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NASA Flouts Einstein, Explores Feasibility Of Interstellar Travel

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Monday, Aug. 11, 1997 ... Page A 1 ©1997 San Francisco Examiner

NASA flouts Einstein, explores feasibility of interstellar journeys

Key to star treks may be found in science fiction

Keay Davidson

EXAMINER SCIENCE WRITER

In a development straight out of "Star Trek," NASA is looking seriously at the feasibility of flight to the stars.

Way-out schemes for traveling to the nearest stars are being assessed by scientists and engineers as part of a low-profile, micro-budget NASA program, dubbed Breakthrough Propulsion Physics.

Wormholes, warp drives and other means for interstellar flight - long staples of science fiction - may become science fact, if the researchers get their way.

Tuesday through Thursday, more than 80 employees of the space agency and space-related industries will gather at NASA's Lewis Research Center in Cleveland to hear 14 scientists and engineers discuss ways to achieve interstellar flight.

Possibilities include the generation of so-called wormholes, something akin to rips in the fabric of space and time. Some physicists have speculated that a spaceship passing through a rip might emerge in a distant part of the cosmos.

"We don't even know if these things are physically possible," said the program's chief and sole full-time employee, aerospace engineer Marc Millis of NASA-Lewis.

But, Millis added hopefully: "Progress is not made by conceding defeat."

Why go to the stars? Among other things, to find habitable planets for humanity, Millis said.

"Imagine if we could give citizens access to a whole nother planet Earth," said Millis, 37. "Imagine if there were an uninhabited planet suitable enough to live on."

The main barrier to interstellar flight remains Albert Einstein's theory of relativity, which forbids travel at speeds faster than light - 186,000 miles per second.

The nearest stars, other than the sun, are four light-years away. A light-year is 6 trillion miles, the distance that light travels in a year. Because of the Einsteinian limit, a spaceship would need at least four years to reach the closest stars, Proxima Centauri and Alpha Centauri.

Two scheduled speakers come from the Bay Area - Raymond Chiao of the UC-Berkeley physics department and astrophysicist Bernhard Haisch of Lockheed Missiles & Space Co.'s office in Palo Alto.

Haisch is expected to discuss the possibility of space propulsion using something called "the momentum of the quantum vacuum." Chiao plans to discuss how laboratory experiments suggest that under certain circumstances, photons - particles of light - appear to travel "at an effective speed of 1.7 times the speed of light."

The program has official liaisons at a number of NASA centers around the nation - for example, Larry Lemke at NASA's Ames Research Center in Mountain View.

The proposed technologies "are extremely long shots," cautions one enthusiast, John Cole. He is manager of space transportation research at NASA's Marshall Space Flight Center in Alabama, which funds the program at Lewis.

"Theories of this type have cropped up perpetually from time to time," Cole said, "and usually wind up not leading anywhere. . . . But if we don't look, we certainly will never find anything."

And the time may be right.

"People, particularly young people, are sort of rejecting the claustrophobic position that we are locked in this solar system without any chance at all of going to others," said Whitt Brantley, chief of the advanced concepts office at NASA's Marshall Space Flight Center in Alabama.

But not everyone at NASA is pleased by talk about star ships.

Within the space agency, "the reactions completely cover the entire spectrum," Cole said. "There are those that believe we are about to get NASA embarrassed with some ideas that can't possibly be achieved.

"And there are others that are just delighted that NASA is finally open-minded enough, and (has) enough courage - and encouragement from the administrator (Daniel Goldin) - to pursue these things," Cole added.

Brantley interjected: "If you look back in history before great discoveries were made, there were great minds trying to show they were impossible."

How did an agency packed with conservative engineers get interested in interstellar flight?

For one thing, NASA Administrator Goldin made the once-taboo topic acceptable by publicly speculating about it.

Also, recent research published "in credible, peer-reviewed (scientific) literature" has made interstellar flight seem more feasible than it did decades ago, Millis said.

For example, the warp drive plan is based on an idea proposed by Miguel Alcubierre, an astrophysicist from the University of Wales. He published the method in 1994 in a little-known scientific journal called "Classical and Quantum Gravity."

According to one theory of warp drive, one could get around Einstein's speed limit for matter by moving the space around the matter. The space, being non-material, could exceed the speed of light - or so the theory implies.

Larry Diehl, director of NASA-Lewis' research and technology directorate, acknowledged with a chuckle that on the Internet, there has been chatter about whether "we are looking to violate the laws of physics. The answer, of course, is "no."

"We haven't made any large-scale commitment to funding work in this area. . . . (Still) if we don't continue to reach out and explore, I don't feel that we make progress," said Diehl, an aerospace engineer who has worked for the agency for three decades.

The program's current one-year budget is \$50,000 - pennies by NASA's usual gold-plated standards.

NASA has published the agenda for its conference on the World Wide Web at

www.lerc.nasa.gov/WWW/PAO/html/warp/bppconf.htm.

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