

**Stanford E. Woosley**  
 Professor of Astronomy and Astrophysics  
 University of California, Santa Cruz

## INTERESTS AND EXPERTISE

Nuclear astrophysics, stellar structure

## ACADEMIC HISTORY

1971 Ph.D. in Astrophysics, Rice University, Houston, Texas  
 1966 B.S. in Physics, Rice University, Houston, Texas

## POSITIONS HELD

2006 Chair, Department of Astronomy and Astrophysics, UCSC (4 months)  
 1998-03 Chair, Department of Astronomy and Astrophysics, UCSC  
 1989-91 Chair, Department of Astronomy and Astrophysics, UCSC  
 1983- Professor of Astronomy, University of California, Santa Cruz  
 1983-87 Chair, Department of Astronomy and Astrophysics, UCSC  
 1978-83 Associate Professor of Astronomy, UCSC  
 1975-78 Assistant Professor of Astronomy, UCSC  
 1974- Consultant, Lawrence Livermore National Laboratory, Livermore  
 1973-75 Research Fellow in Physics, Kellogg Radiation Laboratory, CalTech  
 1971-73 Research Associate, Department of Space, Physics and Astronomy, Rice University

## HONORS AND AWARDS (selected)

2006 Elected to the National Academy of Sciences  
 2005 Bruno Rossi Prize in High Energy Astrophysics from the American Astronomical Society  
 2005 H.A. Bethe Prize in Nuclear Astrophysics from the American Physical Society  
 2004 Outstanding Faculty Award, Division of Physical and Biological Sciences, UCSC  
 2002 H.A. Bethe Distinguished Visiting Lecturer (Cornell, February-March)  
 2001 Elected Fellow of the American Academy of Arts and Sciences  
 1999 Outstanding Alumni of the Decade 1970-79, Rice University, Space Sciences Department  
 1995-97 A.V. Humboldt Award, Humboldt Professor, Max Planck Institut fur Astrophysik, Garching, Germany (100,000 DM)  
 1989-92 Elected Councilor of the American Astronomical Society  
 1987 Elected Fellow of the American Physical Society

## EXTERNAL RESEARCH SUPPORT (\$20,000 and over)

2006-11 DOE (PI) SciDAC 2 award - "Computational Astrophysics Consortium: 3. Supernovae, Gamma-Ray Bursts and Nucleosynthesis", \$1, 246,000 (UCSC portion of total \$9 M award)  
 2004-06 DOE (PI) SciDAC 1 – 2 year extension of "Supernova Science Center", \$480,000 (UCSC portion of total \$1.5 M award)  
 2001-04 DOE (PI) Scientific Discovery through Advanced Computing (SciDAC 1) award – "Supernova Science Center", \$586,868 (UCSC portion of total \$2.2 M award)  
 2005-08 NASA (PI) "Gamma-Ray Bursts and Supernovae: At the Crossroads," \$362,756  
 2005-07 NSF (PI) "Acquisition of Beowulf Cluster for a Center for Computational Astrophysics at UCSC," \$1,100,000  
 2005-07 NASA (PI) "The Collapsar Model for GRBs," \$37,015  
 2004-07 NSF (PI) "Massive Stellar Evolution, Supernovae and Nucleosynthesis," \$402,567  
 2002-06 NASA (PI) "Multi-dimensional Models for Gamma Ray Bursts, X-Ray Bursts, and Supernovae," \$403,381  
 1997-06 MIT (co-PI) "Reflight of High Energy Transient Experiment (HETE II)," \$286,324  
 2002-05 NSF (PI) "Massive Stellar Evolution, Supernovae and Nucleosynthesis," \$402,567.

- 2002-05 NASA (PI) "Multi-Dimensional Models for Gamma Ray Bursts, X-Ray Bursts, and Supernovae," \$406,250.
- 2001-04 Hubble Fellowship for A. Cummings "Rotation and Magnetism in Accreting Neutron Stars with White Dwarfs," \$233,620.

