# Special Issue

# Fundamental Processes in Neutron Stars and Supernovae

## Message from the Guest Editors

In the last few years, we have made spectacular progress in our understanding of the physics of Neutron Stars and Supernovae, both from observations and from theory. Our understanding of these compact objects amply relies on our knowledge of the microphysics of the fundamental processes that determine their structure and dynamics. In this respect, both observations and theoretical analysis are crucial to improving our capacity to predict the rate and dynamics of each one of these processes, as well as to discovering new phenomena. The aim of this Special Issue of *Universe* is to report on the latest developments and to stimulate new ones in the field. These topics include but are not limited to the following:

- transport in neutron stars and neutron star mergers;
- neutrino trapping and emission in neutron stars;
- neutrino emissions and dynamics in supernovae;
- nucleosynthesis in supernovae simulations;
- neutron star cooling;
- gravitational waves from neutron star mergers;
- gravitational waves from neutron star oscillations;
- magnetic field structure and dynamics in neutron star formation;
- and onset of quark matter in neutron stars

## Guest Editors

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## Deadline for manuscript submissions

closed (30 April 2021)

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**Impact Factor 2.6**
**CiteScore 5.2**

mdpi.com/si/51565

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# About the Journal

## Message from the Editor-in-Chief

The multidisciplinary journal *Universe* is aiming to follow and, hopefully, to lead to the largest extent as possible the ever-self renovating threads which weave mathematical theories with our understanding of the magnificent natural world. On behalf of all the distinguished members of the Advisory and Editorial Boards, I extend my welcome to this journal and look forward to hearing from the interested contributors and learning about their valuable research.

## Editor-in-Chief

Prof. Dr. Lorenzo Iorio
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