





Editorial

Symmetry in Engineering Sciences II

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Abstract: Symmetry can be understood in two different ways: as a property or as a principle. As Plato said, the symmetry that can be seen in nature is not random in itself, because it is a result of the symmetries of the physical laws. Thus, the principles of symmetry have been used to solve mechanical problems since antiquity. Today, these principles are still being researched; for example, in chemical engineering, the spatial symmetry properties of crystal lattices are being studied, or in electrical engineering, the temporal symmetry of the periodic processes of oscillators can be observed. This Special Issue is dedicated to symmetry in engineering sciences (electrical, mechanical, civil, and others) and aims to cover both engineering solutions related to symmetry and the search for patterns to understand the phenomena observed.

Keywords: asymmetry; chemical engineering; civil engineering; complex networks; computation; electrical engineering; geometry; graphs; measures; mechanical engineering; operations; optimization; synchronization; topology

1. Introduction

Symmetry is a common standard that is extensively studied in various areas of research. In particular, complex systems with symmetric and asymmetric properties have emerged in the engineering sciences. For example, the study of asymmetric and symmetric failures in power systems is a fundamental issue in electrical engineering. Symmetrical and synchronized systems are often used to meet the stability criteria of rotating structures in mechanical engineering. On the other hand, in telecommunications engineering, since the speed or the amount of data is the same in both directions, many systems are symmetrical. In civil engineering, the stability of objects depends on symmetry, and there have been studies of the equilibrium statics of structures. Moreover, as a final example, symmetric network structures and symmetric algorithms are usually studied in computer engineering. In this Special Issue, researchers are invited to submit innovative scientific papers and review contributions related to all engineering fields in which symmetry is considered in theory or practice. The topics of interest include symmetry in:

- Electrical engineering: power, electronics, electromechanics, computer, control, microwaves, telecommunications, etc.
- Mechanical engineering: acoustical, aerospace, automotive, marine, railway, thermal, etc.
- Civil engineering: architectural, construction, earthquakes, environmental, hydraulics, mining, structural, transportation, etc.
- Chemical engineering: biochemical, molecular, processes, thermodynamics, etc.
- Other interdisciplinary engineering disciplines: agricultural, biomedical, graphical modeling, industrial, information, materials, metallurgy, military, nanotechnology, control, automation, robotics, etc.
- Topology of complex networks in engineering.

2. Publication Statistics

Details of the call for papers for this Special Issue regarding the articles that were published or rejected are follows: number of articles submitted (26), rejected (10; 38.5%), and published (16; 61.5%).

The regional distribution of authors by countries for the published articles is presented in Table 1, in which it is possible to observe that 74 authors were included, from seven countries. Note that it is usual for an item to be signed by more than one author and for authors to be collaborating with others from different affiliations. The mean number of authors per published manuscript was between four and five.

Table 1. Regional distribution of authors by country.

Country	Number of Authors
China	47
Spain	15
Pakistan	8
Australia	1
USA	1
Germany	1
Taiwan	1
Total	74

3. Authors' Affiliations

This Special Issue's authors and their first affiliations are reflected in Table 2.

Table 2. Authors' affiliations.

Author	First Affiliation	Reference
Gómez-Déniz, E.	University of Las Palmas de Gran Canaria	[1]
Gómez, L.	University of Las Palmas de Gran Canaria	[1]
Zhang, F.	Shanghai University	[2]
Chen, S.	Chinese Academy of Sciences	[2]
He, Y.	Shanghai University	[2]
Ye, G.	Ningbo Ruyi Joint Stock Co	[2]
Zhang, C.	Chinese Academy of Sciences	[2]
Yang, G.	Chinese Academy of Sciences	[2]
Shang, X.	University of Mining and Technology	[3]
Zhang, Z.	University of Mining and Technology	[3]
Su, J.	Beijing Jiaotong University	[4]
Jie, Y.	Beijing Jiaotong University	[4]
Niu, X.	Beijing Municipal Engineering Research Institute	[4]
Liu, C.	Beijing Jiaotong University	[4]
Liu, X.	Beijing Jiaotong University	[4]
Velázquez, J.S.	Technical University of Cartagena	[5]
Cavas, F.	Technical University of Cartagena	[5]
Bolarín, J.M.	Miguel Hernández University	[5]
Alió, J.L.	Miguel Hernández University	[5]
Zhang, S.	Zaozhuang University	[6]
Sun, Z.	Zaozhuang University	[6]
Lu, J.	Zaozhuang University	[6]
Li, L.	Zaozhuang University	[6]
Yu, C.	Zaozhuang University	[6]
Cao, D.	Hebei University of Technology	[6]
García-Vallejo, D.	Universidad de Sevilla	[7]
Alcayde, A.	Universidad de Almeria	[7]

Table 2. Cont.

