001  
<http://www.sc.doe.gov/production/henp/np/nsac/LEreport.pdf>

13. Report on the Status of the CERN, neutron spallation facility n-ToF, Geneva, 2001, “The n-ToF Collaboration”  
<http://www.ba.infn.it/~ntof/reports/StatusReport.pdf>
14. Report of the Working Group on Solar Neutrinos and Stellar Processes at the NSF workshop NESS2002 on Subterranean Science, Washington, 2002, “Solar Neutrinos and Stellar Processes”  
[http://mocha.phys.washington.edu/~int\\_talk/WorkShops/Neutrino02/Plenary/People/SolarStellar/SolarStellar\\_Exec\\_Summary.pdf](http://mocha.phys.washington.edu/~int_talk/WorkShops/Neutrino02/Plenary/People/SolarStellar/SolarStellar_Exec_Summary.pdf)
15. A White Paper on “The Intellectual Challenges of RIA,” RIA Steering Committee, Washington, DC 2003: <http://www.ornl.gov/ria/intell.pdf>
16. Report to the NSAC Subcommittee for the Implementation of the 2002 Long Range Plan, 2005, “Goals and Status of Nuclear Astrophysics”
17. National Academies Report on “Scientific Opportunities with a Rare Isotope Facility in the United States,” Washington, DC, 2006,  
<http://www7.nationalacademies.org/bpa/RISAC.html>
18. Technical Report on the “Underground Accelerator Laboratory for Nuclear Astrophysics” at DUSEL, 2007, [http://www.dusel.org/TechnicalDocuments/Final/ualna\\_final.pdf](http://www.dusel.org/TechnicalDocuments/Final/ualna_final.pdf)
19. NSAC Long Range Plan for Nuclear Physics and Nuclear Astrophysics, 2007
20. White paper on “Nuclei in the Cosmos” for the NRC Decadal Review of Astronomy and Astrophysics, February 2009
21. Report on “Opportunities for a Nuclear Science Program at the National Ignition Facility NIF” April 2009
22. Office of Science, Department of Energy Brochure on “Nuclear Physics Highlights”, September 2009

## Positions

Freimann Professor of Physics Department of Physics University of Notre Dame	September 1998 – present
Visiting Professor Department of Physics University of Surrey	January 2001 – June 2001
Full Professor Department of Physics University of Notre Dame	September 1993 – 1998
Visiting Professor Department de Physique Nucleaire Universite de Louvain la Neuve	April 1993 – Aug. 1993 June – July 1994
Visiting Scientist Institut für Kernphysik III Kernforschungszentrum Karlsruhe	June 1992 – March 1993
Associate Professor Department of Physics University of Notre Dame	September 1990 – Sept. 1993
Visiting Scientist Institut für Kernphysik III Kernforschungszentrum Karlsruhe	June 1988 – August 1988 June 1990 – August 1990
Assistant Professor Department of Physics University of Notre Dame	May 1986 – August 1990
Senior Research Associate Institut für Kernchemie Universität Mainz	Oct. 1983 – May 1986
Visiting Associate Kellogg Rad. Laboratory California Institute of Technology	July 1984 – Nov. 1984 Mar. 1985 – May 1985
Research Associate IIPh Van de Graaff Laboratory Ohio State University	Oct. 1982 – Sept. 1983

Postdoctoral Fellow Van de Graaff Laboratory Ohio State University	Sept. 1980 – Sept. 1982
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Postdoctoral Research Assistant Institut für Kernphysik Universität Münster	June 1980 – Sept. 1980
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Graduate Teaching and Research Associate Institut für Kernphysik Universität Münster	April 1977 – May 1980
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Department of Environmental Protection County Wuppertal, Germany	May 1975 – April 1976
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Teaching and Research Associate Physikalisches Institut Universität Münster	April 1973 – April 1975
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### **Societies and Membership**

Member of the Deutsche Physikalische Gesellschaft (DPG)  
 Member of the American Astronomical Society (AAS)  
 Fellow of the American Physical Society (APS)  
 Fellow of the American Association for the Advancement of Science (AAAS)

## **Publications in Refereed Journals**

### ***Reviews and Topical Reports***

1. "Explosive Hydrogen Burning," A. Champagne, M. Wiescher, *Ann. Rev. Nucl. Part. Sci.* **42**, 39 (1992).
2. "Nuclei in the Cosmos: Present Status and the Future of Nuclear Astrophysics," M. Wiescher and H. Oberhummer, *Nuclear Physics News* **7**, 11 (1997).
3. "Current Quests in Nuclear Astrophysics at Experimental Approaches," F. Käppeler, F.K. Thielemann, M. Wiescher, *Ann. Rev. Part. Nucl. Science* **48**, 175 (1998).
4. "Reactions with radioactive beams and explosive nucleosynthesis," M. Wiescher, H. Schatz, and A.E. Champagne, *Phil. Trans. R. Soc. London A* **365**, 2105-2136 (1998).
5. "Break-Out Reactions from the CNO Cycles," M. Wiescher, J. Görres, H. Schatz, *J. of Physics G* **25**, R133-R161 (1999).
6. "Nuclear structure near the particle drip lines and explosive nucleosynthesis processes," K.-L. Kratz, J. Görres, B. Pfeiffer, M. Wiescher, *Journal of Radioanalytical and Nuclear Chemistry*, 243 133-140 (2000).
7. "Nuclear reactions and stellar processes," K. Langanke and M. Wiescher, *Reports on Progress in Physics* **64**, 1657-1701 (2001).
8. "Element Synthesis in Stars," F.-K. Thielemann, F. Brachwitz, D. Freiburghaus, E. Kolbe, G. Martinez-Pinedo, T. Rauscher, F. Rembges, W.R. Hix, M. Liebendörfer, A. Mezzacappa, K.-L. Kratz, B. Pfeiffer, K. Langanke, K. Nomoto, S. Rosswog, H. Schatz, and M. Wiescher, *Prog. in Part. and Nucl. Phys.* **46**, 5-22 (2001).
9. "Nuclear astrophysics: a new era," M. Wiescher, P. Regan, and A. Aprahamian, *Physics World*, February 2002, pp. 33-38.
10. "Nuclear Astrophysics and Nuclei Far from Stability," K. Langanke, F.-K. Thielemann and M. Wiescher, *Lect. Notes Phys.* **651**, (Springer-Verlag, Berlin, Heidelberg) 383-467 (2004).
11. "Nuclear structure aspects in nuclear astrophysics," A. Aprahamian, K. Langanke, and M. Wiescher, *Progress in Particle and Nuclear Physics* **54**, 535-613 (2005).
12. "US looks to new rare-isotope science facility," K. Kemper, B. Sherrill, M. Wiescher, *CERN Courier* 47, (2007)
13. "The Cold and Hot CNO Cycles", M. Wiescher, J. Görres, E. Überseder, G. Imbriani, M. Pignatari, *Ann. Rev. Nucl. Part. Science* **60**, 381 (2010)

