

More Mysteries in the Quest for Dark Matter

The Westside Story

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The particle detector attached to the outside of the International Space Station (ISS) has shown that something besides regular matter is generating cosmic rays.

Researchers aren't sure if these rays are being made by dark matter colliding, or simply by particles generated from pulsars. Pulsars are highly magnetized, rotating neutron stars that emit beams of electromagnetic radiation.



“We know something new has happened, but we still do not know the origin,” Massachusetts Institute of Technology physicist Sam Ting, one of the project's lead researchers.

“In a short time, we'll really be able to resolve the mystery,” he added.

The research is being done by a 600-member team [called](#) the Alpha Magnetic Spectrometer (AMS) collaboration. The team has members around the world, from the US to China to France. One of the collaboration's main goals is to observe and study dark matter.

Dark matter, for the most part, is a scientific mystery. Little is known about the substance, but scientists believe that its gravity is responsible for keeping the entire universe together. They believe that dark matter, and the related and even more mysterious dark energy, make up around 95 percent of the known universe.

Built in 2011, the AMS is a device that researchers have been using in order hopefully find signs of the elusive dark matter. One of the things it has been logging is how many positrons, which are the antimatter version of electrons, are detected relative to the overall number of positrons and electrons.

Last year, the AMS collaboration reported a proportionally higher number of positrons, which could be evidence of dark matter colliding. However, not enough concrete data was collected for any conclusive evidence.

“This increase indicates it cannot come from ordinary cosmic ray collisions,” Ting said.

“We have also measured the positron flux accurately,” he added. “The flux increases up to 10 billion electron volts of energy, flattens out at up to 35 billion electron volts and then increases again,” Ting said.

“These two behaviors show that the origin of positrons in the cosmos is quite mysterious,” he concluded. “It is too early to say they are definitely from dark matter.”

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<http://www.thewestsidestory.net/2014/06/18/13031/possible-evidence-dark-matter-found/>