

Lundi 4 octobre 11h00

CEA-Saclay Bât 141, salle André Berthelot

Evidence of Dark Matter and Searches in experiments including The Large Hadron Collider at CERN

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There is now undisputed evidence from Astronomy that dark matter exists and is about 80 % of the universe mass. The bulk of dark matter has not yet been observed and its composition is unknown. Black holes, a form of dark matter, comprise less than 1 % of the dark matter of the universe and neutrinos contribute less than 0.1 % of the universe dark matter mass. Tantalizing hints have come from the Pamela experiment that has observed an excess of positrons, possibly being created by dark matter annihilation. Many small scale experiments have searched for dark matter but so far there is no conclusive signal. There are several theories, such as SUSY or extra dimensions that have either a dark matter candidate or dark matter is a fundamental part of it. The Tevatron collider has searched for dark matter and has put a lower mass limit of $200 \text{ GeV}/c^2$. The Large Hadron Collider (LHC) experiments at CERN will search for dark matter candidates initially up to mass of $600 \text{ GeV}/c^2$ during 7 TeV operations and ultimately up to $2,000 \text{ GeV}/c^2$ mass. The evidence from Astronomy and ongoing dark matter searches will be reviewed. Several LHC searches will be described

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 Emilie Chancrin, tél. 01 69 08 23 50, e-mail : emilie.chancrin@cea.fr. (U.E. : délai de 24 h, hors U.E. : délai de 4 jours).