### *Scientific Publications*

14. "Untersuchungen zum Mikroklima ausgewählter Biotope," W. Kolbe, M. Wiescher, Berichte des Naturwissenschaftlichen Vereins 30, 12 (1977).
15. "Helium Burning of  $^{18}\text{O}$ ," H.P. Trautvetter, M. Wiescher, K.U. Kettner, C. Rolfs and J.W. Hammer, Nuclear Physics A297, 489 (1978).
16. "The  $^{18}\text{O}(\text{p},\alpha)^{15}\text{N}$  Reaction at Stellar Energies," H. Lorenz-Wirzba, P. Schmalbrock, H.P. Trautvetter, M. Wiescher, C. Rolfs and W.S. Rodney, Nuclear Physics A313, 346 (1979).
17. "Beam Properties of the 4MV Dynamitron at Stuttgart," J.W. Hammer, B. Fischer, H. Hollick, H.P. Trautvetter, K.U. Kettner, C. Rolfs, and M. Wiescher, Nuclear Instruments and Methods 161, 189 (1979).
18. "Search for Low-Energy resonances in  $^{25}\text{Mg}(\text{p},\gamma)^{26}\text{Al}$ ," K. Ellix, H.W. Becker, J. Görres, K.U. Kettner, M. Wiescher and C. Rolfs, Zeitschrift für Physik A293, 261 (1979).
19. "Nuclear and Astrophysical Aspects of  $^{18}\text{O}(\text{p},\gamma)^{19}\text{F}$ ," M. Wiescher, H.W. Becker, J. Görres, K.U. Kettner, H.P. Trautvetter, C. Rolfs, R.E. Azuma, W.E. Kieser, K.P. Jackson and J.W. Hammer, Nuclear Physics A349, 165 (1980).
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80. “Multichannel R-matrix Analysis of CNO Cycle Reactions,” E.C. Simpson, R.E. Azuma, M. Wiescher, A. Champagne, P. Bertone, H.-P. Trautvetter, J. Görres, and C. Ugalde, Proceedings of 12th International Symposium on Capture Gamma-ray Spectroscopy and Related Topics, Notre Dame, Indiana, A. Woehr and A. Aprahamian, Eds., pp. 599-600 (2006).
81. “Origin of the Main r-Process Elements,” K. Otsuki, J. W. Truran, M. Wiescher, J. Görres, G. Mathews, D. Frekers, A. Mengoni, A. Bartlett, J. Tostevin, in Origin of Matter and Evolution of Galaxies 2005: New Horizon of Nuclear Astrophysics and Cosmology, Eds. S. Kubono, W. Aoki, T. Kajino, T. Motobayashi, and K. Nomoto, AIP Conference Proceedings, Vol. 847, pp. 227-232 (2006).
82. “Recent Results at n\_TOF and Future Perspectives,” S. Marrone, M. Wiescher and the n\_Tof Collaboration, IX<sup>TH</sup> TORINO WORKSHOP ON EVOLUTION AND NUCLEOSYNTHESIS IN AGB STARS AND THE IIND PERUGIA WORKSHOP ON NUCLEAR ASTROPHYSICS. AIP Conference Proceedings, Volume 1001, pp. 90-97 (2008)
83. “Thermonuclear Reaction Rate Libraries and Software Tools for Nuclear Astrophysics,” M. Smith, R. Cyburt, H. Schatz, M. Wiescher, K. Smith, S. Warren, R. Ferguson, E. Lingerfelt, K. Buckner, C.D. Nesaraja; ORIGIN OF MATTER AND EVOLUTION OF GALAXIES: The 10th International Symposium on Origin of Matter and Evolution of Galaxies: From the Dawn of Universe to the Formation of Solar System. AIP Conference Proceedings, Volume 1016, pp. 466-468 (2008).
84. “Experimental study of the variation of alpha elastic scattering cross sections along isotopic and isotonic chains at low energies,” G.G. Kiss, D. Galaviz, Gy Gyürky, Z. Elekes, Zs. Fülöp, E. Somorjai, K. Sonnabend, A. Zilges, P. Mohr, J. Görres, M. Wiescher, N. Özkan, T. Güray, C. Yalcin, M. Avrigeanu, ORIGIN OF MATTER AND EVOLUTION OF GALAXIES: The 10th International Symposium on Origin of Matter and Evolution of Galaxies: From the Dawn of Universe to the Formation of Solar System. AIP Conference Proceedings, Volume 1016, pp. 221-226 (2008).
85. “Nuclear Processes in Stellar Explosions,” M. Wiescher, Fourth International Conference on FISSION AND PROPERTIES OF NEUTRON-RICH NUCLEI, Sanibel, FL; J.H. Hamilton, A.V. Ramayya, H.K. Carter, eds.; World Scientific pp. 3-12 (2008).

86. “Capture Reactions In The CNO Cycles,” E. Uberseder, J. Görres, M. Wiescher, CAPTURE GAMMA-RAY SPECTROSCOPY AND RELATED TOPICS: Proceedings of the 13th International Symposium on Capture Gamma-Ray Spectroscopy and Related Topics. AIP Conference Proceedings, Volume 1090, pp. 41-47 (2009)
87. “s-process nucleosynthesis in massive stars: new results on  $^{60}\text{Fe}$ ,  $^{62}\text{Ni}$  and  $^{64}\text{Ni}$ ,” C. Domingo-Pardo, I. Dillmann, T. Faestermann, U. Giesen, J. Görres, M. Heil, S. Horn, F. Käppeler, S. Köchli, G. Korschinek, J. Lachner, M. Maiti, J. Marganec, J. Neuhausen, R. Nolte, M. Poutivtsev, R. Reifarth, R. Rugel, D. Schumann, E. Uberseder, F. Voss, S. Walter, and M. Wiescher, CAPTURE GAMMA-RAY SPECTROSCOPY AND RELATED TOPICS: Proceedings of the 13th International Symposium on Capture Gamma-Ray Spectroscopy and Related Topics. AIP Conference Proceedings, Volume 1090, pp. 230-237 (2009).

