

David J. Dean

Physics Division
Oak Ridge National Laboratory
Bldg. 6025 MS 6373
P.O. Box 2008
Oak Ridge, TN 37831-6373 USA

e-mail: deandj@ornl.gov
phone : (865) 576-5229
Fax : (865) 576-8746
Sec: (865) 574-4576

Personal

Born: 13 March 1963
Nationality: U.S. Citizen
Marital Status: Married to Brenda D. Dean, 3 children.

Education

Ph.D.: May 1991, M.S.: Dec 1989, Vanderbilt University, Department of Physics, Nashville, TN
B.S.: May 1985, University of Tennessee, at Chattanooga, Chattanooga, TN (*magna cum laude*, highest honors in physics)

Positions

- Distinguished R&D Staff, January, 2004 – present, Senior R&D Staff, January, 2002 – 2004, R&D Staff, September 1997 – January, 2002, Wigner Fellow, August 1995 – August, 1997, Physics Division, Oak Ridge National Laboratory, Oak Ridge, TN
- Nuclear Theory Group Leader, December, 2003 – present, Nuclear Theory Task Leader, October, 2001 – December, 2003, Physics Division, Oak Ridge National Laboratory, Oak Ridge, TN
- Professor (adjunct), 2005-present, Associate Professor (adjunct), 2002-2005, Assistant Professor, September, 1997 – September, 2002, University of Tennessee, Department of Physics and Astronomy
- ORNL/UT Collaborating Scientist, September, 1997 – September, 2000
- Research Fellow in Physics, September, 1992 – September, 1995
Kellogg Radiation Lab., Caltech, Pasadena, CA
- Research Investigator, May, 1991 – August, 1992,
Oak Ridge National Laboratory, Physics Division, Oak Ridge, TN
- Research Assistant, September, 1987 – May, 1991,
Oak Ridge National Laboratory, Physics Division, Oak Ridge, TN
- Teaching Assistant, September, 1985 – September, 1987,
Physics Department, Vanderbilt University, Nashville, TN

Publications and specializations

144 publications including
84 refereed journal articles.
~105 talks at international workshops/conferences
Main Field: theoretical nuclear physics, quantum many-body problems, computational physics

Awards, Fellowships, Consultantships, Memberships

- Visiting Professor, University of Oslo, Centre of Mathematics for Applications, 2004-2007

CV for David J. Dean (September 2006)

- Finalist, ORNL Awards Night 2004 (Scientific Accomplishment category), for “discovering the importance of electron capture on heavy nuclei during supernova explosions...”, with R. Hix, K. Langanke, G. Martinez-Pinedo, A. Mezzacappa, B. Messer, M. Rampp, J. Sampaio,
- ORNL Research Accomplishment Award 2000 for discovering rotational bands in the doubly-magic nucleus ^{56}Ni with Cyrus Baktash, Witek Nazarewicz, Lee Riedinger, and Chang-Hong Yu. [see Phys. Rev. Letts. 82, 3763 (1999)]
- Presidential Early Career Award for Scientists and Engineers, 1997
- Department of Energy Young Scientist Award, 1997
- Wigner Fellow, Oak Ridge National Laboratory, 1995-1997
- Graduate Fellowship: Oak Ridge Associated Universities Fellowship, 1987-1989
- Undergraduate Fellowship: University of Chattanooga Foundation Fellowship, 1984-85
- Consultants: Oak Ridge National Laboratory, 1992-1995
- Visiting Scholar, University of Washington, 2002-

Member:

American Physical Society (Fellow, 2004), DNP, DCOMP, 1990-present
Associates of the ECT*, 1996-present
Materials Research Society, 1999-2001

Scientific Reviewer for

Physical Review C; Physical Review Letters; Nuclear Physics A; Physics Letters B; National Science Foundation, USA; Department of Energy, USA; Nordic Research Council; Florida State University, NSF nuclear physics site visit, February, 2002, Nov. 2005; Hafnium Triggering Review for the Chief Technical Officer, Sandia National Laboratory, February, 2004, NSF Theory Review Panel, 2006; Natural Sciences and Engineering Research Council of Canada

