Advances in High Energy Physics

Special Issue on
Neutrino Masses and Oscillations 2015

CALL FOR PAPERS

This new edition of the special issue on Neutrino Masses and Oscillations will appear two years after the first one.

Important progress in the field has taken place since 2013 with precise measurements of $\sin^2\theta_{13}$ and other oscillation parameters. These measurements, as well as long baseline accelerator projects and reactor projects expected in the future, make the prospects of the determination of the neutrino mass hierarchy, the octant of the mixing angle θ_{23}, and the CP violating parameters in the neutrino sector extremely promising. This gains even more prominence since 2014 is the 50th anniversary of the discovery of CP violation in the quark sector.

Advances have also been seen in searches for neutrinoless double-beta decay, and more stringent limits on the effective mass of Majorana neutrinos have been reported.

Sensitive experiments aimed at direct measurements of electron antineutrinos emitted in beta decay are in operation or are being built. They open the possibility of actually measuring the electron antineutrino mass, or constraining it with stringent upper limits.

The subject of neutrino mass acquires a bigger interest after the discovery of the Higgs boson which confirmed several aspects of the standard model. However, in their present formulation, neutrinos are massless, contrary to their small masses as inferred by oscillation experiments. Some models link this smallness to the existence of very heavy mass states, thus probing a much higher mass scale. The issues of neutrino mass and of lepton number violation therefore are probes for physics beyond the standard model.

The recent observation of geoneutrinos provides a new tool for geophysicists. Two experiments have placed constraints on the radiogenic power in the Earth and a new interdisciplinary field is emerging.

We invite researchers in this field to contribute their articles to this new special issue. These can be original research articles or reviews of either experimental or theoretical nature.

Potential topics include, but are not limited to:

- Direct neutrino mass measurements
- Neutrino oscillations at nuclear reactors
- Neutrino oscillations at accelerators
- Atmospheric neutrino oscillations
- Solar neutrino oscillations
- Neutrino masses and oscillations in astrophysics and cosmology
- Global analyses of neutrino oscillations
- Neutrino mass hierarchy
- CP violation in the neutrino sector
- Theoretical issues in neutrino oscillations
- Neutrino masses beyond the standard model
- Theoretical predictions for neutrinoless double-beta decay
- Double-beta decay experiments
- Lepton flavor violation
- Geoneutrinos
- Signature of neutrino mass models at LHC
- Sterile neutrinos

Authors can submit their manuscripts via the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/ahep/nmo15/.

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