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Integral Satellite Launches Oct. 17: UNH Professor Hopes to Solve a Mystery of Outer Space

By [Amy Seif](#)

Communication and Information Coordinator
Institute for the Study of Earth, Oceans, and Space
603-862-5369

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DURHAM, N.H. -- As a Russian Proton rocket launches into space today, University of New Hampshire scientist Mark McConnell expects to look for more evidence of a space peculiarity using data from the International Gamma-Ray Astrophysics Laboratory (INTEGRAL) carried on this rocket.

NASA awarded McConnell, UNH associate research professor of physics, four days of observation time on INTEGRAL to measure gamma radiation from a celestial object first detected more than four years ago.

Gamma rays are the most energetic radiation in the electromagnetic spectrum, similar to the X-rays used by dentists to examine teeth, but of much higher energies. Astronomers measure gamma radiation from space to probe some of the most energetic phenomena in the universe.

In 1998, McConnell and his colleagues at UNH's Institute for the Study of Earth, Oceans, and Space reported evidence for an unusual source of gamma rays, based on data collected in the early 1990's by the COMPTEL experiment on the Compton Gamma-Ray Observatory (CGRO).

It was unusual because the source of the emission was tentatively associated with intense flaring activity on a highly magnetized white dwarf star -- a star about the size of the Earth, but with the mass of the Sun. This was the first time evidence was found for gamma-ray flares on any object other than the Sun.

"The data from COMPTEL showed this to be a rather faint source," says McConnell. "INTEGRAL should help us to confirm its existence and to further explore its nature."

The additional observation time offered through INTEGRAL will also more precisely pinpoint the location of this gamma-ray source. A more precise location will be necessary to determine if it is associated with the white dwarf star, thereby confirming the origin of the gamma radiation.

INTEGRAL is the most sensitive gamma-ray observatory ever launched. It will also offer insights into black holes, neutron stars, active galactic nuclei and supernovae.

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