

## Special Issue

# Asymmetric and Symmetric Study on Digital Twins and Cyber-Physical-Social Systems

### Message from the Guest Editors

The scope of this Special Issue covers all topics related to digital twins and cyber-physical-social systems, including but not limited to:

- Asymmetries and symmetries in digital twins;
- Asymmetries and symmetries in cyber-physical-social systems;
- Social computing and social manufacturing;
- Parallel control and parallel society;
- Artificial intelligence in the digital twins;
- Innovative theory and model based on digital twins;
- Synchronization of the physical system and virtual model;
- Hardware-in-the-loop (semiphysical) simulation;
- Computationally efficient algorithms for online decisions;
- Blockchain-secured digital twins and cyber-physical-social systems;
- Case study on digital twins and cyber-physical-social systems;
- Performance evaluation of digital twins;
- Digital twins in industry;
- Society 5.0 and Industry 5.0.

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### Guest Editors

Prof. Dr. Jiewu Leng

Prof. Dr. Gang Xiong

Prof. Dr. Jinsong Bao

Prof. Dr. Qiang Liu

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### Deadline for manuscript submissions

closed (31 December 2022)



## Symmetry

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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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### Editor-in-Chief

Prof. Dr. Sergei Odintsov  
ICREA, 08010 Barcelona and Institute of Space Sciences (IEEC-CSIC),  
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