SEMPARIS – Séminaires en région parisienne

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Seminar of the theory group of APC

Mardi 7 Décembre 2021, 14 :00
APC, seminar room 483A, contact roperpol@apc.in2p3.fr for Zoom meeting details
Domaines : gr-qc

Titre : *Antinuclei as probe for exotic physics*

Orateur : **Michael Kachelriess (NTNU)**

Résumé : *Antideuteron and antihelium nuclei have been proposed as promising detection channels for dark matter because of the low astrophysical backgrounds expected. After a brief review of the current experimental situation, I discuss some of the various flavors of the coalescence model used to describe the formation of light (anti-) nuclei. Then I present results for a newly developed coalescence model based on the Wigner function representations of the produced nuclei states, which includes both the process-dependent size of the formation region of antinuclei, and the momentum correlations of coalescing antinucleons in a semi-classical picture. Therefore this model allows one to calculate in a consistent frame-work the antideuteron and antihelium fluxes both from secondary production and from dark matter annihilations, and I present results for resulting fluxes of these antinuclei. If time permits, I discuss also how antinuclei can be used as a tool to study to the formation of a quark-gluon plasma in accelerator experiments.*