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The Nuclear Physics of Neutron Stars

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Message from the Guest Editor

Dear Colleagues,

Neutron stars are considered extraordinary astronomical laboratories for the physics of nuclear matter as they have the most fascinating constitution of energy and matter in the Universe. Recently, the detection of gravitational waves from the merger of two neutron stars, in a binary neutron-star system, opened a new window to explore the physics of neutron stars. In particular, the majority of the static, as well as the dynamical processes of neutron stars, are sensitively dependent on the employed equation of state. However, the knowledge of the equation of state, especially at high densities, is very uncertain and, therefore, the relevant predictions and estimations are suffering.

One of the long-standing subjects in astrophysics is the determination of the maximum mass of a neutron star (non-rotating and rotating). Neutron stars are directly related to the formation of black holes (Kerr black holes), connecting two of the most important astrophysical objects. As a consequence, the maximum neutron star mass is of great interest in studying the effect of both neutron stars and black holes on the dynamics of supernovae explosion...

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Special Issue

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Message from the Editor-in-Chief

Symmetry is ultimately the most important concept in natural sciences. It is not surprising then that very basic and fundamental research achievements are related to symmetry. For instance, the Nobel Prize in Physics 1979 (Glashow, Salam, Weinberg) was received for a unified symmetry description of electromagnetic and weak interactions, while the Nobel Prize in Physics 2008 (Nambu, Kobayashi, Maskawa) was received for the discovery of the mechanism of spontaneous breaking of symmetry, including CP symmetry. Our journal is named *Symmetry* and it manifests its fundamental role in nature.

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