Contribution ID: **135** Type: **not specified**

Status of the NUCLEUS experiment

Wednesday 27 July 2022 11:18 (18 minutes)

Coherent elastic neutrino nucleus scattering (CEvNS) is a well-predicted Standard Model process only recently observed for the first time. Its precise study could reveal non-standard neutrino properties and open a window to search for physics beyond the Standard Model.

NUCLEUS is a CEvNS experiment conceived for the detection of neutrinos from nuclear reactors with unprecedented precision at recoil energies below 100 eV. Thanks to the large cross-section of CEvNS, an extremely sensitive cryogenic target of 10g of CaWO4 and Al2O3 crystals is sufficient to provide a detectable neutrino interaction rate.

NUCLEUS will be installed between the two 4.25 GW reactor cores of the Chooz-B nuclear power plant in the French Ardennes, which provide an anti-neutrino flux of 1.7 x 10^12 v/(s cm2). At present, the experiment is under construction. The commissioning of the full apparatus is scheduled for 2022, in preparation for the move to the reactor site.

Co-authors: VIGNATI, Marco (Sapienza University and INFN Roma); Dr WAGNER, Victoria (TUM)

Presenter: Dr WAGNER, Victoria (TUM)

Session Classification: Parallel Session A

Track Classification: Particle Physics