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## Cosmic ray hunter installed on space station

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By Irene Klotz

CAPE CANAVERAL, Florida (Reuters) - Shuttle Endeavour astronauts on Thursday attached a \$2 billion device to the International Space Station that will conduct an ambitious survey aimed at uncovering matter telescopes cannot see.

The visiting astronauts used robotic cranes to pluck the 7.5-ton (6,800 kg) Alpha Magnetic Spectrometer particle detector (AMS) from their ship's cargo hold and install it onto the station's exterior metal truss, where it will operate throughout the life of the station.

Hours later, AMS was churning out information about high-energy particles in cosmic rays.

"Right away we began to see an enormous amount of data coming down," lead researcher Samuel Ting, a Nobel laureate from the Massachusetts Institute of Technology, told reporters. "We're very pleased."

The spectrometer is designed to parse through the river of high-energy cosmic rays streaming through space for signs of dark matter, antimatter and other phenomena that cannot be detected by traditional telescopes.

Scientists expect AMS will reshape their understanding of the universe, much the same way that the Hubble Space Telescope pioneered new frontiers in astronomy, including the startling discovery that the universe's rate of expansion is speeding up.

AMS has a powerful magnet to shepherd cosmic rays through detectors that can reveal electrical charges, energy levels and other information. Data is taken at a rate of 25,000 times a second, processed by onboard computers and relayed to scientists on the ground.

"Thank you very much for the great ride and safe delivery of AMS to the station. Your support and fantastic work has taken us one step closer to realizing the scientific potential of AMS," Ting, who oversees the 600-member, 16-nation AMS science team, radioed to the shuttle crew.

"We hope we will be able to make an important contribution to our understanding of the origin of the universe," Ting said.

### DAMAGED AREA

Endeavour blasted off on Monday for a 16-day mission, the next-to-last flight before NASA retires its three-ship shuttle fleet. It arrived at the station on Wednesday.

"It's a big relief to get AMS installed on the top of the truss," Endeavour commander Mark Kelly said during an inflight interview with Reuters. "We're expecting some really fascinating results."

Inflight inspections showed some damage to Endeavour's heat-resistant belly tiles due to debris impacts during launch.

NASA managers on Thursday decided to have the crew use the shuttle's laser and camera scanners to examine one damaged area about 3 inches long.

"I am not concerned about the damage that we're seeing here," mission management chairman LeRoy Cain told reporters.

NASA added heat shield inspections and repair kits after losing shuttle Columbia in 2003 and its seven-member crew due to heat shield damage.

In a worst-case scenario, spacewalking astronauts would patch or repair the damaged tile before Endeavour is cleared for landing. The tiles are part of the shield that protects the shuttle from the searing heat of atmospheric re-entry.

"We've seen this kind of stuff before and it's not too much of a concern," Kelly said.

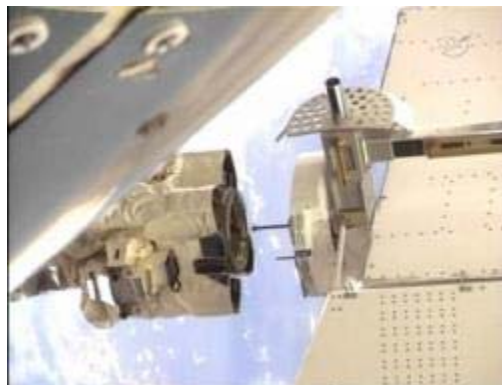
Kelly is married to U.S. Representative Gabrielle Giffords, who was shot at close range on January 8 in Tucson, Arizona. Jared Loughner, 22, has been charged in the shooting spree that killed six people and wounded 13.

She watched Endeavour's launch at the Kennedy Space Center with the families of the Endeavour crew, then returned to Houston. The Arizona Democrat, who was shot through the head, underwent surgery on Wednesday.

"She's doing really well. Everything went as planned," Kelly said.

The Endeavour astronauts are preparing for the first of four spacewalks for maintenance and servicing of the space station on Friday. The shuttle is due back at the Kennedy Space Center in Florida on June 1.

(Editing by [Xavier Briand](#))



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