



**Irfu**

Institut de recherche  
sur les lois fondamentales  
de l'Univers

**Séminaire  
SPP**

**Lundi 12/01/2015, 11h00**

CEA-Saclay Bat 141, salle André Berthelot

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# The ALPHA experiment : Status and Outlook

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Since the first trapped antihydrogen in 2010 [1] and observing its long lifetime in the 0.5 K deep neutral atom trap [2], experiments have been performed on the anti-atom resulting in the observation of resonant transitions between the hyperfine states of the ground state [3], experimental limits on the ratio of the gravitational mass to the inertial mass of antimatter and an experimental limit on the charge of antihydrogen [5].

We will give an overview of the ALPHA experiment [6] and present some of the results originating from recent experiments on trapped antihydrogen.

## References

- [1] G. B. Andresen et al. (ALPHA collaboration), Nature 468, 673 (2010).
- [2] G. B. Andresen et al. (ALPHA collaboration), Nature Phys. 7, 558 (2011).
- [3] C. Amole et al. (ALPHA collaboration), Nature 483, 439 (2012).
- [4] C. Amole et al. (ALPHA collaboration), Nature Communications 4, 1785 (2013).
- [5] C. Amole et al. (ALPHA collaboration), Nature Communications 5, 3955 (2014).
- [6] C. Amole et al. (ALPHA collaboration), Nucl. Instr. and Meth. in Phys. Res. A 735 (2014) 319.

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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).