



**Irfu**

Institut de recherche  
sur les lois fondamentales  
de l'Univers

**Séminaire  
SPP**

**Lundi 10/10/2016, 11h00**

CEA-Saclay Bât. 141, salle André Berthelot

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## **Dark matter at galactic scales & alternatives**

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The standard model of cosmology Lambda-CDM is an excellent description of reality at large cosmological scales. However some issues remain : (i) The measured value of the cosmological constant Lambda looks unnatural from a quantum field perspective ; (ii) The weakly interacting particles envisaged as candidates for the cold dark matter (CDM) are still undetected in the laboratory ; (iii) The model does not explain the observed regularities in the properties of DM halos around galaxies. The prevailing view regarding the issue (iii) is that it should be resolved once we understand the complicated baryonic processes that affect galaxy formation and evolution. But this explanation is challenged by the fact that galactic data are in good agreement with the MOND (MODified Newtonian Dynamics) empirical formula. In this talk we shall review the phenomenology of DM at galactic scales and discuss some alternatives to standard CDM, including modified gravity theories and hybrids containing some dark matter à la MOND.

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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 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).