Scientists planning next particle super collider to meet at UT Arlington

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The University of Texas at Arlington will host hundreds of particle physicists from all over the world Oct. 22-26 for the International Workshop on Future Linear Colliders.

The meeting is being held in Texas for the first time. It will feature a public lecture by Nobel Prize-winning physicist Steven Weinberg titled "The Standard Model, Higgs Boson, Who cares?" at 7:30 p.m., Oct. 24, on the UT Arlington campus.

The semiannual conference has added significance because of a July 4 announcement from researchers at the Large Hadron Collider at the European Center for Nuclear Research, or CERN, that they've almost certainly found the elusive Higgs boson.

As the next step in discovery, the proposed International Linear Collider, or ILC, will be a 31-kilometer-long electron-positron collider to complement and expand the work of the proton-proton colliding LHC, said Jaehoon Yu, UT Arlington physics professor and co-organizer of the event.

"This summer's announcement of a Higgs-like particle allows us to take the linear collider idea to the next level," Yu said. "The mass range where scientists at CERN believe they have found the Higgs boson – around 126 gigaelectronvolts or GeV – is well within the capabilities of the first phase of the planned ILC."

Yu added: "With the ability to collide beams of particles 14,000 times every second at energies as high as 500 GeV, the linear collider could give us a host of new information about this new particle and help address other mysteries such as dark matter and dark energy."

Physicists believe interaction with the Higgs boson gives particles in the universe their mass. It is sometimes referred to as the "God particle" in the media. The Higgs is the only particle in the Standard Model of particle physics that has not been observed. The Standard Model describes the basic forces and interactions between the fundamental particles.

Scientists at the October gathering will discuss concepts for the ILC, which consists of two linear accelerators that face each other, and the Compact Linear Collider, another potential project being studied at CERN. Both colliders would ultimately reach energies of 1 TeV (trillion electron volts) or more.

The U.S. Department of Energy is providing funding for the conference, which is co-sponsored by the International Committee for Future Accelerators, the International Linear Collider, the Compact Linear Collider Study and the Worldwide Study of Physics and Detectors for future linear e+ e- colliders.

Yu and other scientists from UT Arlington's Center of Excellence for High Energy Physics have worked on the Large Hadron Collider for more than a decade. Yu and fellow UT Arlington physics professor Andrew White are also heavily involved in plans for the International Linear Collider, which is estimated to be a $10 billion project that would take a decade to build.

"Members of the UT Arlington faculty have a long history of making sure the University is engaged at the highest level in high energy physics

research," said Carolyn Cason, UT Arlington's interim vice president for research. "The International Workshop planned for October will continue that tradition and bring some of the brightest scientists in the world to North Texas."

Provided by University of Texas at Arlington