

Guillaume Pignol – Colloquium Seminar – March 20, 2025
University of Grenoble

Title:

Ultracold neutrons: a precision tool in fundamental physics

Abstract:

Ultracold neutrons (UCNs) offer a powerful tool for precision measurements in particle physics. Their extremely low energy allows them to be stored for long periods, making them ideal probes of fundamental interactions and symmetries. In this talk, I will discuss how UCNs are used to search for new physics, with a particular focus on the measurement of the neutron electric dipole moment (EDM). A nonzero EDM would indicate a new source of CP violation, providing insight into the matter-antimatter asymmetry in the Universe. I will also highlight the experimental techniques and challenges involved in improving measurement precision, focusing on the n2EDM experiment at PSI.

Biography:

Guillaume Pignol is an experimental physicist specializing in precision measurements using neutrons. He is currently the co-spokesperson of the n2EDM experiment. He earned his undergraduate degree at École Polytechnique in Paris and obtained a PhD in particle physics from the University of Grenoble, France, in 2009. He is now an associate professor at Université Grenoble Alpes.