## **Invited Addresses**

### ***Seminars and Colloquia***

1. Capture reactions in the r- and rp-process, Seminar, Institute Laue Langevin, Grenoble, France, April 1984
2. Thermonuclear reactions in the jets of SS433, Colloquium, Astron. Institute, Muenster, Germany, May 1984
3. Proton capture reactions in the rp-process, Seminar, Kellogg Rad. Lab., Caltech, USA, September 1984
4. Stellar neutron capture rates in the  $n\beta$ -process, Seminar, Kellogg Rad. Lab., Caltech, USA, October 1984
5. rp-Process reactions in nova burning, Seminar, Lawrence Livermore National Lab., Livermore, USA, October 1984
6. Nuclear Structure Effects in Nuclear Burning, Colloquium, University of Notre Dame, USA, March 1985
7. Nuclear Processes in Novae, Seminar, Institut fuer Strahlenphysik, University Stuttgart, November 1985
8. Decay Properties of r-process Nuclei, Seminar, University of Notre Dame, Notre Dame, IN, November 1986
9. Nuclear Reactions as Stellar Neutron Sources, Seminar, Michigan State University, East Lansing, MI, January 1987
10. Nuclear Reactions as Stellar Neutron Sources, Seminar, Ohio State University, Columbus, OH, March 1987
11. Nucleosynthesis in Stellar Helium Burning, Seminar, Institute Laue-Langevin, Grenoble, France, April 1987
12. Nuclear Reactions & Reaction Sequences in Explosive Hydrogen Burning, Seminar, Kernforschungszentrum Karlsruhe, Germany, November 1988
13. Low Energy Accelerators and Big Bang Nucleosynthesis, Seminar, Hope College, November 1988
14. Nucleosynthesis in a Nonstandard Big Bang, Seminar, Universitaet Mainz, July 1989
15. Nucleosynthesis in a Nonstandard Big Bang, Seminar, Kernforschungszentrum Karlsruhe, July 1989

16. Nucleosynthesis in a Nonstandard Big Bang, Seminar, University of Pittsburgh, November 1989
17. Nucleosynthesis in Nonstandard Big Bang Models, Seminar, Duke University, January 1990
18. Explosive Hydrogen Burning in Accretion Processes on Compact Objects, Colloquium, Department of Astronomy, University of Illinois, October 1990
19. The role of  $^{14}\text{C}$  in a Nonstandard Big Bang, Seminar, Ohio State University, February 1991
20. The role of  $^{14}\text{C}$  in a Nonstandard Big Bang, Seminar, Argonne National Lab., February 1991
21. Nuclear Structure Effects on Reaction Rates & Reaction Flow in the rp-Process, Seminar, Universite de Louvain, Louvain la Neuve, Belgium, April 1991
22. Capture Reactions on  $^{14}\text{C}$  at Big Bang Conditions, Colloquium, Oak Ridge National Laboratory, May 1991
23. Nuclear Structure Effects on Reaction Rates & Reaction Flow in the rp-Process, Seminar, Oak Ridge National Laboratory, May 1991
24. Various Experimental Approaches in the Measurement of Capture Reactions in Explosive Hydrogen Burning, Colloquium, China Institute of Atomic Energy, Beijing, P.R. China, June 1991
25. Experimental Techniques in Nuclear Astrophysics, Seminar, China Institute of Nuclear Physics, Shanghai, P.R. China, July 1991
26. Reaction Branchings and Impedance Effects in the rp-Process, Seminar, Queens University, Kingston, Ontario, Canada, October 1991
27. Reaction Sequences in Explosive Hydrogen Burning, Seminar, Michigan State University, East Lansing, March 1992
28. Reaction rates and reaction flux in the rp-process, Seminar, Orsay, France, October 1992
29. Reaktionsflüsse im explosiven Wasserstoffbrennen, Seminar, Institut fuer Kernchemie, Universitate Mainz, Germany, November 1992
30. Reaktions Raten and Reaktions Flüsse in explosiven Wasserstoffbrennen, Seminar, Institut fuer Strahlenphysik, Universitate Stuttgart, Germany, December 1992
31. Nukleosynthese in explosiven Wasserstoffbrennen, Seminar, TU Wien, Vienna, Austria, December 1992
32. Nucleosynthesis in explosive hydrogen burning, Seminar, Budapest, Hungary, December 1992

33. Reaktionflüsse im explosiven Wasserstoffbrennen, Seminar, Kernforschungszentrum, Karlsruhe, Karlsruhe, Germany, April 1993
34. Nukleosynthese im explosiven Wasserstoffbrennen, joint colloquium, TU München and University of München, München, Germany, July 1993
35. Stellar neutron sources and the s-process in massive stars, Seminar, Ohio State University, Columbus, OH, November 1993
36. The  $^{18}\text{F}(\text{p},\alpha)$  ( $\text{p},\gamma$ ) reactions in the hot CNO-cycles, Seminar, Louvain la Neuve, Belgium, June 1994
37. Nucleosynthesis in Explosive Stellar Scenarios, Seminar, Rutgers University, Piscataway, NJ, October 1994
38. Nucleosynthesis in Explosive Stellar Scenarios, Seminar, Rochester University, Rochester, NY, October 1994
39. Neutron Production in Stellar He-Burning and the Nucleosynthesis of Heavy Elements, Colloquium, Arizona State University, Tempe, AZ, November 1994
40. Nuclear Structure Effects in Explosive Hydrogen Burning, Seminar, University of Stony Brook, Stony Brook, NY, April 1995
41. Nucleosynthesis in Accreting Binary Stars, Seminar, Indiana University, Bloomington, IN, November 1995
42. Radioactive Beam Experiments in Nuclear Astrophysics, Seminar, Institut für Isotopenforschung und Kernphysik, Universität Wien, Wien, Austria, December 1995
43. Nucleosynthesis in Explosive Hydrogen Burning, Colloquium, Ball State University, Muncie, IN, April 1996
44. Radioactive Beam Experiments in Nuclear Astrophysics, Seminar, Ohio University, Athens, OH, May 1996
45. Radioactive Beam Experiments in Nuclear Astrophysics, Colloquium, Florida State University, Tallahassee, FL, April 1996
46. The rp Process and Nucleosynthesis in the Mass A=80-100 Region, Colloquium, University of Köln, Germany, October 1996
47. The rp Process and Nucleosynthesis in the Mass A=80-100 Region, Colloquium, GSI, Darmstadt, Germany, October 1996
48. Origin of  $^{22}\text{Na}$  and  $^{26}\text{Al}$  in Novae, Seminar, Institute Polytechnico, Barcelona, Spain, May 1997

