Advances in High Energy Physics

Special Issue on

Neutrino Physics in the Frontiers of Intensities and Very High Sensitivities 2016

CALL FOR PAPERS

Neutrino physics includes very wide regions/subjects such as GeV accelerator neutrino oscillations, solar and astroneutrinos in the sub-MeV-10 MeV region, neutrino nuclear interactions in the 10 MeV-GeV region, double beta decays, and tritium beta decays.

Intensity frontier is a wide assortment of precision measurements for the properties of particles like the neutrinos which may be well known, but their parameters have a long way before they are understood. It is a multidirectional approach with global participation using multibillion, megawatt sources, and megaton and extremely quiet detectors. The field of neutrino physics itself is very wide, including areas from accelerator produced neutrinos for high energy oscillations to solar and galactic sources at very low energies. There are neutrino-nuclear interactions, double beta decays, tritium beta decays, and interactions with complex nuclei that need to be understood at a high precision level of their absolute cross section which can fix the strong part of the radiative corrections and can be model-independent checks of the standard model, particularly in the light of the new boson discoveries.

The polyphony of ideas, plans, and proposals of the past few years has been focused much better now on the precision measurements of the theta-13 mixing angle. The path forward is now organized around few enormous, multimillion, and multinational collaborations, hosted within large laboratories around the world that are currently running (RENO, Day Bay, T2K, and NOvA) and future experiments (DUNE, JUNO, and Hyper-K). Smaller, satellite experiments (MIcroBooNE, Captain, IKAROS, MINERvA, etc.) focus on particular issues of the field and numerous small groups provide theoretical understanding and new viewpoints, plowing the road towards conquering the field. In addition, extensive programs on high-sensitivity future double beta-decay experiments and related theoretical works are going on to study the neutrino property, the absolute neutrino mass, and the mass hierarchy.

We, therefore, invite researchers in this field to contribute with articles on the subject. These can be original research articles as well as reviews of either the experimental or theoretical nature.

Potential topics include, but are not limited to:

- Precision measurements of disappearance
- Determination of mass differences
- Tight constraints on theta-13 and theta-23
- Cross section of neutrino interactions
- Beta and double beta decays
- Double-beta decay experiments
- Neutrino interactions as probe to neutron densities
- Nonstandard neutrino interactions
- Coherent neutrino-nucleus scattering
- Neutrino-nucleus cross sections at finite temperatures
- Experiments at stopped muon sources
- Short baseline interactions and oscillations
- Searches for new physics within neutrino interactions
- Astrophysical neutrino sources
- Terrestrial detection of astrophysical neutrinos

Authors can submit their manuscripts via the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/ahep/npf16/.

Lead Guest Editor
Theocharis Kosmas, University of Ioannina, Ioannina, Greece
hkosmas@uoi.gr

Guest Editors
Hiro Ejiri, Osaka University, Osaka, Japan
ejiri@rcnp.osaka-u.ac.jp

Athanasios Hatzikoutelis, University of Tennessee, Knoxville, USA
a.hatzikoutelis@utk.edu

Manuscript Due
Friday, 1 July 2016

First Round of Reviews
Friday, 23 September 2016

Publication Date
Friday, 18 November 2016