SEMPARIS – Séminaires en région parisienne

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Cours

Vendredi 29 Mai 2015, 15 :00
LPTENS, Amphi Charpak, Rez de Chaussée Patio 22-33 - Campus de Jussieu
Domaines : hep-th

Titre : *Large Hadron Collider Physics : The Next Generation*

Orateur : **Chris Quigg**

Résumé : *This series of three 90-minute lectures will treat the scientific opportunities offered by the next round of experimentation at CERN's Large Hadron Collider, which will provide high-luminosity proton-proton collisions at c.m. energies approaching 14 TeV. We will begin with an introduction to hadron colliders, the essentials of proton structure, and how to compute signals and backgrounds. We will review how the goal of establishing the nature of electroweak symmetry breaking shaped the parameters of the LHC, survey open questions in the electroweak theory before the LHC, summarize the Higgs boson search and discovery, and look forward to today's unresolved issues. We will address the strong interactions and quantum chromodynamics as well, both in proton-proton collisions and in heavy-ion collisions. We will tour the opportunities to test ideas for physics beyond the standard model, both in hard, high-scale processes and in flavor physics. We will conclude with a brief look toward the High-Luminosity LHC and possible future hadron colliders. My goal throughout will be to present facts and ideas, but also perspectives on the questions that will be important for the future.*