49. Kernphysikalische Indizien Stellarer Prozesse, Colloquium, Universität Karlsruhe, Karlsruhe, Germany, June 1997
50. Signatures of Explosive Nucleosynthesis, Colloquium, University of North Carolina, Chapel Hill, NC, September 1997
51. Characteristics of the rp-Process in X-ray Bursts, Colloquium, Cyclotron Laboratory, Texas A&M University, April 1998
52. Signatures of Explosive Hydrogen, Colloquium, Triumf, Vancouver, Canada, December 1997
53. Der Ausbruch aus den heissen CNO Zyklen, Colloquium, Universität Köln, Köln, Germany, October 1998
54. Break-out from the hot CNO cycles, Seminar, Ohio State University, Columbus, OH, November 1998
55. Die Zündung von X-ray Burstern, Seminar, Institut für Kernchemie, Universität Mainz, Germany, February 1999
56. Break-out from the hot CNO cycles, Seminar, Michigan State University, East Lansing, MI, February 1999
57. Aspects of Nuclear Astrophysics, Invited Lecture, Université de Louvain la Neuve, Belgium, November 1999
58. The trigger of the rp-process, Seminar, Department of Physics, University of Surrey, Guildford, United Kingdom, November 1999
59. Break-Out Processes in Explosive Hydrogen Burning, Seminar, University of Ohio, Athens, Ohio, October 2000
60. Future Concepts and Perspectives in Nuclear Astrophysics, Colloquium, ETH Zürich, Zürich, Switzerland, May 2001
61. The fate of matter on accreting neutron stars, Colloquium, Argonne National Laboratory, Argonne, Illinois, February 2002
62. The Origin of Fluorine, Seminar, Ohio University Physics Department, Athens, Ohio, February 2002
63. The Fate of Matter on Accreting Neutron Stars, Seminar, University of Illinois Physics Department, Urbana, Illinois, March 2002
64. The Fate of Matter on Accreting Neutron Stars, Colloquium, Institute of Nuclear Research of the Hungarian Academy of Science, Debrecen, Hungary, September 2002

65. The Fate of Matter on the Surface of Accreting Neutron Stars, Colloquium, Gesellschaft fuer Schwerionenforschung GSI, Darmstadt, Germany, October 2002
66. The Fate of Matter on Accreting Neutron Stars, Colloquium, Queens University, Kingston, Canada, March 2003
67. From Thermonuclear to Pycnonuclear Processes on Accreting Neutron Stars, Colloquium, Bartol Institute, University of Delaware, October 2003
68. Outreach Research Opportunities in the Nuclear Laboratory, Seminar, QUARKNET, Notre Dame, IN, May 2004
69. Nuclear Astrophysics at Notre Dame, Seminar, Institut für Kernchemie, Universität Mainz, Germany, March 2005
70. Nuclear Astrophysics at Notre Dame, Seminar, NSCL, Michigan State University, Ann Arbor, MI, March 2005
71. Low Energy Nuclear Reactions in Stellar Burning, Seminar, Lawrence Berkeley National Laboratory, Berkeley, CA, April 2006
72. Break-Out from the Hot CNO cycles – revisited, Seminar, Kellogg Radiation Laboratory, Caltech, Pasadena, CA, April 2006
73. Concepts and Sites for the Astrophysical p-Process, Seminar, Institut für Isotopenforschung und Kernphysik, Universität Wien, Wien, Austria, July 2006
74. Deep Science with Small Accelerators, Seminar, National Science Foundation, Washington, DC, November 2006
75. The Nuclear Trigger for Stellar Thermonuclear Explosions, Seminar, Pelletron Laboratory, Australian National University, Canberra, Australia, December 2006
76. Nucleosynthesis in Thermonuclear and Pycnonuclear Burning Environments, Seminar, Department of Physics, University of Illinois, Urbana Champaign, IL, April 2007
77. Nuclear Physics in Stars, Seminar, PIXE-PAN Program, University of Notre Dame, Notre Dame, IN, June 2007
78. Status and Goals in Nuclear Physics at Notre Dame, Report, National Science Foundation, Washington, DC, June 2007
79. Seventy Years of Nuclear Physics at Notre Dame, Colloquium, University of Notre Dame, IN, September 2007
80. Nucleosynthesis in Stellar Helium and Carbon Burning, Seminar, University Federico II, Naples, Italy, September 2007

81. Nuclear Processes in Violent Stellar Events, Colloquium, Kernforschungszentrum Rossendorf, Dresden, Germany, October 2007
82. Nuclear Physics in the Emerging Universe; Colloquium, Florida State University, Tallahassee, FL, March 2008
83. Nuclear Physics at Notre Dame; Seminar, Florida State University, Tallahassee, FL, March 2008
84. Nuclear Processes in Exploding Stars; Colloquium, University of Köln, Germany, June 2008
85. Nucleosynthesis in Stellar Carbon Burning; Seminar, Technical University Darmstadt, June 2008
86. Nuclear Physics in the Emerging Universe, the Origin of the Elements; Colloquium, Department of Energy, Washington, DC, December 2008
87. Neutron Activation Analysis in Art and Archaeology; Archaeometry Seminar, University of Notre Dame, Notre Dame, IN, February 2009
88. Nuclear Fusion Processes in Thermonuclear Supernovae and Superbursts; Colloquium, University of Rochester, Rochester, NY, February 2009
89. Nuclear Weapons & Warfare; Colloquium, Indiana University, Bloomington, IN, April 2009
90. Nuclear Processes in the Crust of Neutron Stars; Seminar, Indiana University, Bloomington IN, April 2009
91. Nuclear Processes in the Crust of Neutron Stars, Technical University Munich, Garching Germany, May 2009
92. Nuclear Fusion Processes in thermonuclear Burning in Supernovae and Superbursts, Technical University Dresden, Dresden, Germany, June 2009
93. Nuclear Physics in Stars, PIXE PAN outreach event, University of Notre Dame, Notre Dame, IN, July 2009
94. Nuclear Astrophysics Underground, National Superconducting Cyclotron Laboratory, Michigan State University, East Lansing, MI, January 2010

### ***Workshops and Conferences***

1. Nuclear Structure data and problems in hot stellar nucleosynthesis, Workshop ‘On-line in 1985 and beyond’, Zinal, Suisse, June 1984

