'God particle' discovery poses Nobel dilemma

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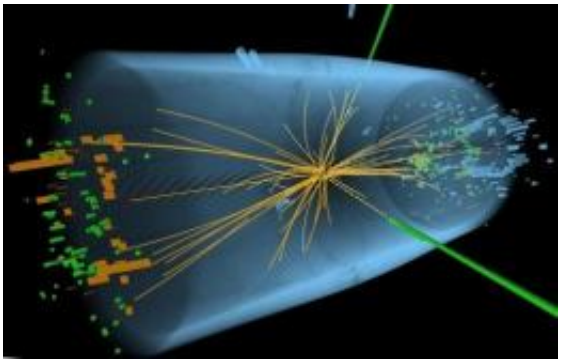

Graphic provided in July by the European Organization for Nuclear Research (CERN) shows a representation of traces of a proton-proton collision measured in the Compact Muon Solenoid experiment in the search for the Higgs boson.

On July 4, scientists announced they had discovered a new particle that may be the fabled Higgs boson, an exploit that would rank as the greatest achievement in physics in more than half a century.

But they also created a headache for the jury that will decide next Tuesday's Nobel Prize for Physics.

Historic though it is, does the announcement deserve the award?

And if so, who should get it?

The breakthrough at the European Organisation for Nuclear Research (CERN) touches on the agonising quest to find the "God particle," so

called for being everywhere and elusive at the same time.

Named after British physicist Peter Higgs, the boson is a key to our concept of matter, as it could explain why particles have mass. Without the Higgs, the Universe as we know it would simply not exist, according to the theory.

"This is the physics version of the discovery of DNA," says Peter Knight, president of Britain's Institute of Physics.

But whether the July 4 fireworks will unlock the great prize is unclear.

"It's a big discovery. That's all I'm going to say," Lars Brink, a member of the Nobel committee for physics, told AFP.

Some Nobel-watchers are cautious, given that the new particle has not yet been officially sealed as the Higgs.

Scientists are almost certain it is the coveted beast, for they found it at a range of mass that fits with their calculations.

Yet they still need to confirm this, which means further work to see how it behaves and reacts with other particles. Indeed, there is a remote possibility that the new particle is not the Higgs, although this would be an even more groundshaking announcement.

As Higgs himself readily admits, vital contributions to the theoretical groundwork were made by others.

In fact, six physicists, each building on the work of others, published a flurry of papers on aspects of the theory within four months of each other back in 1964.

The first were Belgians Robert Brout, who died last year, and Francois Englert.

This was followed by Higgs, who was the first to say only a new particle would explain the anomalies of mass.

Then came a trio of Americans Dick Hagen and Gerry Guralnik and Briton Tom Kibble.

A further complication is that thousands of physicists worked in the two labs at CERN's Large Hadron Collider near Geneva where Higgs experiments were conducted independently of each other.

So the question is whether the jury considers July's announcement to be sufficient even if the boson's Higgsishness remains unconfirmed.

Then it must decide whether theoreticians or experimentalists—or both—should get the glory.

At most three names, although they can include organisations, can share a Nobel, but the prize cannot be given posthumously.

The Nobel will "eventually" go to the Higgs, "but not this year, as the evidence has come rather late, and it is not yet certain that the newly-discovered particle is in fact a Higgs boson," predicted John Ellis, professor of theoretical physics at King's College London and a researcher at CERN.

Etienne Klein, a physicist at France's Atomic Energy Commission (CEA), said the boson was a shoo-in for a Nobel.

He urged the jury to "take a gamble" and award it jointly to Higgs, Englert and CERN.

"You must also note that Higgs is not in the bloom of youth"—he is 83—"and this may be a form of age-related pressure which would help," said Klein.

Pierre Marage, vice rector of academic policies and research at the Free University of Brussels, where Brout and Englert carried out their work, said a Brout-Higgs award was best.

And a spot for CERN?

"There's nothing stopping us from giving the prize to an organisation. But it has not been the custom in the scientific prizes," said Lars Bergstroem, secretary of the committee for the Nobel physics prize.

"The Nobel Peace Prize has often been awarded to organisations. But in the science prizes we have tried to find the most prizeworthy individuals."