

Dark Matter May Be Source of Mysterious Cosmic Rays Detected by Scientists

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A particle detector at the International Space Station identified cosmic rays that are produced by an unknown type of matter. Because of its unfamiliar behavior, scientists are speculating that the rays might be generated by dark matter, a substance that can only be found by observing its gravitational effects.

A 600-member Alpha Magnetic Spectrometer (AMS) team has yet to confirm whether the source of the cosmic rays is dark matter. The AMS particle detector showed the team that two key behaviors suggest dark matter might be the origin: a change in the ratio of positrons, and an energy flux increase. The ratio of positrons in proportion to the total amount of electrons and positrons combined has “changed its behavior from increasing, to becoming energy independent,” said Sam Ting, lead researcher of the AMS team.

“This increase indicates it cannot come from ordinary cosmic ray collisions,” Ting explained to Discovery News via email. Positrons are antielectrons that are the antiparticle counterpart of an electron.

“We have also measured the positron flux accurately,” he said. “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. Dark energy is responsible for accelerating the expansion of the universe. Together with dark matter, the two substances make up 95% of the universe.

Although data taken by the AMS particle detector shows unfamiliar traits of cosmic rays, scientists still do not have the evidence to prove dark matter is generating these rays. Ting stated that “these two behaviors show that the origin of positrons in the cosmos is quite mysterious,”—however, “it is too early to say they are definitely from dark matter.

“We know something new has happened, but we still do not know the origin,” Ting said. “In a short time, we’ll really be able to resolve the mystery,” he added.

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