2. Reaction Rates in the rp-Process and Nucleosynthesis in Novae, Fifth Moriond Astrophysics meeting, Les Arcs, France, March 1985
3. Explosive Hydrogen burning in novae and proton captures on short lived unstable nuclei, Accelerated Radioactive Beams Workshop, Parksville, Canada, September 1985
4. Alpha Capture Reactions in the rp-Process, Spring Meeting, German Physical Society, Heidelberg, March 1986
5. Helium Burning Reactions Important for s-Process Neutrons, Workshop on 'Nuclear Astrophysics,' Paris, France, June 1986
6. New Experimental Results on Nuclear Reactions in Hot Hydrogen Burning, Workshop on Nuclear Astrophysics, Ringberg, Germany, April 1987
7. New Experimental Results on Nuclear Reactions in Explosive Hydrogen Burning, Workshop on 'The Origin and Distribution of the Elements,' ACS Meeting, New Orleans, LA, September 1987
8. Bottlenecks and Waiting Points in the rp-Process, Workshop on 'Quests in Nuclear Astrophysics,' Crete, Greece, June 1988
9. rp-Process Information from Light and Heavy Ion Transfer Reactions, International Symposium on Heavy Ion Physics with Magnetic Spectrographs, East Lansing, MI, January 1989
10. Reaction Rates in the rp-Process beyond  $^{13}\text{N}(\text{p},\gamma)^{14}\text{O}$ , First International Conference on Radioactive Beams, Berkeley, CA, October 1989
11. Nucleosynthesis in Nonstandard Big Bang Models, 13<sup>th</sup> Symposium on Nuclear Physics, Oaxtepec, Mexico, January 1990
12. The Role of  $^{14}\text{C}$  in Nonstandard Big Bang Nucleosynthesis, Symposium on Nuclear Astrophysics, Boston, MA, April 1990
13. Capture Reactions on  $^{14}\text{C}$  in Nonstandard Big Bang Nucleosynthesis, 7<sup>th</sup> Intl. Symposium on Capture Gamma Ray Spectroscopy, Asilomar, CA, October 1990
14. Experimental approaches for rp-process studies, Ohio State University, AAS-Workshop on Nuclear Astrophysics, May 1992
15. Alpha capture reactions on  $^{18}\text{O}$  and  $^{22}\text{Ne}$ , 2<sup>nd</sup> International Conference on Nuclei in the Cosmos, Karlsruhe, Germany, June 1992
16. Reaction sequences in the rp-process, AMCO-meeting, Berncastel, Germany, July 1992
17. Laboratory techniques in nuclear astrophysics, Nuclei in the Universe, Oak Ridge, TN, September 1992

18. Reaction flow in explosive hydrogen burning, Workshop on Nuclear Astrophysics, Ringburg, Germany, March 1993
19. Indirect methods in Nuclear Astrophysics, Workshop on Nuclear Astrophysics, Crete, Greece, June 1993
20. Nuclear reactions and nucleosynthesis in explosive hydrogen burning, ACS meeting, Technical and scientific issues of radioactive beams, Chicago, IL, August 1993
21. Capture reactions in explosive hydrogen burning scenarios, 9<sup>th</sup> International Conference on Capture  $\gamma$ -rays and related topics, Fribourg, Switzerland, September 1993
22. Nucleosynthesis in explosive hydrogen burning, TRIUMF Users Annual Meeting, Vancouver, BC, Canada, December 1993
23. Neutron sources in stellar helium burning and s-process nucleosynthesis in massive stars, 17<sup>th</sup> Symposium on Nuclear Physics, Oaxtepec, Mexico, January 1994
24. Nuclear physics aspects of the rp-process, Workshop on Nuclear Astrophysics, Budapest, Hungary, March 1994
25. Direct and indirect methods in searching for low energy resonance, Workshop on Nuclear Physics Underground Research, Gran Sasso, Italy, July 1994
26. The rp-process, direct and indirect experimental methods, 3<sup>rd</sup> International Conference on Nuclei in the Cosmos, Gran Sasso, Italy, July 1994
27. Origin of Galactic Long-Lived  $\gamma$ -Emitters and its Simulation in Radioactive Beam Experiments, Workshop on Radioactive Beam Physics, Argonne National Laboratory, January 1995
28. The  $^{19}\text{Ne}(p,\gamma)^{20}\text{Na}$  Reaction and its Influence in Explosive H-Burning, Workshop on Physics with Recoil Separators, New Delhi, India, February 1995
29. Origin and Decay of  $^{44}\text{Ti}$ , Workshop on Galactic Radioactivity, Clemson University, Clemson, SC, March 1996
30. Trigger Reactions and Endpoints of the rp-Process, APS/DNP Spring meeting, Indianapolis, IN, May 1996
31. The rp Process and Nucleosynthesis in the Mass A=80-100 Region, Workshop at the dedication of the HRIBF facility, Oak Ridge, TN, December 1996
32. New Results in Radioactive Beam Experiments, ACS spring meeting, San Francisco, CA, April 1997
33. Radioactive Beam Experiments and the Study of the rp-Process, Workshop on Radioactive Beam Experiments, Edinburgh, Scotland, May 1997

34. Nuclear Data Needs in Nuclear Astrophysics, Plenary talk, International Conference on Nuclear Data, Trieste, Italy, May 1997
35. Nuclear Physics Data for Explosive Hydrogen Burning, Workshop on the Science for an advanced ISOL facility, Columbus, OH, July 1997
36. Experimental Needs in Nuclear Astrophysics Workshop on Radioactive Beams, APS/DNP fall meeting, Whistler, Canada, October 1997
37. Characteristics of the rp-Process in X-ray Bursts, Workshop on Nuclear Astrophysics, Hirschegg, Austria, January 1998
38. The rp-Process in X-Ray Bursts, ENAM 1998 Conference, Bellaire, MI, June 1998
39. Summary Talk, 5<sup>th</sup> International Conference on Nuclei in the Cosmos, Volos, Greece, July 1998
40. The rp-Process in X-Ray Bursts, International Conference on Nuclear Structure NS98, Gatlinburg, TN, August 1998
41. Frontiers in Nuclear Astrophysics, Plenary Talk, DNP meeting, Santa Fe, NM, October 1998
42. Nuclear structure in the rp-process, Conference on Physics in the year 2000, Capetown, South Africa, January 1999
43. Frontiers in Nuclear Astrophysics, ACS Symposium on Astrophysics, Anaheim, CA, March 1999
44. Low Energy Accelerators in Nuclear Astrophysics, NSF Town Meeting on Future of Nuclear Astrophysics, Notre Dame, IN, June 1999
45. The experimental future for the rp process, Conference on high T and low  $\tau$ , Sedona, AZ, August 1999
46. The ignition and cooling of x-ray bursts, Invited Lecture, Nishinomiya-Yukawa Symposium in honor of the 50<sup>th</sup> anniversary of the Nobel Prize for H. Yukawa, Nishinomiya, Japan, November 1999
47. Aspects of Stellar He-Burning, Symposium on 'Current Topics in Nuclear Physics' Kyoto, Japan, November 1999
48. Trigger and Endpoint of the rp-Process, 9<sup>th</sup> Riken Workshop on Radioactive Beam Physics, RIKEN, Tokyo, Japan, November 1999
49. Trigger and Cooling of X-Ray Bursts, 23<sup>rd</sup> Symposium on Nuclear Physics, Oaxtepec, Mexico, January 2000

