UCSC astronomer awarded top high-energy astronomy prize for work on supernovae and gamma-ray bursts

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Stan Woosley, professor of astronomy and astrophysics at the University of California, Santa Cruz, has won this year's Bruno Rossi Prize for his pioneering work on supernovae and gamma-ray bursts, the most violent explosions in the universe. The prize is awarded each year by the High Energy Astrophysics Division of the American Astronomical Society. Woosley, an expert in theoretical astrophysics, is being recognized for his detailed modeling of supernovae -- the massive explosions of dying stars. Woosley's work on the evolution of massive stars and their explosion as supernovae describes how the "heavy" elements needed for life, such as oxygen and iron, are forged and ejected. In addition, Woosley's "collapsar" model of massive star explosions has recently been identified as the central engine of some gamma-ray bursts, a major breakthrough in this field.

"There's something terribly attractive about a titanic explosion, as long as it occurs far enough away," Woosley said. "To think that the same explosions that make black holes and neutron stars are also creating the elements of life still continues to amaze me. I am honored to receive the Rossi Prize for what has been such rewarding work with so many bright students and colleagues."

The Rossi Prize is given in recognition of significant contributions as well as recent and original work in high-energy astrophysics. The prize is in honor of Bruno Rossi, an authority on cosmic-ray physics and a

pioneer in the field of X-ray astronomy. The prize also includes an engraved certificate and a $1,500 award.

Woosley was recently awarded the American Physical Society's 2005 Hans Bethe Prize, which recognizes outstanding work in the area of astrophysics, nuclear physics, and related fields. He received the Outstanding Faculty Award from the Division of Physical and Biological Sciences at UCSC in 2003-04. He was elected as a fellow of the American Academy of Arts and Sciences in 2001 and a fellow of the American Physical Society in 1987.

Woosley is a co-investigator on the HETE-II collaboration, a NASA mission devoted to the study of gamma-ray bursts that was launched in 2000. He is also the director of the Center for Supernova Research at UCSC. He has published more than 300 papers.

A computer simulation of a gamma-ray burst developed by Woosley and two of his former graduate students, Andrew MacFadyen and Weiqun Zhang, can be viewed at www.nasa.gov/centers/goddard/n … 618rosettaburst.html (third animation).

Source: UCSC