

# Special Issue

## Exploring the Formation and Impact of Type Ia Supernovae

### Message from the Guest Editors

Type Ia supernovae (SNe Ia) play a pivotal role in astrophysics. Their standardised light curves enabled the measuring the Universe's expansion rate (Gruber Prize, 2009) and acceleration (Nobel Prize, 2011). As primary producers of iron peak and alpha elements, they shape galactic evolution and serve as key laboratories for thermonuclear explosion physics. However, the origins of SNe Ia remain elusive, with ongoing debates surrounding the nature of the donor star, evolutionary pathways, and explosion mechanisms—challenges further underscored by the discovery of peculiar SNe Ia. This Special Issue aims to bring together contributions for a discussion on the observational and theoretical aspects of Type Ia supernovae. We invite contributions covering a wide range of topics, including stellar structure modelling, nucleosynthesis calculations, spectroscopic observations, radiative transfer simulations, galactic chemical evolution, and experimental nuclear astrophysics.

### Guest Editors

Dr. Umberto Battino

Dr. Benjamin Rose

Dr. Robert Izzard

### Deadline for manuscript submissions

25 September 2026



# Universe

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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.

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### Editor-in-Chief

Prof. Dr. Lorenzo Iorio  
Ministero dell' Istruzione e del Merito, Viale Unità di Italia 68, 70125 Bari,  
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