50. The Endpoint of the rp-Process, Meeting of the American Chemical Society, San Francisco, CA, March 2000
51. The rp-process at X-ray burst conditions, Conference on the Intersection of Nuclear & Particle Physics, Quebec, Canada, May 2000
52. Nuclear Physics Aspects in the rp-process, Workshop on Thermonuclear Astrophysical Explosions, Chicago, IL, June 2000
53. Advances in Experimental Techniques and Facilities, 6<sup>th</sup> International Conference on Nuclei in the Cosmos, Aarhus, Denmark, June 2000
54. Stars on Earth: Recent Results and Perspectives with RIB Facilities, Conference on Nucleus Collisions, Strasbourg, France, July 2000
55. The  $^{12}\text{Ca}(\alpha, \gamma) ^{13}\text{C}(\alpha, n)$  Reactions in Stellar He-Burning, Nucleosynthesis 2000 Workshop, ACS Conference, Washington, DC, August 2000
56. Opportunities in Nuclear Astrophysics with RIA, NSAC Long Range Planning Meeting, Santa Fe, New Mexico, March 2001
57. Waiting- and End-Points of the rp-Process, North-West European Conference on Nuclear Physics, Bergen, Norway, April 2001
58. Reaction Rates in Explosive Hydrogen Burning, Workshop on Nuclear Astrophysics, York, United Kingdom, May 2001
59. Nuclear Reaction Rates in the Thermonuclear Runaway Phase of Accreting Binary Star Systems, ENAM 2001 Conference, Hameenlinna, Finland, July 2001
60. Nuclear Masses in Nuclear Astrophysics, Conference on Atom Traps at TRIUMF, Vancouver, BC, Canada, April 2002
61. JINA: Opportunities in Nuclear Astrophysics, NSCL User Meeting, Michigan State University, East Lansing, MI, October 2002
62. Opportunities in Nuclear Astrophysics with RIA, Presentation to the DOE Office of Science, Washington, DC, October 2002
63. Nuclear Structure in 'Nuclear Astrophysics' International Symposium on "The Nuclear Many-Body System: Exploring the Limits," Gent, Belgium, October 2002
64. Nuclear Astrophysics of Neutron Rich Nuclei, 3<sup>rd</sup> International Conference on Fission and Properties of Neutron-Rich Nuclei," Sanibel Island, Florida, November 2002
65. The Fate of Matter on Accreting Neutron Stars, Oaxtepec Meeting, Taxco, Mexico, January 2003

66. Nuclear Physics Phenomena in Cataclysmic Stellar Binary Systems, APS Spring Meeting, Philadelphia, PA, April 2003
67. The Ignition of the r-Process, Gordon Conference, Nuclear Physics, Colby College, MA, August 2003
68. Cosmic Signatures for Nuclear Decay, Workshop on Decay Spectroscopy, Oak Ridge, TN, August 2003
69. Nuclear Astrophysics – Underground, Workshop Underground Accelerators for Nuclear Astrophysics, Tucson, AZ, October 2003
70. The rp-process, DNP workshop on Nuclear Astrophysics, Tucson, AZ, October 2003
71. Nuclear Science of the Cosmos, Chemical History of the Universe, plenary talk DNP Fall meeting, Tucson, AZ, November 2003
72. Far of Stability Processes in Nuclear Astrophysics, RIA Theory Meeting, Westward Look Resort, Tucson, AZ, November 2003
73. Neutron Capture on light Halo Nuclei – is there a light r-Process? Workshop on: New Opportunities and Challenges with DANCE, Santa Fe, NM, February 2004
74. Pycnonuclear Reactions in the Crust of Accreting Neutron Stars, Invited Talk, Workshop on “Physics of Accreting Neutron Stars,” Santa Barbara, CA, April 2004
75. Experimental Challenges in Nuclear Astrophysics, Invited Talk, INCP 2004 Conference, Goeteborg, Sweden, July 2004
76. Nuclear Reaction Rates – What About a Nuclear Astrophysics Data Archive? SciDAC Workshop on Supernova Model Simulations, Lawrence Livermore National Laboratory, Livermore, CA, December 2004
77. Neutron capture in light halo nuclei – trigger of a light r-process? n-ToF Workshop on Neutron Induced Reactions, CERN, Geneva, Switzerland, March 2005
78. Goals and Status of Experimental Nuclear Astrophysics, NSAC Sub-Committee Meeting, Bethesda, MA, April 2005
79. Stellar Neutron Sources for the s-Process, Aspen Workshop on “The Physics of the s-Process,” Center for Physics, Aspen, Colorado, May 29 – June 12, 2005
80. JINA, Achievements and Accomplishments, NSF PFC directors’ meeting, Washington, DC, July 6, 2005
81. Nucleosynthesis – The Origin of the Elements, Gordon Conference for Nuclear Physics, Maine, July 12, 2005

