Irfu
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Séminaire SPP

Vendredi 15/12/2017, 14h00-15h00

CEA-Saclay Bat 141, salle AndrÃ© Berthelot

Tabletop analog black holes to investigate the information loss paradox

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The question of whether Hawking evaporation violates unitarity, and therefore results in the loss of information, has remained unresolved since Hawking's seminal discovery. To date, the investigations have remained mostly theoretical since it is almost impossible to settle this paradox through direct astrophysicalÂ black hole observations. Here, we point out that relativistic plasma mirrors can be accelerated drastically and stopped abruptly by impinging intense x-ray pulses on solid plasma targets with a density gradient. This is analogous to the late time evolution of black hole Hawking evaporation. A conception of such an experiment is proposed and a self-consistent set of physical parameters is presented. Critical issues, such as how the black hole unitarity may be preserved, can be addressed through the entanglement between the analog Hawking radiation photons and their partner modes under different mirror trajectories associated with different proposed solutions to the paradox.

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).