

**Irfu**Institut de recherche
sur les lois fondamentales
de l'Univers**Séminaire
SPP****Lundi 30/09/2013, 11h00**

CEA-Saclay Bat 141, salle André Berthelot

The search for permanent electric dipole moments

KLAUS KIRCHPaul Scherrer Institut and ETH Zürich, Switzerland

Permanent electric dipole moments (EDMs) of fundamental systems with spin, as particles, nuclei, atoms or molecules violate parity and time reversal invariance. Invoking the CPT theorem, time reversal violation implies CP violation. Although CP-violation is implemented in the standard electro-weak theory, EDMs generated this way remain undetectably small. However, this CP-violation also appears to fail explaining the observed baryon asymmetry of our universe. Extensions of the standard theory usually include new sources of CP violation and often predict sizeable EDMs. EDM searches in different systems are complementary and various efforts worldwide are underway and no finite value has been established yet. The prototype of an EDM search is the pursuit of the EDM of the neutron. It has the longest history and at the same time is at the forefront of present research. The talk aims at giving an overview of the field with emphasis on our efforts within an international collaboration at PSI.

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. (U.E. : délai de 24 h, hors U.E. : délai de 4 jours).