Author	First Affiliation	Reference
López-Martínez, J.	Universidad de Almeria	[7]
Montoya, F.G.	Universidad de Almeria	[7]
Wang, S.	Nanjing University of Aeronautics and Astronautics	[8]
Wang, X.	Nanjing University of Aeronautics and Astronautics	[8]
Wang, Y.	Beihang University	[8]
Ye, H.	Beihang University	[8]
Qin, H.	Beihang University	[9]
Wu, Z.	Beihang University	[9]
Li, Y.	China University of Mining and Technology	[10]
Dai, S.	Stevens Institute of Technology	[10]
Zhao, L.	China University of Mining and Technology	[10]
Yan, X.	China University of Mining and Technology	[10]
Shi, Y.	Stevens Institute of Technology	[10]
Alcayde, A.	Universidad de Almeria	[11]
Velilla, C.	Universidad Politécnica de Madrid	[11]
San Antonio-Gómez, C.	Universidad Politécnica de Madrid	[11]
Peña-Fernández, A.	Universidad de Almeria	[11]
Pérez-Romero, A.	Universidad de Sevilla	[11]
Manzano-Agugliaro, F.	Universidad de Almeria	[11]
Niu, K.	Beijing Jiaotong University	[12]
Liu, J.	Beijing Jiaotong University	[12]
Wang, Y.	Beijing Jiaotong University	[12]
Hanif, M.H.	Pakistan Institute of Engineering & Technology	[13]
Adnan, M.	Pakistan Institute of Engineering & Technology	[13]
Shah, S.A.R.	Pakistan Institute of Engineering & Technology	[13]
Khan, N.M.	Pakistan Engineering Council	[13]
Nadeem, M.	Pakistan Institute of Engineering & Technology	[13]
Javed, J.	Pakistan Institute of Engineering & Technology	[13]
Akbar, M.W.	Pakistan Institute of Engineering & Technology	[13]
Farooq, A.	Pakistan Institute of Engineering & Technology	[13]
Waseem, M.	University of Bayreuth	[13]
Yang, K.	Chinese Academy of Sciences	[14]
Yang, G.	Chinese Academy of Sciences	[14]
Chen, S.L.	Chinese Academy of Sciences	[14]
Wang, Y.	Chinese Academy of Sciences	[14]
Zhang, C.	Chinese Academy of Sciences	[14]
Fang, Z.	Chinese Academy of Sciences	[14]
Zheng, T.	Chinese Academy of Sciences	[14]
Wang, C.	Chinese Academy of Sciences	[14]
Zhang, L.	Beijing Jiaotong University	[15]
Feng, X.	Guangxi Traffic Technician College	[15]
Yang, Y.	Beijing Jiaotong University	[15]
Ding, C.	Beijing Jiaotong University	[15]
Su, G.D.	Fuqing Branch of Fujian Normal University	[16]
Chang, C.C.	Feng Chia University	[16]
Lin, C.C.	Providence University	[16]

4. Topics

Table 3 summarizes the research carried out by identifying the topics to which the manuscripts belong, according to the proposed topics in the Special Issue. It was noted that the topic of symmetry within two particular fields has come to dominate the rest: electrical engineering and civil engineering.

Table 3. Symmetry topics.

Symmetry in	Number of Manuscripts
Electrical Engineering	2
Mechanical Engineering	6
Civil Engineering	4
Chemical Engineering	0
Other Interdisciplinary Engineering Disciplines	2
Topology of Complex Networks in Engineering	2
Total	

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16. Su, G.-D.; Chang, C.-C.; Lin, C.-C. High-precision authentication scheme based on matrix encoding for AMBTC-compressed images. *Symmetry* **2019**, *11*, 996. [[CrossRef](#)]



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