



Contribution ID: 47

Type: **Invited**

## Exploring coherent neutrino-nucleus scattering with the NUCLEUS experiment

*Monday 11 November 2019 12:05 (20 minutes)*

The detection of coherent-neutrino nucleus scattering (CEvNS) opens a new window to study the fundamental properties of neutrinos and to probe physics beyond the Standard Model of Particle Physics. NUCLEUS is a novel cryogenic neutrino experiment at a nuclear power reactor which allows for precision measurements of CEvNS at unprecedentedly low energies. It is based on recently demonstrated ultra-low threshold cryogenic detectors with nuclear-recoil energy thresholds in the 10eV regime. Accessing these energies enables to fully exploit the strongly enhanced cross section of CEvNS which leads to a miniaturization of neutrino detectors. NUCLEUS is fully funded and will be installed at a new experimental site in between the two 4GW reactor cores of the CHOOZ nuclear power plant in France. In this talk I will present recent results from a prototype detector and discuss the experimental strategy as well as the extensive physics program of NUCLEUS.

**Primary author:** STRAUSS, Raimund

**Presenter:** STRAUSS, Raimund

**Session Classification:** New experiments and technology