



SPEAKER: Alessandro Minotti

TITLE: **Neutrino oscillation from reactor experiments, the reactor anomaly, and light sterile neutrinos**

DATE: 29 Oct 2019, 11:00

PLACE: 500/1-001 - Main Auditorium

ABSTRACT

From the discovery of the neutrino to the measure of the last of the neutrino mixing parameters, nuclear reactors have proved indispensable in the study of these particles, of which much remains to be unveiled. Recent and past measurements using reactor neutrinos rely on the prediction of their spectrum, a non-trivial exercise involving ad-hoc methods and carefully-selected assumptions. A discrepancy between predicted and measured fluxes at very short baselines, known as reactor antineutrino anomaly, arose in 2011, prompting a considerable scientific production as well as the birth of new experiments aiming to study neutrino oscillation at very short baseline. Such anomaly can be in fact explained invoking the existence of a new sterile neutrino at the eV mass scale participating in the neutrino mixing, an enticing hypothesis that ties to other anomalies already observed in the neutrino sector and opens a door for physics beyond the Standard Model. The speaker will present an overview on the past and present studies of neutrino oscillation using reactor neutrinos, with a focus on recent results on sterile neutrino searches at short baseline, as well as a reference to the future flagship projects of this domain.