### RECENT PUBLICATIONS (selected)

- The Supernova-Gamma-Ray Burst Connection, S.E. Woosley and J.S. Bloom, *Annual Review of Astron. and Ap.*, **44**, 507-556, (2006).
- The Progenitor Stars of Gamma-Ray Bursts, S.E. Woosley and A. Heger, *Ap.J.*, **637**, 914-921, (2006).
- The Physics of Core-Collapse Supernovae, S. E. Woosley and T. Janka, *Nature, Physics*, **1**, 147 – 154, (2005).
- Carbon Ignition in Type Ia Supernova: An Analytic Model, S.E. Woosley, S. Wuncsh, and M. Kuhlen, *Ap.J.*, **607**, 921-930, (2004).
- Nucleosynthesis of Heavy Elements in Massive Stars, A. Heger, A., S. E. Woosley, K. Langanke, E. Kolbe, T. Rauscher, and R. D. Hoffman, *Nuclear Physics A*, **718**, 159, (2003)
- Simulations of Two-Dimensional Turbulent Convection in a Density-Stratified Fluid, T. Rogers, G. A. Glatzmaier, and S. E. Woosley, *Phys. Rev E*, **67**, 26315, (2003)
- How Massive Single Stars End Their Life, A. Heger, C.L. Fryer, S.E. Woosley, N. Langer, and D.H. Hartmann, *Ap.J.*, **591**, 288-300, 2003.
- Nucleosynthesis in Gamma-Ray Burst Accretion Disks, J. Pruet, S.E. Woosley and R.D. Hoffman, *Ap.J.*, **586**, 1254-1261, 2003.
- Relativistic Jets in Collapsars, W. Zhang, S.E. Woosley and A.I. MacFadyen, *Ap.J.*, **586**, 356-371, 2003.
- The Evolution and Exploration of Massive Stars, S.E. Woosley and A. Heger, *Review of Modern Physics*, **74**, 1015-1071, 2002.

### Five major presentations

- 2006 The Supernova Gamma-Ray Burst Connection", S. E. Woosley, Rossi Prize Talk at the winter meeting of the American Astronomical Society, Washington D. C.
- 2005 Nuclear Diagnostics of the Cosmos, S. E. Woosley, Bethe Prize talk at the American Physical Society meeting, Tampa, Florida
- 2004 Supernovae, Gamma-Ray Bursts, and Stellar Rotation, S. E. Woosley, invited colloquium at the Princeton Institute for Advanced Studies
- 2003 Gamma-Ray Bursts: The Brightest Explosions Since the Big Bang, S. E. Woosley, colloquium Physics Department, Stanford University
- 2000 Collapsars, Gamma-Ray Bursts, and Supernovae," invited talk at the spring meeting of the APS, Long Beach, CA

### UNIVERSITY SERVICE (selected)

#### Administrative appointments

- 2006 Member Outside Review Committee – Santa Cruz Institute for Particle Physics (SCIPP)
- 2006 Department Chair for 4 months
- 2005-06 Chair, Department Undergraduate Curriculum Committee
- 2005-06 Member, Departmental Graduate Curriculum Committee
- 2005 Fall quarter, member Committee on Academic Policy (CAP)

**PROFESSIONAL SERVICE (selected)****Consultative or other service to civic, state, or national governmental agencies**

- 2005-06 Member National Academy Committee charged with Reviewing the scientific merits of the Rare Isotope Accelerator
- 2004-05 Member panel appointed by the Nuclear Science Advisory Committee of the DOE to review the scientific case for the Rare Isotope Accelerator (RIA) compared with current facilities being developed abroad – especially at GSI in Darmstadt
- 1998-07 Member Scientific Advisory Committee, Nuclear Physics Division, Lawrence Livermore National Laboratory
- 1998-02 Member, Scientific Advisory Committee, Nuclear Science Division, Lawrence Berkeley National Laboratory

**Services to the staff or editorial board of scholarly journals, or other publications**

- 1996- present Editor, *New Astronomy*
- 1994- present Editor, *International Journal of Modern Physics, E*
- 1976- Referee for numerous papers each year in *Astrophysical Journal*, *Astronomy and Astrophysics*, *Nature*, *Physics Review Letters*, *Physics Reports*, *Physics Review*, *Astronomical Journal*

**STUDENTS AND FELLOWS SUPERVISED (lifetime)****Ph.D. Advisees**

Weiqun Zhang  
 Andrew MacFadyen  
 Robert Hoffman  
 Frank Timmes  
 Lisa Ensman  
 Dieter Hartmann  
 Guy Stringfellow  
 Rick Wallace  
 Phil Pinto

**Postdocs**

Shawfeng Dong  
 Sung-Chul Yoon  
 Fritz Roepke  
 Mike Zingale  
 Weiqun Zhang  
 Andrew Cumming  
 Andrew MacFadyen  
 Alex Heger  
 Chris Fryer  
 Domingo Garcia  
 Ron Eastman  
 Ikko Fushiki  
 Norbert Langer  
 Phil Pinto  
 Dieter Hartmann  
 George Fuller  
 Bruce Fryxell