

**Jeudi 2 avril 11h00**

CEA-Saclay Bât 141, salle André Berthelot

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# The Alpha Magnetic Spectrometer on the International Space Station

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The Alpha Magnetic Spectrometer (AMS) is a precise particle physics instrument on the International Space Station (ISS), mostly built in Europe and in Asia (China, Taiwan, Korea) with the support of the United States (NASA and DOE).

In the cosmos there are neutral cosmic rays and charged cosmic rays. Neutral cosmic rays (light rays and neutrinos) have been studied extensively by satellites, ground-based telescopes and underground experiments for neutrinos.

Charged cosmic rays (electrons, positrons, protons, antiprotons, nuclei and anti-nuclei) provide information on the existence of an antimatter universe, on the origin of dark matter and on the origin of cosmic rays. The questions of the existence of Antimatter and of the origin of Dark Matter probe fundamental issues of modern physics (Grand Unified Theory, Electroweak Theory, Supersymmetry, CP Violation, Proton lifetime).

The AMS detector is now completed at CERN and scheduled to be launched on the Space Station with the Shuttle DISCOVERY on September 16, 2010. The construction of the superconducting magnetic spectrometer, including the magnet operating at superfluid helium temperature, and the physics potentials of AMS will be discussed.

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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](mailto:emilie.chancrin@cea.fr). (U.E. : délai de 24 h, hors U.E. : délai de 4 jours).