

LHC discoveries and particle physics concepts for education

Thursday 4 January 2018 21:15 (30 minutes)

With the advent of higher energies and higher collision rates, the LHC continues the exciting voyage towards new physics, allowing physicists all over the world to explore a previously unknown territory full of promise. So far the International Particle Physics Outreach Group (IPPOG) international masterclass developers, with the help of physicists and in close contact with teachers, have been successful in designing educational material and in engaging high school students to work, with real LHC data, on current hot topics, such as the discovery of the Higgs boson. One of the current challenges is to convey advanced physics concepts and to introduce new ideas beyond today's theoretical framework describing the content of the Universe and its evolution. How can we influence the teaching at schools in order to provide a better basis for attending masterclass-like events, and in general for understanding experimental results and new theoretical ideas? An IPPOG initiative deals with effective ways of explaining new physics. Moreover, physicists, in close contact with high school teachers and university departments of education, are investigating a more professional and research-based view on methods and ideas for introducing and explaining new physics concepts. A program plan, together with relevant material, must be created and incorporated to suit the high school curriculum and even replace the ordinary text book on the subject. This is crucial in order to enable us to explain new physics concepts and related enigmas such as dark matter, the role of gravity at the quantum scale, the possible unification of all fundamental forces and the physics of the early Universe. Eirik Gramstad, Farid Ould-Saada, Magnar Bugge

Summary

Authors: GRAMSTAD, Eirik (University of Oslo (NO)); BUGGE, Magnar Kopangen (University of Oslo (NO)); OULD-SAADA, Farid (University of Oslo (NO))

Presenter: GRAMSTAD, Eirik (University of Oslo (NO))

Session Classification: Thursday PM

Track Classification: Particle Physics and Education