



**Irfu**

Institut de recherche  
sur les lois fondamentales  
de l'Univers

**Séminaire  
DPhP**

**Lundi 27/05/2019, 11h00**

CEA-Saclay Bât. 141, salle André Berthelot

---

## **High Luminosity LHC Physics and the CMS Detector Upgrade**

**MAXWELL CHERTOK**

University of California, Davis

---

Almost from the start, the Large Hadron Collider at CERN has exceeded expectations in performance and integrated luminosity delivered, and the LHC experiments have followed suit with many important results that deepen our understanding of nature at the smallest scale. The Higgs boson has evolved from discovery of the millennium to a new laboratory for study with increasing precision as the data accumulate. Simultaneously, plans are well underway for an ultimate High Luminosity LHC (HL-LHC) program, which will collect an order of magnitude more data to leave no stone unturned in the quest for new fundamental particles and interactions. In this talk, I outline the history and status of the LHC, give an overview of HL-LHC including physics prospects, and present the CMS detector upgrade plans with a focus on the state-of-the-art outer silicon tracker.

---

Le café sera servi 10 minutes avant.

NB : La présentation d'une pièce d'identité est exigée à l'entrée du centre. Tous les auditeurs extérieurs sont priés de prévenir à l'avance Martine Oger, tél. 01 69 08 23 50, e-mail : [martine.oger@cea.fr](mailto:martine.oger@cea.fr). (U.E. : délai de 24 h, hors U.E. : délai de 4 jours).