# Special Issue

# Symmetry and Asymmetry in Multivariate Statistics and Data Science

## Message from the Guest Editor

Symmetry plays a fundamental role in both probability and statistics. In probability theory, the main measures of location, that is, the mean and the median, coincide if the underlying distribution is symmetric. In statistical inference, the sample mean and the sample variance are uncorrelated when the sampled distribution is symmetric. Multivariate symmetry and asymmetry pose several challenging research problems, which are of interest in their own right as well as for their practical implications. How do departures from multivariate symmetry affect well-known statistical methods, such as, for example, multivariate regression, robust statistical inference, and tests on mean vectors? How can we accurately measure, parsimoniously model, and efficiently test departures from multivariate symmetry? All these problems have been investigated in different research fields, with researchers in one field being apparently oblivious to the results obtained in other fields. This Special Issue aims at providing a unified perspective on multivariate symmetry and asymmetry by means of theoretical results, informed reviews, simulation experiments, data examples, and computational methods.

## Guest Editor

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## Deadline for manuscript submissions

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# About the Journal

### 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.

### Editor-in-Chief

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