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Nobel Prize

OSU helped find 'God particle'

By Spencer Hunt
THE COLUMBUS DISPATCH

Chris Hill can trace his role in one of physics' most important discoveries to a movie day in science class in 1985.

Hill's eighth-grade teacher showed a film about a discovery in particle physics that had earned the researcher a Nobel Prize.

Hill said he was inspired by questions about the basic structure of the universe that were left unanswered.

Today, Hill is one of several Ohio State University physicists who helped find the Higgs boson particle, a discovery announced on July 4, 2012.

The Higgs boson is really the physical manifestation of a field that gives all other particles mass. It took 6,000 physicists and the world's most-complex machine, the Large Hadron Collider near Geneva, Switzerland, to confirm that the particle exists.

Yesterday, Francois Englert and Peter W. Higgs were awarded the 2013 Nobel Prize in physics for the theory, first described in 1964.

Working independently in the 1960s, they came up with a theory for how the fundamental building blocks of the universe clumped together, gained mass and formed everything we see around us today. The theory hinged on the existence of the subatomic particle that came to be called the Higgs boson — or the "God particle."

In a statement issued by the University of Edinburgh, where he retired as a professor, the famously shy, 84-year-old Higgs said he hoped the prize would help people recognize "the value of blue-sky research."

Englert, 80, said the award pointed to the importance of scientific freedom and the need for scientists to be allowed to do fundamental research that doesn't have immediate practical applications.

"You don't work thinking to get the Nobel Prize," said Englert, a retired professor at the Free University of Brussels. Still, "we had the impression that we were doing something that was important, that would later on be used by other researchers."

Ulf Danielsson, a member of the Royal Swedish Academy of Sciences, which awards the physics prize, noted that the prize citation also honored the work done at Geneva.

"This is a giant discovery. It means the final building block in the so-called Standard Model for particle physics has been put in place, so it marks a milestone in the history of physics," Danielsson said.

The two winners share a prize of \$1.2 million. The Nobel Prizes, established by Swedish industrialist Alfred Nobel, have been given out since 1901.

Hill, 41, was in Geneva yesterday to celebrate the announcement.

"Most of my scientific career has been aimed at this," he said.

Hill's job in the project was to review and confirm data collected by one of the collider's two main detectors before scientific papers could be written.

"I was one of the people who had to decide when we had made this discovery," he said. "That was probably the most exciting time of my career."

Stan Durkin, an OSU experimental particle physicist, worked on the

Hadron for 19 years. He designed and built the electronic systems that one of the collider's massive detectors used to look for the particle in millions of high-energy proton collisions.

"The Higgs bosons that were discovered ... were read out by OSU electronics," Durkin said. "It was incredibly satisfying."

Brian Winer, an OSU experimental high-energy physicist, looked for the Higgs boson in data collected by the Fermilab collider in Illinois. He joined the Hadron Collider project after the Fermilab collider was shut down in 2011.



Prize winner
Peter W. Higgs



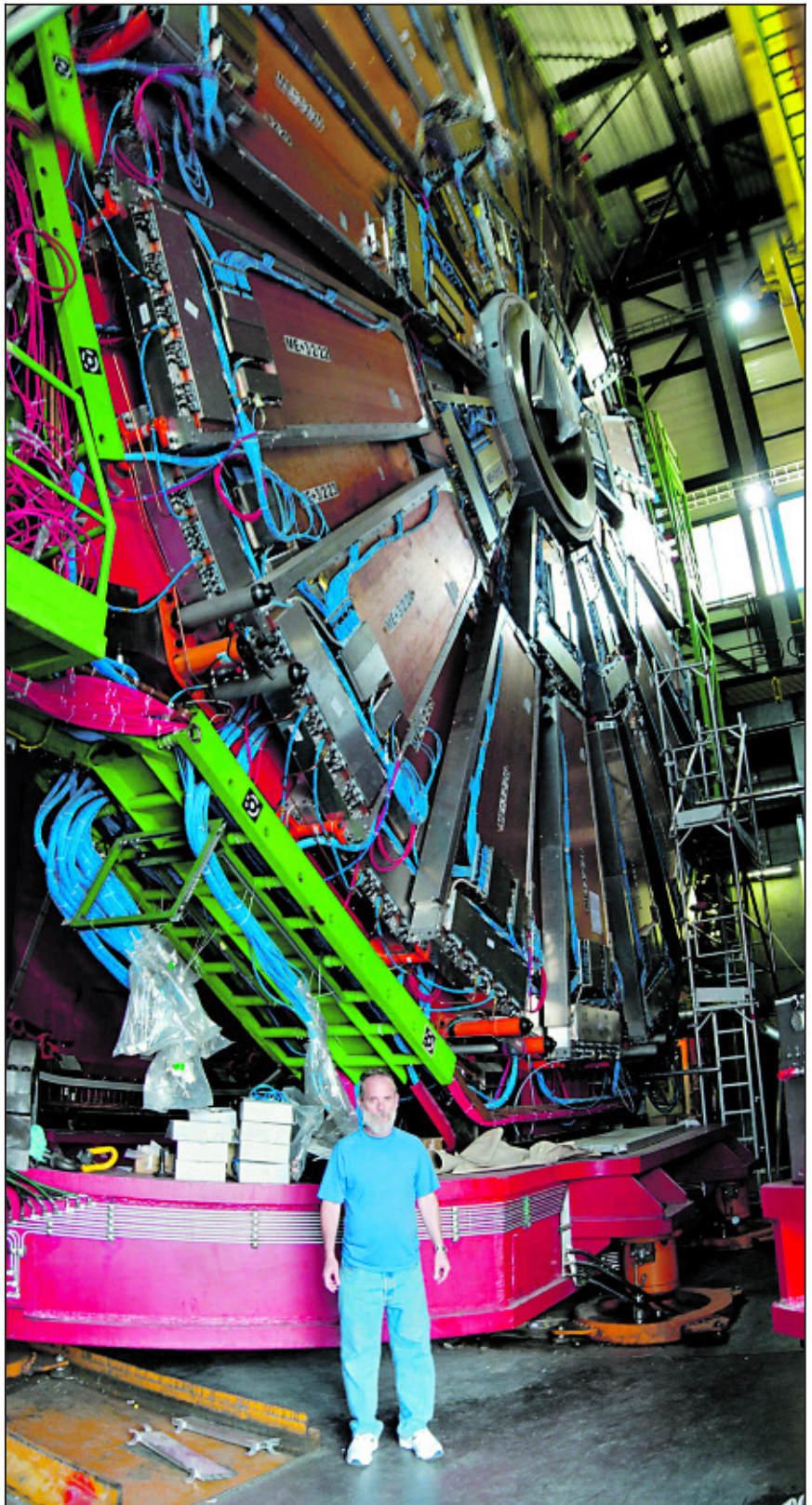
Prize winner
Francois Englert



OSU physicist
Chris Hill



OSU physicist
Brian Winer



THE OHIO STATE UNIVERSITY

Ohio State physicist Stan Durkin helped design the electronic systems that the Large Hadron Collider's detectors used to discover the Higgs boson.

Winer said he'd been looking for the Higgs for 13 years. Now he's working on the collider's next stage of experiments. "There's a lot about the Higgs that we don't know."

Information from the Associated Press was included in this story.
shunt@dispatch.com
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