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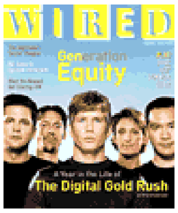

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Digging for Big Bang Fossils

Reuters

3:00 a.m. 9.Jun.99.PDT

Scientists hope a satellite focused to "see" invisible light will find fossil remnants of the Big Bang that created the universe. The launch is scheduled for later this month, astronomers said on Tuesday.

The Far Ultraviolet Spectroscopic Explorer (FUSE) will whip around the Earth every 100 minutes and search light waves normally blocked out by the planet's atmosphere for signs of the simplest element that settled out of the primordial explosion -- hydrogen.

Specifically, it will look for hydrogen and an isotope, or chemical variant, known as deuterium, said George Sonneborn of NASA's Goddard Space Flight Center in Greenbelt, Maryland.

"We think that as stars age, deuterium is destroyed," Sonneborn said. "Mapping deuterium throughout the Milky Way will give us a better understanding of how elements are mixed, distributed, and destroyed."

Elements such as hydrogen leave a distinct signature as light passes by them; FUSE will look for this signature.

"Because FUSE can observe ultraviolet light that other telescopes can't, we can test in unique ways how deuterium and other elements are circulated within galaxies. That in turn may test the limits of the Big Bang theory," said Kenneth Sembach, a FUSE science team member from the Johns Hopkins University in Baltimore.

"The big questions are these: Do we understand the origins of the universe, and do we understand how galaxies evolve?"

The balance of hydrogen and deuterium can help answer questions about the first few minutes after the Big Bang, how the elements are dispersed through the galaxies, and perhaps

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dispersed through the galaxies, and perhaps identify the contents of the vast gas clouds between stars.

The 3,000-pound FUSE satellite, built by Orbital Sciences Corp. of Germantown, Maryland, will be launched 23 June aboard a Boeing Delta II rocket from Cape Canaveral in Florida. FUSE will orbit 477 miles above Earth.

The FUSE instrument was built at Johns Hopkins with help from the Canadian Space Agency, which provided the camera; the French space agency, which provided a component of the spectrograph; and other US universities.

Interface and Controls Systems and Allied Signal Technical Services Corp., both of Columbia, Maryland, are also helping with the three-year mission, which will cost US$204 million.

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