82. Nucleosynthesis on the Extremes of Temperature and Density – from thermonuclear to pycnonuclear reactions, Invited Plenary Talk at the “VI Latin American Symposium on Nuclear Physics and Application” in Iguaz, Argentina, October 3-7, 2005
83. Charge Particle Reaction Rates from Stellar He to C Burning, VIII Torino Workshop on Nucleosynthesis in AGB Stars “Constraints on AGB Nucleosynthesis from Observations,” Granada, Spain, February 6-10, 2006
84. Nuclear Reactions in Stellar Burning, Workshop on Massive Stellar Progenitors “The Final Days of Burning,” Santa Barbara, CA, March 9-10, 2006
85. Neutron Sources in Stellar Helium and Carbon Burning, 2006 Mitchell Symposium on Astronomy, Cosmology, & Fundamental Physics, Texas A&M University, College Station, TX, April 10-14, 2006
86. Break-Out from the Hot CNO Cycles: a Case for Radioactive Beam Experiments, 2006 Gordon Conference for Nuclear Chemistry, Colby-Sawyer-College, New London, NH, June 6-9, 2006
87. Testatio Academica, Claus Rolfs, Achievements in Nuclear Astrophysics, Federico Secondo Universite de Napoli, Naples, Italy, June 15, 2006
88. Reaction Rate of  $^{15}\text{O}(\alpha,\gamma)^{19}\text{Ne}$  via indirect Measurements, IX International Symposium on Nuclei in the Cosmos, CERN, Geneva, Switzerland, June 25-29, 2006
89. Astrophysical Nuclear Reactions - Break-Out from the Hot CNO Cycles, 28<sup>th</sup> International School of Nuclear Physics, Erice, Sicily, Italy, September 16 - 24, 2006
90. Trigger of the rp- and the  $\alpha$ p-Process, Workshop on “Exotic nuclei: from the Laboratory to the Cosmos,” DNP fall meeting, Nashville, TN, October 25-29, 2006
91. Nucleosynthesis – The Origin of the Elements, Australian Institute of Physics Congress AIPC2006, Brisbane, Australia, December 3-8, 2006
92. Stellar Nuclear Astrophysics, DNP Town-Meeting on Nuclear Structure and Nuclear Astrophysics; Chicago, Il, January 19, 2007
93. Nucleosynthesis in Thermonuclear and Pycnonuclear Burning Environments, NUSTAR collaboration meeting, GSI, Darmstadt, Germany, March 19-23, 2007
94. Nucleosynthesis, The Origin of Elements, International Symposium on Nuclear Data for Industry and Applications, ND2700, Nice, France, April 2007
95. The Role and Impact of University Laboratories on Nuclear Physics, NSAC Long Range Planning Meeting, Galveston, TX, April 2007
96. The Role of Franz Käppeler for the Field of Nuclear Astrophysics, Workshop on experimental opportunities for nuclear astrophysics at the Frankfurt neutron source of the

- Stern-Gerlach-Zentrum - The FRANZ Neutron Source -, Frankfurt, Germany, May 21 – 23, 2007
97. Diversity in JINA, PFC Directors Meeting, National Science Foundation, Washington, DC, June 28, 2007
  98. The Social Network of a Physics Frontier Center -JINA, PFC Directors Meeting, National Science Foundation, Washington, DC, June 28, 2007
  99. News and Challenges on Reaction Rates for Charged Particles  $Z > 8$ , Nuclear Astrophysics: Beyond the First 50 Years, Pasadena, CA July 25, 2007
  100. The Influence of Cluster States in Astrophysical Reactions, International Symposium Clusters '07, Stratford upon Avon, UK, September 3-7, 2007
  101. Nucleosynthesis at the Extremes of Temperature and Density, from Thermonuclear to Pycnonuclear Burning, St Tecla Summerschool, St. Tecla, Catania, Sicily, Italy September 27, 2007
  102. Nuclear Processes in Stellar Explosions, Fourth International Conference on Fission and Properties of Neutron-Rich Nuclei, Sanibel Island, Florida, November 11 - 17, 2007
  103. Nuclear Physics in the Emerging Universe; the Origin of the Elements, Invited Plenary Session from “Quarks to the Cosmos,” APS Spring Meeting, New Orleans, Louisiana, March 10 - 14, 2008
  104. R-Matrix and Nuclear reactions in Stellar Hydrogen and Helium Burning, Opening talk at the workshop on R-matrix applications, Santa Fe, NM, April 21-23, 2008
  105. Accelerator Laboratory for Underground Nuclear Astrophysics Experiments at DUSEL, Homestake Laboratory Workshop, Lead, SD, April 26, 2008
  106. Nuclear Processes in the Crust of Neutron Stars – from thermonuclear to pycnonuclear burning, EMMI meeting, GSI Darmstadt, Germany July 2008
  107. Future Perspectives in Nuclear Astrophysics, Summary presentation, International Symposium on Nuclei in the Cosmos, Mackinaw Island, USA July 2008
  108. Low Energy Capture Reactions in the CNO Cycles, 13<sup>th</sup> International Conference on Capture Gamma Rays and Related Topics, CGS13, Köln, Germany August 2008
  109. Fusion Processes in Stars – from Thermonuclear to Pycnonuclear Reactions: International Conference on New Aspects of Heavy Ion Collisions near the Coulomb Barrier Fusion 2008, Chicago, IL September 2008
  110. CNO Reaction Studies and the Question of Primordial Solar Metallicity: 32<sup>nd</sup> Symposium on Nuclear Physics, Cocoyoc, Mexico January 2009

111. Future Facilities for the Study of Fusion Cross Sections for the pp-Chain and CNO Cycles: INT Workshop on Solar Fusion Cross Sections for the pp chain and CNO cycle, Seattle, WA January 2009
112. History and Impact of the  $^{12}\text{C}+^{12}\text{C}$  Reaction: CLAUS 2009 - The Role of Low Energy Fusion Reactions in Nuclear Astrophysics, Anacapri, Naples, Italy, May 2009
113. Methods and Techniques in Nuclear Astrophysics: DPG Heraeus Symposium on Nuclear Astrophysics, Bad Honnef, Germany, June 2009
114. Experimental Methods and Techniques in Nuclear Astrophysics: National Nuclear Physics Summer School, Michigan State University, East Lansing MI, July 2009
115. DIANA, Dakota Ion Accelerator for DUSEL: Fall Workshop on DUSEL SCIENCE and Development of the MREFC; Lead, South Dakota, USA, October 2009
116. Future Facilities for Nuclear Astrophysics: Plenary Talk, International Symposium on Nuclei in the Cosmos NIC2010, Heidelberg, Germany, July 2010
117. Opportunities in Nuclear Astrophysics with Radioactive Beams: NSCL Users Meeting, Michigan State University, East Lansing, MI, August 2010
118. DIANA, Dakota Ion Accelerator for DUSEL: Meeting of the NP2010 Committee of the National Science Academy, Irvine CA, September 2010
119. The Origin of Elements, the Engine of Stars: DNP Fall meeting, invited talk, Santa Fe, NM, October 2010
120. The Joint Institute for Nuclear Astrophysics: Canadian Workshop on the Nuclear and Astrophysics of Stars; TRIUMF, Vancouver BC, Canada December 2010
121. Perspectives on Nuclear Astrophysics and DUSEL: National Science Academy, Washington DC, December 2010

