

Neutrinos beat Einstein... Or just pulled a fast one?

Excitement, scepticism after CERN lab claims faster-than-light particle, an impossibility according to Albert Einstein's special theory of relativity

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A STARTLING find at one of the world's foremost laboratories that a subatomic particle seemed to move faster than the speed of light has scientists around the world rethinking Albert Einstein and one of the foundations of physics.

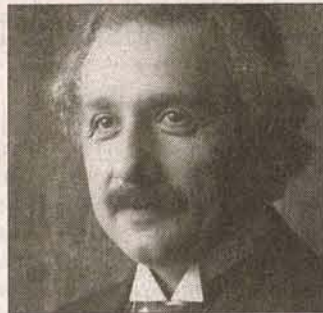
They now plan to put the finding to further high-speed tests to see if a revolutionary shift in explaining the workings of the universe is needed — or if someone is just making a mistake.

Researchers at CERN, the

European Organization for Nuclear Research outside Geneva, who announced the discovery Thursday are surprised themselves, and plan to detail their findings on Friday.

If these results are confirmed, they won't change the way we live or the way the universe behaves. But it will fundamentally change our understanding of how the world works, physicists said.

Only two labs elsewhere in the world can try to replicate the results. One, Fermilab outside Chicago, said Thursday that their own particle beam is up and running, but their measuring systems



ALBERT EINSTEIN

$E = mc^2$ no more?

aren't nearly as precise as the Europeans' and won't be upgraded for a while.

The other is a Japanese lab

put on hold by the March tsunami and earthquake.

"This thing is so important many of the normal scientific rivalries fall by the wayside," said Rob Plunkett, a spokesman for the Fermilab team's experiments. "Everybody is going to be looking at every piece of information."

Plunkett said he is keeping an open mind on whether Einstein's theories need an update, but he added: "It's dangerous to lay odds against Einstein. Einstein has been tested repeatedly over and over again."

Going faster than light is

something that is just not supposed to happen according to Einstein's 1905 special theory of relativity — the one made famous by the equation E equals mc squared. The speed of light — 2,99,792 km per second — has long been considered a cosmic speed limit.

"We'd be thrilled if it's right because we love something that shakes the foundation of what we believe," said famed Columbia University physicist Brian Greene. "That's what we live for."

But the claim is being greeted with scepticism inside and out-

side the European lab.

"The feeling that most people have is this can't be right, this can't be real," said James Gillies, a spokesman for CERN. Researchers are so astounded that "they are inviting the broader physics community to look at what they've done and really scrutinize it in great detail".

CERN provided the particle accelerator to send neutrinos on a breakneck 454-mile (730-km) trip underground from Geneva to Italy. The beam travelled traveled 60 nanoseconds faster than the speed of light, with a margin of just 10 nanoseconds.

Neutrinos are odd slivers of an atom that have confounded physicists for about 80 years. The neutrino has almost no mass, it comes in three different "flavours," may have its own antiparticle and even has been seen shifting from one flavour to another while shooting out from the sun.

Tracking neutrinos is very difficult, said Drew Baden, chairman of the physics department at the University of Maryland. "This is ridiculous what they're putting out," Baden said. "Until this is verified by another group it's flying carpets. It's cool, but..."