



*universe*



an Open Access Journal by MDPI

## Cross Correlation of Cosmic Fields: A Powerful Statistical Tool for Astrophysics, Cosmology, and Fundamental Physics

Guest Editors:

**Dr. Andrea Lapi**

SISSA—Scuola Internazionale  
Superiore di Studi Avanzati,  
34136 Trieste, Italy

**Prof. Dr. Carlo BACCIGALUPI**

SISSA—Scuola Internazionale  
Superiore di Studi Avanzati,  
Trieste, Italy

Deadline for manuscript  
submissions:

**closed (20 May 2022)**

### Message from the Guest Editors

Over the past few decades, a wide set of cosmological observations have allowed us to greatly enhance our understanding of the basic properties and evolutionary history of the Universe, firmly establishing the concordance  $\Lambda$ CDM model. Nevertheless, such a framework has raised some puzzling and still unresolved issues, such as the nature and dynamics of dark matter and dark energy, possible modifications to Einstein's theory of gravity on large scales, and the existence and characterization of primordial gravitational waves as an ultimate probe of inflation. The cross-correlation of such datasets has been recently established as a powerful statistical tool to investigate open issues from a new perspective, possibly easing tomographic analysis in redshift slices and relieving the killer impact of diverse systematics.

This Special Issue of Universe solicits papers regarding cross-correlations of cosmic fields, with focus both on their statistical foundations and on their exploitation for science in astrophysics, cosmology, and fundamental physics.



[mdpi.com/si/51083](https://mdpi.com/si/51083)

**Special** Issue



*universe*



an Open Access Journal by MDPI

## Editor-in-Chief

### **Prof. Dr. Lorenzo Iorio**

Ministero dell'Istruzione e del Merito, Viale Unità di Italia 68, 70125 Bari, BA, Italy

## Message from the Editor-in-Chief

The multidisciplinary *Universe* journal 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 editorial board, I extend my welcome to this new journal and look forward to hearing from the interested contributors and learning about their valuable research.

## Author Benefits

**Open Access:** free for readers, with article processing charges (APC) paid by authors or their institutions.

**High Visibility:** indexed within Scopus, SCIE (Web of Science), Astrophysics Data System, INSPIRE, CAPlus / SciFinder, Inspec, and other databases.

**Journal Rank:** JCR - Q2 (*Astronomy and Astrophysics*) / CiteScore - Q2 (*General Physics and Astronomy*)

## Contact Us

---

Universe Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
www.mdpi.com

mdpi.com/journal/universe  
universe@mdpi.com  
X@Universe\_MDPI