

Physics Nobel Prize Awarded To Trio For Black Hole Research

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Nobel Prize for Physics: The physicists were selected "for their discoveries about one of the most exotic phenomena in the universe, the black hole," the Nobel Committee said.

Roger Penrose of UK, Reinhard Genzel of Germany and Andrea Ghez of the US won the Nobel Physics Prize

Stockholm: Roger Penrose of Britain, Reinhard Genzel of Germany and Andrea Ghez of the US won the Nobel Physics Prize on Tuesday for their research into black holes, the Nobel jury said.

The physicists were selected "for their discoveries about one of the most exotic phenomena in the universe, the black hole," the Nobel Committee said.

Penrose, 89, was honoured for showing "that the general theory of relativity leads to the formation of black holes", while Genzel, 68, and Ghez, 55, were jointly awarded for discovering "that an invisible and extremely heavy object governs the orbits of stars at the centre of our galaxy," the jury said.

Ghez is just the fourth woman to receive the physics prize since 1901 when the first Nobel prizes were handed out.

"I hope I can inspire other young women into the field," Ghez told a press conference after the award was announced.

The term "black hole" refers to a point in space where matter is so compressed as to create a gravity field from which even light cannot escape.

Penrose, who is based at the University of Oxford, used mathematical modelling to prove back in 1965 that black holes can form, becoming an entity from which nothing, not even light, may escape.

His calculations proved that black holes -- super dense objects formed when a heavy star collapses under the weight of its own gravity -- are a direct consequence of Einstein's general theory of relativity.

Genzel and Ghez have led research since the early 1990s focusing on a region called Sagittarius A* at the centre of the Milky Way.

Using the world's largest telescopes, they discovered an extremely heavy, invisible object -- around 4 million times greater than the mass of our Sun -- that pulls on surrounding stars, giving our galaxy its characteristic swirl.

The pair in particular developed methods to see through the huge clouds of interstellar gas and dust to the centre of the Milky Way, creating new techniques to compensate for the image distortion caused by Earth's atmosphere.

In April 2019, astronomers unveiled the first photo of a black hole.

Genzel is connected to the Max Planck Institute for Extraterrestrial Physics in Garching, Germany and the University of California.

Ghez is a Professor of Physics and Astronomy at the University of California.

In-person ceremony cancelled

The trio will share the Nobel prize sum of 10 million Swedish kronor (about \$1.1 million, 950,000 euros), with half going to Penrose and the other half jointly to Genzel and Ghez.

They would normally receive their prize from King Carl XVI Gustaf at a formal ceremony in Stockholm on December 10, the anniversary of the 1896 death of scientist Alfred Nobel who created the prizes in his last will and testament.

But the in-person ceremony has been cancelled this year due to the coronavirus pandemic, replaced with a televised ceremony showing the laureates receiving their awards in their home countries.

Last year the honour went to Canadian-American cosmologist James Peebles and Swiss astronomers Michel Mayor and Didier Queloz for research that increased the understanding of our place in the universe.

Peebles won for showing that most of the universe is made up of an "unknown dark matter and dark energy," while Mayor and Queloz won for the first discovery, of an exoplanet outside our solar system.

This year's Nobels season kicked off Monday when the medicine prize was awarded to Americans Harvey Alter and Charles Rice together with Briton Michael Houghton for the discovery of the Hepatitis C virus, paving the way for a cure.

The winners of this year's chemistry Prize will be announced on Wednesday, followed by the literature prize on Thursday.

The peace prize will be announced on Friday, with speculation that Swedish teenager Greta Thunberg and other climate activists or press freedom groups could get the nod for the latter.

The economics prize will wrap up the Nobel awards season on Monday, October 12.

- AFP