



Space-Based Detector Could Find Anti-Universe

By Robert Evans

Reuters

GENEVA

A huge particle detector to be mounted on the International Space Station next year could find evidence for the anti-universe often evoked in science fiction, physicists said on Wednesday.

Speaking as the 8.5-tonne Alpha Magnetic Spectrometer (AMS) machine was being loaded into a huge U.S. Air Force cargo plane at Geneva airport, they said the 20-year research program would bring a huge step forward in understanding the cosmos.

"If there is an anti-universe, perhaps out there beyond the edge of our universe, our space-based detector may well be able to bring us signs of its existence," U.S. scientist and Nobel laureate Samuel Ting told a news conference.

"The cosmos is the ultimate laboratory."

Ting, a 73-year-old professor at the Massachusetts Institute of Technology, is principal investigator for the project, which involves some 500 scientists and technicians round the globe.

Cosmologists say matter and anti-matter -- which annihilate each other on contact, releasing energy -- must have been made in equal quantities by the Big Bang 13.7 billion years ago. But the universe that emerged is overwhelmingly made up of matter.

Scientists hope the AMS will find clues to what happened to anti-matter, and whether there are other places that are almost entirely anti-matter, existing on the edge of the known universe and a mirror image of it and everything in it, including life.

DARK MATTER

The primary purpose of the detector, which has a super-powered magnet at its core, is to hunt another quarry -- the mysterious "dark," or invisible, matter that alongside dark energy makes up nearly 95 per cent of the known universe.

Scientists also hope the AMS will provide detailed knowledge of energy-charged cosmic rays -- an unexplored realm of research that can only be carried out in space.

But it may also answer questions not yet asked.

"It could turn up many surprises," said Roberto Battiston, an Italian physicist on the team. "Never have we been so aware of our ignorance -- we know that we know nothing about what makes up all but 5 per

cent of our universe."

John Ellis, a British theoretical physicist described by Ting as the intellectual godfather of the project, said his aim had always been "to think of things for the experimenters to look for and hope they find something else."

The U.S. Super Galaxy aircraft is transporting the AMS to the Kennedy Space Center in Florida for further tests.

In February it will be loaded onto a space shuttle and delivered to the space station on a flight specially approved by the U.S. Congress after heavy lobbying by Ting and colleagues.

The AMS has been developed by an international team working at CERN, the European Organization for Nuclear Research near Geneva, whose Large Hadron Collider (LHC) particle accelerator is also aiming to solve mysteries of the cosmos.

The AMS project's costs, currently estimated at around \$2 billion, are being covered by 16 countries, mostly in Europe but also including the United States and China.

(Editing by Jonathan Lynn and Kevin Liffey)

Copyright 2010 Reuters News Service. All rights reserved. This material may not be published, broadcast, rewritten, or redistributed.

Copyright © 2010 ABC News Internet Ventures