National Boards and Committees

- Technical Advisory Board, 1995, Maui High Performance Computer Center
- National Energy Research Scientific Computing Center (NERSC) Users Group Executive, (formerly ExERSUG) 1999 – present, Chair, 2005-2008; NERSC Policy board (2005-2008)
- American Physical Society, Division of Nuclear Physics: Program Committee (2000 – 2003); National Nuclear Physics Summer School Steering Committee (2004 – 2008, vice chair 2005, Chair 2006, past-chair 2007); Nominating Committee (2006-2007, chair 2007)
- DOE/NSF Nuclear Science Advisory Committee, December 2003 – present; NSAC RIB Task force (2006/2007)
- DOE Advanced Scientific Computing Advisory Committee (ASCAC) subcommittee on Facilities Performance Measures (2006)
- RIA Theory Steering Committee, 2003
- RIA Theory Group Executive Committee (chair, 2004-2005)
- Japan-U.S. Theory Institute for Physics with Exotic Nuclei (JUSTIPEN, in Tokyo), Associate Director (2006 – present)

Grants

1. *NATO Collaborative Research Grant*

Shell Model Approaches to the Nuclear Many-Body Problem,
A. Poves, E. Caurier, D.J. Dean, J. Dobaczewski, and K. Langanke
July 1998-June, 2001 (Total award: \$30K)

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2. *DOE – Nuclear Theory*
Theoretical Nuclear Structure,
Co-PI with W. Nazarewicz and T. Papenbrock
FY98 – present (Total award \$148K/year)
3. *ORNL Laboratory Directed Research and Development Funds (LDRD)*
Computation with Arrays of Quantum Dots
with J. Barhen (PI), Y. Briaman, L. Maya, V. A. Protopopescu,
N. S. Rao, M. R. Strayer, and J. C. Wells
FY00-FY02 (Total award: \$600K unburdened)
4. *ORNL – Seed Money*
Correlated Structure and Dynamics in Quantum Dots at Finite Temperature via Auxiliary-
Field Monte Carlo
J. C. Wells, D. J. Dean, and M. R. Strayer
FY00 – FY01 (Total award: \$100K unburdened)
5. *DOE-Office of Science-SciDAC*
Shedding New Light on Exploding Stars: Terascale Simulations of Neutrino-Driven
Supernovae and their Nucleosynthesis
P. Baker, J. Blondin, S. Bruenn, D. Dean, J. Dongarra, W. Haxton, J. Lattimer, B. Meyer, A.
Mezzacappa (PI), M. Prakash, F. Saied, P. Saylor, M. Strayer, F. Swesty, R. Toedte.
FY00 – present (Total award: \$1.2M/year)
6. *ORNL LDRD*
Nanoscience at the Terascale: Self-Assembled Monolayers and Molecular Electronics W. H.
Butler, P. T. Cummings, S. Cui, D. J. Dean (PI), D. R. Schultz, M. R. Strayer, and J. C. Wells
FY01 – FY02 (Total award: \$600K unburdened)
7. *ORNL LDRD*
Synthesis of High-Performance Algorithms for Electronic and Nuclear structure Calculations
D. Bernholdt, D. J. Dean, M. R. Strayer, and T. White
FY02 – FY03 (Total award: \$600K unburdened)
8. *NNSA Stewardship Science Academic Alliances Program*
Theoretical Description of Fission Process
W. Nazarewicz (PI), D. J. Dean, M. R. Strayer
2002 – 2005 (Total award: \$440K)
9. *ORNL – SEED*
Density Matrix Renormalization Group for Interacting Fermions
T. Papenbrock, T. Barnes, D.J. Dean, and M.R. Strayer
FY02 – FY03 (Total award: \$60K unburdened)
10. *DOE/ONP – Topical Center for RIB Theory (Proposed)*
B. Barrett, D.J. Dean (PI), J. Engel, U. van Kolck, G. McLaughlin, W. Nazarewicz,
V. Oberacker, W.E. Ormand, T. Papenbrock, P. Piecuch, J. Piekarewicz, S. Umar, A. Volya
Proposed, February 2004.
11. *ORNL -- SEED*
Coupled-cluster theory with effective three-body forces
T. Papenbrock, D.J. Dean, R. Harrison, and D. Bernholdt
FY05-FY06 (Total award: \$125k unburdened)
12. *DOE Nuclear Physics:*
Japan-U.S. Theory Institute for Physics of Exotic Nuclei (JUSTIPEN)
Funded during 2005-2008 (250k) through UT (Dean, PI)

