Contribution ID: **32** Type: **Oral talk - Experiment**

# NUCLEUS: cryogenic calorimeters to detect coherent nuclear scattering of reactor antineutrinos

*Monday, May 16, 2022 4:25 PM (25 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 10 g of $CaWO_4$ and $Al_2O_3$ crystals is sufficient to provide a detectable neutrino interaction rate.
The NUCLEUS experiment will be installed between the two 4.25 GW reactor cores of the Chooz-B nuclear power plant in France, which provide an anti-neutrino flux of $1.7 \times 10^{12} \nu/(\mathrm{s} \cdot \mathrm{cm}^2)$. At present, the experiment is under construction. The commissioning of the full apparatus is scheduled for 2022 at the Underground Laboratory of the Technical University Munich, in preparation for the move to the reactor site.

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**Session Classification:** Parallel

**Track Classification:** Coherent elastic neutrino-nucleus scattering, nuclear excitation by neutrinos