



SEMINAIRE DE LA DIVISION DE RECHERCHE

«Neutron quantum states in the Earth's gravitational field above a horizontal mirror»

We studied neutron quantum states in the potential well formed by the Earth's gravitational field and a horizontal mirror, and estimated characteristic sizes of the neutron wave functions in two lowest quantum states. They correspond to their expectations with an accuracy of ~25 %. A spatial distribution of the neutron density in a standing wave above a mirror was measured for a set of a few lowest quantum states. A position-sensitive neutron detector with an extra high spatial resolution of 1-2 μm was developed for this particular task and tested. The present experiment gives an upper limit for an additional short-range fundamental force, competitive to the published earlier boundary in the nanometer range. We studied systematical uncertainties in the chosen "flow-through" method as well as the chances to improve further accuracy in this experiment.

Valery Nesvizhevsky

Institut Laue-Langevin (ILL), Grenoble

Konstantin Protasov

Laboratoire de Physique Subatomique et de Cosmologie (LPSC), Grenoble

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Ce séminaire aura lieu à **16 heures**
Salle des Conseils de l'IPN - Bât. 100

Café et thé seront servis à 15 H 45