Conference and Workshop Organization

1. *International Workshop on Condensed Matter Theories XXII*

CV for David J. Dean (September 2006)

- Local organizing committee
Nashville, TN, 1-7 June 1998
- 2. *Nuclear Structure 1998*
Local Organizing Committee
Gatlinburg, TN, 10-15 August, 1998
- 3. *International Workshop on Advances in Shell-Model Studies in Nuclei Far from Stability*
Coordinator
Trento, Italy, 1999.
- 4. *ISOL'01*
Local Organizing Committee
Oak Ridge, March 2001
- 5. *International Workshop on Advances in the Shell Model*
Coordinator
Trento, September 2001
- 6. *ENAM04*
Local Organizing Committee
- 7. *Advanced Computational Methods for Solving the Nuclear Many-Body Problem*
Organizer (with E. Ormand),
Institute for Nuclear Theory (Seattle) workshop: March 2002
- 8. *15th National Nuclear Physics Summer School*
Organizer (with Jeff Blackmon)
June, 2003, Knoxville, TN
- 9. *Institute of Nuclear Theory Program: Realistic Effective Interactions in Nuclei*
Co-organizer (with Bruce Barrett, James Vary, and Morten Hjorth-Jensen)
September-December 2004
- 10. Co-organizer APS-DNP Meeting, Nashville 2006
- 11. Local Organizing committee, Nuclear Structure 2006 (at ORNL, July 2006).
- 12. Organizing committee for the Nuclear Astrophysics/Physics of Nuclei Long Range
Plan Town Meeting, 2006/2007 (to be held in Chicago).

Classes Taught at the University of Tennessee

- 1. Physics 643 (graduate, 8 grad, 1 undergrad)
Subject: Computational Quantum Many-Body Problems
Spring, 2002
- 2. Physics 573 (graduate)
Subject: Computational Physics
Spring, 2003 (6 grad), 2005 (6 grad)

Committee and Special Assignments (at either UT or ORNL as noted)

- 1. UT Physics Department Ph.D. Qualifying Exam Committee, 2002
- 2. ORNL Physics Division Future Directions Committee (2000 – 2002)
- 3. ORNL PECASE Candidate Selection Committee (2001, 2003, 2004)
- 4. ORNL Physics Division, Ad Hoc Committee on Experimental Astrophysics (2002 – 2004)
- 5. ORNL Physics Division, Education Coordinator (2000 – present)
- 6. ORNL Physical Sciences Directorate Theory and Computing Committee (2005)
- 7. ORNL Awards Night Committee – research accomplishments (2005, 2006)

Students and Postdocs

CV for David J. Dean (September 2006)

1. *Bogdan Mihaila*, 1998 – 1999
ORNL/UT postdoc (now at LANL)
2. *Bryan Barmore*, 1998 – 2000
UT/ORNL postdoc, joint with Witek Nazarewicz (now with NASA)
3. *Andrius Juodagalvis*, August 2000 – 2004
ORNL/UT post-doc, now a professor in Lithuania
4. *Cem Ozen*, 1999 – 2005
University of Tennessee graduate student (now a post-doc at GSI)
5. *Karim Bennecuer*, 2000 – 2001
UT/ORNL postdoc, joint with Witek Nazarewicz
Presently a staff member at GANIL
6. *Gergana Stoitcheva*, 2002 – present
UT/ORNL post-doc
7. *Gaute Hagen*, 2005 – present
ORNL post-doc