### **Dissertations Supervised**

1. "The Influence of the Level Structure of  $^{20}\text{Na}$  upon the Stellar Reaction Rate for  $^{19}\text{Ne}(p,\gamma)^{20}\text{Na}$ ," Larry Odell Lamm, PhD Thesis, University of Notre Dame, May 1989.
2. "Nuclear and Astrophysical Implications of Proton Capture on  $^{28}\text{Si}$ ," Stephen M. Graff, PhD Thesis, University of Notre Dame, May 1990.
3. "Energy Levels in  $^{32}\text{Cl}$  above the Proton Threshold and Astrophysical Network Calculations," Laura Van Wormer, PhD Thesis, University of Notre Dame, July 1991.
4. "Study of  $\alpha$ -Capture and  $\alpha$ -Transfer Reactions on  $^{18}\text{O}$  and  $^{22}\text{Ne}$  and Astrophysical Implications," Ulrich Giessen, PhD Thesis, University of Notre Dame, June 1992.
5. "Untersuchung von Zuständen in  $^{40}\text{Ca}$  nahe der Protonenschwelle und deren Einfluss auf den Reaktionsfluss im explosiven Wasserstoffbrennen," Jörn Meissner, Diploma Thesis, Technische University München, February 1993.
6. "Explosive Stellar Hydrogen Burning in the Mass A = 30-40 Region," Christian Iliadis, PhD Thesis, University of Notre Dame, October 1993.
7. "The  $\beta$ -Delayed Neutron Decay of the Exotic Nuclei  $^{18}\text{N}$ ,  $^{17}\text{C}$  and  $^{18}\text{C}$ ," Kent W. Scheller, PhD Thesis, University of Notre Dame, November 1993.
8. "Coincidence Measurements of Reaction Branchings in the Hot CNO Cycles and the rp-Process," Gaylon Ross, July 1994.
9. "Activity Measurements of Importance to Stellar Nucleosynthesis," Jörn Meissner, PhD Thesis, University of Notre Dame, October 1996.
10. "Wasserstoffbrennen unter extremen Temperatur- und Dichtebedingungen," Hendrik Schatz, PhD Thesis, Universität Heidelberg, December 1997.
11. "A Study of the Levels of Astrophysical Importance in  $^{32}\text{Cl}$  and  $^{35}\text{Ar}$ ," Stilianos Vouzoukas, PhD Thesis, University of Notre Dame, December 1997.
12. "The Use of Elastic Scattering to Constrain the Stellar Reaction Rate of  $^{12}\text{C}(\alpha,\gamma)^{16}\text{O}$ ," PhD Thesis, University of Notre Dame, Paul Tischhauser, May 2000.
13. "Alpha Scattering Applications in Astrophysics," Rebecca Detwiler, PhD Thesis, University of Notre Dame, May 2001.
14. "Nuclear Structure and rp-Process Nucleosynthesis," Victoria Barnard, Master Thesis, University of Surrey, UK, June 2001.
15. "Pycnonuclear Reaction Rates in the Deep Layers of Accreting Neutron Stars," Mary Beard, Master Thesis, University of Surrey, UK, June 2003.

16. "Alpha Scattering Applications in Astrophysics," Ed Stech, PhD Thesis, University of Notre Dame, May 2004.
17. "The Reaction rates of  ${}^6\text{He}(\alpha, n){}^9\text{B}$  and  ${}^4\text{He}({}^2\text{n}, \gamma){}^6\text{He}$  and the r-Process," Amy Bartlett, Master Thesis, University of Surrey, U.K., June 2004.
18. "Lifetime Measurements of Excited States in  ${}^{19}\text{Ne}$ ," Jason Daly, PhD Thesis, University of Notre Dame, May 2005.
19. "The  ${}^{19}\text{F}(\alpha, p)$  reaction and the nucleosynthesis of fluorine," Claudio Ugalde, PhD Thesis, University of Notre Dame, July 2005.
20. " ${}^{19}\text{F}(p, \gamma){}^{20}\text{Ne}$  and the Stellar CNO Burning Cycle," Aaron Couture, PhD Thesis, University of Notre Dame, January 2006.
21. "Untersuchung der Kernreaktion  ${}^{20}\text{Ne}(p, \gamma){}^{21}\text{Na}$  im astrophysikalisch interessanten Energiebereich," Sascha Falahat, Diploma Thesis, Universität Mainz, January 2006
22. "R-Matrix Analysis of CNO Cycle Reactions," Edward Simpson, Master Thesis, University of Surrey, UK, April 2006
23. "The  ${}^{18}\text{F}(\alpha, p){}^{21}\text{Ne}$  reaction and its Astrophysical Implications," Hye Young Lee, PhD Thesis, University of Notre Dame, January 2007
24. "AGB Star Nucleosynthesis of the Magnesium Isotopes," Elisabeth Strandberg, PHD Thesis, University of Notre Dame, April 2007
25. "A Search for Second Class Currents in the A=8 System," Jennifer M. Couture, PhD Thesis, University of Notre Dame, November 2007
26. "PIXE Improvements and Investigations at Notre Dame," Barry Clark, Master Thesis, University of Surrey, UK, April 2008
27. "CIGAR, Development of a Statistical Model Program for the Calculation of Nuclear Reaction rates and Cross Sections," Richard Crowter, Master Thesis, University of Surrey, UK, April 2008
28. "Alpha elastic Scattering near the Z=50 Region for the determination of local alpha Potentials," Annalia Palumbo, PhD Thesis, University of Notre Dame, August 2009
29. "Experimental Investigation of the Reactions  ${}^{25}\text{Mg}(\alpha, n){}^{28}\text{Si}$ ,  ${}^{26}\text{Mg}(\alpha, n){}^{29}\text{Si}$ ,  ${}^{18}\text{O}(\alpha, n){}^{21}\text{Ne}$  and their Impact on Stellar Nucleosynthesis," Sascha Falahad, PhD Thesis, Johannes Gutenberg Universität Mainz, Germany (Co-Advisor), July 2010
30. "Exploring the  $\alpha p$ -Process with high Precision (p,t) Reactions," Shawn O'Brian, PhD Thesis, University of Notre Dame, August 2010
31. "New Measurements and R-Matrix Analysis of the  ${}^{15}\text{N}(p, \gamma){}^{16}\text{O}$  Reaction," Paul. J. LeBlanc, PhD Thesis, University of Notre Dame, August 2010

32. "Reaction Rate Calculations in Dense Stellar Matter," Mary Beard, PhD Thesis, University of Notre Dame, August 2010

### New Course Developments

1. “Physics Methods in Art and Archaeology”; web-based course with  
700 pages script; Physics 178  
Physics 10262  
WS 2000-2002  
FS 2008
2. “Topics Nuclear Astrophysics”; graduate student tutoring  
WS 2003
3. “Nuclear Weapons and Nuclear Warfare”; web-based course with  
500 pages of script, Physics 205  
Physics 20061  
FS 2003-2006,  
WS 2010
4. “Physics of Climate”; level 200 course Physics 20054  
WS 2011