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Gamma-ray telescope built by UCSC physicists to launch

UCSC physicists spent 14 years developing a gamma-ray-detecting system

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NASA's new Gamma-ray Large Area Space Telescope, which is slated to be launched Sunday, will gather data about black holes, dark matter and gamma-ray bursts. UCSC physicist Robert Johnson and adjunct professor of physics Bill Atwood led the UCSC team that helped develop the telescope. (Contributed photo)

The product of more than 14 years of hard work by a UC Santa Cruz-led team will lift off from Cape Canaveral this week in the form of NASA's new Gamma-ray Large Area Space Telescope, which, scientists hope, will help to gather data about some of the little-known sources of gamma-rays, like black holes and dark matter.

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The launch is projected to happen sometime between 11:45 a.m. and 1:40 p.m. today, but already has been delayed several times and could be pushed back further.

The telescope will be able to gather data that should help to reveal more information about some of astrophysics' mysteries including black holes, dark matter and gamma-ray bursts.

UCSC physicist Robert Johnson and adjunct professor of physics Bill Atwood led the UCSC team, which included approximately 12 undergraduates, six graduate students and five postdoctoral physicists, in designing and building parts of the telescope. The team was international as well; Hiroshima University in Japan and the University of Piza in Italy also contributed to the effort.

"I was always as a child interested in astrophysics and now I got to work on this experiment," said Marcus Ziegler, a physicist who received his doctorate at the University of Zurich doing particle experimentation with an underground accelerator.

The telescope is made up of two main components: the burst monitor and the large area telescope. The large area telescope uses the UCSC-created gamma-ray-detecting system, called the "Tracker," to first detect gamma-rays, a form of radiation millions of times more energetic than visible light, then identify where in the galaxy they originated.

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Seven UCSC faculty members had their research proposals selected for funding by the GLAST Guest Investigator Program, a program that funds basic research on data from the GLAST mission. Two of them were proposed by Johnson. One of his focuses on pulsars, spinning neutron stars, but the one that Johnson is really excited about involves developing analysis techniques to search for gamma-rays coming from the mysterious dark matter throughout the galaxy.

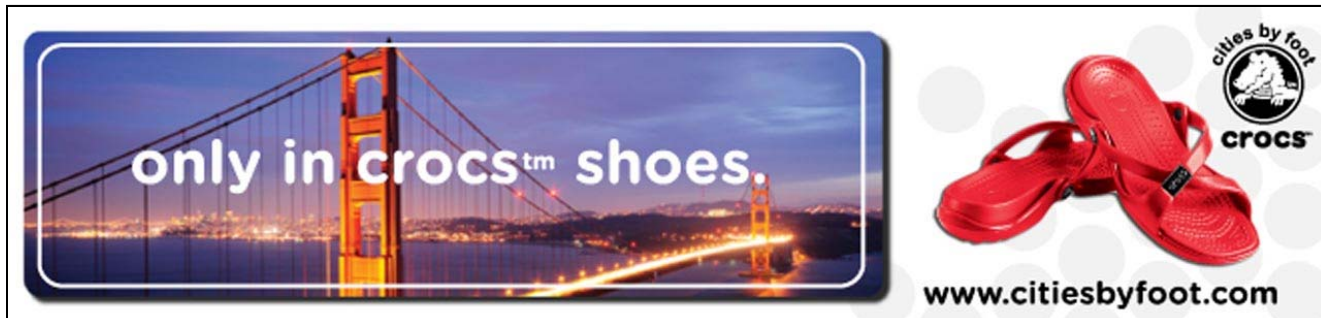
"A big hope is to find the nature of dark matter, which is one of the really outstanding issues in astrophysics," he said.

Very little is known about dark matter, but due to its gravitational effects, it is thought to account for most of the mass in the universe. As eager as Johnson is to examine the data sent back by the telescope, he is just as eager to get the launch over with.

"It's very exciting but right now I'm extremely nervous, having 14 years of work sitting on the top of a rocket," Johnson said. "I'll be really relieved once it's in orbit."

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