



## Topological Graph Theory and Discrete Geometry

Guest Editor:

**Prof. Serge Lawrencenko**

Institute of Service Technologies,  
Russian State University of  
Tourism and Service, 141221  
Cherkizovo, Moscow Region,  
Russia

Deadline for manuscript  
submissions:

**closed (31 July 2022)**

### Message from the Guest Editor

Dear Colleagues,

Symmetry is one of the most basic and important notions in all fields of science, technology, and art. The notion of symmetry can be traced through the entire history of human creative endeavors. The scope of this Special Issue encompasses the common issues around combinatorial symmetries (automorphisms) of an abstract combinatorial structure and the geometric symmetries of geometric realizations of that structure.

For instance, a two-dimensional polyhedron can be regarded as a geometric realization of the corresponding topological graph embedding. A “combinatorial symmetry”, aka “automorphism”, of the topological embedding is defined to be a permutation of the vertices that map edges to edges and faces to faces. A combinatorial symmetry may be realized (but not necessarily) by some geometric symmetry of the original polyhedron; otherwise, the combinatorial symmetry is called a hidden symmetry of the polyhedron. Is an absence of hidden symmetries a sign of perfection of the polyhedron? Well, the five Platonic polyhedra have no hidden symmetries. Furthermore, although the regular triangulation of the torus with eight vertices...





an Open Access Journal by MDPI

## Editor-in-Chief

### Prof. Dr. Sergei Odintsov

ICREA, 08010 Barcelona and  
Institute of Space Sciences (IEEC-  
CSIC), C. Can Magrans s/n, 08193  
Barcelona, Spain

## 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.

## Author Benefits

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

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

**Journal Rank:** JCR - Q2 (Multidisciplinary Sciences) / CiteScore - Q1 (General Mathematics)

## Contact Us

---

Symmetry Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland

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

mdpi.com/journal/symmetry  
symmetry@mdpi.com  
X@Symmetry\_MDPI