Steven Cranmer Receives 2006 Karen Harvey Prize from AAS Solar Physics Division

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Cambridge, MA Astrophysicist Steven Cranmer of the Harvard-Smithsonian Center for Astrophysics (CfA) has been awarded the 2006 Karen Harvey Prize by the Solar Physics Division of the American Astronomical Society, the largest organization of professional astronomers in North America.

Cranmer received the Karen Harvey Prize for his major theoretical and observational contributions toward understanding the roles of waves and turbulence in heating and accelerating the solar wind. The solar wind is a constant stream of charged particles that flows from the sun's surface.

Much of Cranmer's work is devoted to figuring out how energy gets converted from one form to the other in the outer layers of the sun. "It's kind of like a roller coaster, where the cars do mechanical work in going up the hill, which stores up a lot of potential energy," said Cranmer. "As the cars start going downhill, some of the potential energy is converted into kinetic energy (energy of motion) and some goes into thermal energy as the rails heat up from friction. Similarly, the sun converts mechanical energy of convective bubbles into magnetic potential energy, and eventually into motion (waves and the solar wind) and heat (the million-degree solar corona)."

Cranmer received a Ph.D. in physics and astronomy from the University of Delaware in 1996. He then joined the Solar, Stellar and Planetary Physics Division of CfA. Cranmer is a member of the Ultraviolet Coronagraph Spectrometer group, which is a part of the Solar and Heliospheric Observatory mission. In 1999, his work with CfA senior astrophysicist John Kohl was featured in a NASA Space Science Update. They showed that the high-speed portion of the solar wind achieves its unexpectedly high velocity - up to 500 miles per second - by "surfing" magnetic waves in the sun's outer atmosphere. This work is also applicable to other stars than the sun.

"In addition to his outstanding work on the sun, Dr. Cranmer has a separate career in the stellar physics of rotating hot stars," said prize committee chairman Dr. David Hathaway. "He is a broad and extremely talented theorist, who is also developing an experimental basis for his ideas."

The Karen Harvey Prize is awarded in recognition for a significant contribution to the study of the sun early in a person's professional career. It was established in May 2002 in honor of the late Karen Harvey, who earned international recognition for her wide-ranging work on solar magnetic fields and solar activity. The prize is awarded to a person who has not reached 36 years of age, or who has no more than ten years of professional experience since the Ph.D. or equivalent degree, at the end of the year of the award. The award is open to anyone who meets the age and professional experience requirement, without regard to country of residence or membership in the AAS Solar Physics Division.

Cranmer will give an honorary Harvey Prize lecture at the upcoming meeting of the Solar Physics Division in Durham, New Hampshire from 25-30 June 2006.

Headquartered in Cambridge, Mass., the Harvard-Smithsonian Center for Astrophysics (CfA) is a joint collaboration between the Smithsonian Astrophysical Observatory and the Harvard College Observatory. CfA scientists, organized into six research divisions, study the origin, evolution and ultimate fate of the universe.

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