EUROPEAN COMMISSION

MEMO

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Commissioner Geoghegan-Quinn congratulates winners of Nobel Prize in Physics

European Commissioner for Research, Innovation and Science Máire Geoghegan-Quinn has today congratulated Belgian physicist François Englert and British physicist Peter W. Higgs for winning the 2013 Nobel Prize in Physics. They received the prize for "for the theoretical discovery of a mechanism that contributes to our understanding of the origin of mass of subatomic particles, and which recently was confirmed through the discovery of the predicted fundamental particle, by the ATLAS and CMS experiments at CERN's Large Hadron Collider." (http://www.nobelprize.org/)

Commissioner Geoghegan-Quinn said: "This is recognition of the contribution made to modern physics by François Englert and Peter Higgs. I would also like to pay tribute to the thousands of scientists who have worked tirelessly at CERN over many years to detect this elusive particle. EU-funded research has contributed to the research at CERN, including enabling the processing of the huge amounts of data from the LHC experiments that confirmed the predictions."

EU support for the LHC experiments at CERN

CERN, the European Organization for Nuclear Research, is the world's leading laboratory for particle physics. It has its headquarters in Geneva. At present, its member states are Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Italy, the Netherlands, Norway, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

The European Union is supporting the work at CERN through its research programme, while the European Investment Bank helped finance the construction of the Large Hadron Collider (LHC) in which the experiments to discover the Higgs Boson were conducted. CERN is currently taking part in 95 projects under the EU's Seventh Framework Programme for Research (FP7) with an EU contribution of more than €100 million.

What is the LHC?

The breakthrough discovery of the Higgs Boson was the result of hundreds of thousands of experiments in the world's largest science machine: the Large Hadron Collider (LHC), a 27 kilometre-long, circular tunnel beneath the French and Swiss Alps, where – with the help of super-cooled magnets – beams of protons were accelerated and smashed into each other to disintegrate into new particles and to confirm assumptions about the particle. The LHC was financed by CERN's 20 European member states and third countries including the U.S., Japan and India. The European Investment Bank lent the project €300 million euro.

What is GÉANT?

GÉANT is co-funded by the European Union (EU) and Europe's National Research and Education Networks (NRENs). The GÉANT network connects 38 NREN partners serving 43 countries, together reaching in excess of 50,000,000 end users from more than 10,000 universities, higher education institutes, research institutes, libraries, museums, national archives, hospitals, etc. and a further 22,000 primary and secondary schools. It is operated by DANTE (UK), which leads the project consortium of 41 partners. Research networks, including GÉANT are critical components in the global infrastructure behind the LHC, delivering experimental data to scientists around the world for analysis and then sharing their results amongst the entire community. To share this data GÉANT and its NREN partners have been involved in the LHC experiment since it began in 2008. Together they have deployed a vast optical private network (LHC OPN) to facilitate distribution of data to processing centres around the world (IP/13/756).

The Worldwide LHC Computing Grid (WLCG)

The Worldwide LHC Computing Grid (WLCG) is a global collaboration of more than 150 computing centres in nearly 40 countries, linking up national and international grid infrastructures. The mission of the WLCG project is to provide global computing resources to store, distribute and analyse the ~25 Petabytes (25 million Gigabytes) of data annually generated by the Large Hadron Collider (LHC).

This effort started some 10 years ago in April 2004, when the Enabling Grids for E-Science in Europe (EGEE) project received financing from the European Commission. CERN has pioneered work that provides access to high-throughput computing resources across Europe and the world using grid/cloud computing techniques. The European Grid Infrastructure (EGI), as it is known nowadays, links centers across Europe to support international research in many scientific disciplines.

EU-backed researchers in team behind Higgs discovery

30 scientists supported by the European Union's Marie Skłodowska-Curie Actions for research training and mobility were involved in the discovery of the Higgs Boson. The 30 scientists worked on the 'ACEOLE' and 'TALENT' projects, which made important contributions to the breakthrough. ACEOLE helped to develop the data readout systems used at the Large Hadron Collider particle accelerator tunnel at CERN, where the particle was identified. TALENT, which provided operational support for the experiment, is developing measurement tools for a better understanding of the precise nature of the new particle. Altogether the 30 scientists will receive about €6.5 million in EU funding.

More information

FP7 Programme

Marie Skłodowska-Curie Actions website