Special Issue

Applications Based on Symmetry/Asymmetry in Functional Data Analysis

Message from the Guest Editor

Progress in science and technology, both in the collection and storage of data, is now providing us with datasets such as curves and surfaces or images instead of scalars or multivariate vectors. These kinds of datasets display infinite dimensional or functional features and are usually called functional datasets. Statistical methodologies handling functional data are methods for functional data analysis (FDA), which was first proposed by Ramsay in 1991. Then, Ramsay and Silverman published the monograph "Functional Data Analysis" in 1997. The failure of standard multivariate analysis, numerous application fields and the new theoretical challenges motivate the statistical community to develop new methods in FDA. In this Special Issue of the prestigious journal *Symmetry*, we will highlight notable advances in FDA, including theories, methods and techniques, in the fields of mathematical analysis and functional analysis. Topics include, but are not limited to, FDA, big data analysis, classification, computational biology, covariance estimation, graphical models, high-dimensional data, learning theory, model selection, network data analysis, signal and image processing, etc.

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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.

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