



Graph Theory and Its Applications

Guest Editor:

Prof. Dr. Domenico Labbate

Department of Mathematics,
Informatics and Economics
(DiMIE), Università degli studi
della Basilicata, 85100 Potenza,
Italy

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Message from the Guest Editor

Dear Colleagues,

Presently, Graph Theory is considered a flourishing discipline with many beautiful theorems of interest for both pure and applied mathematics, and a wide range of applicability in several branches of scientific and technical disciplines and topics.

Moreover, I would like to stress that symmetry is one of the most important criteria that illustrate the structure and properties of graphs. There are various criteria for describing a graph as “symmetric”, and describing such symmetric graphs has been the subject of much research. For instance, there are known and famous connections (sometimes not explored) between symmetric configurations (i.e. finite incidence symmetric structures) and regular bipartite graphs with girth greater or equal to 6 as well as other class of symmetric graphs with imposed conditions on girth and regularity. Last but not least, symmetry is also used to study automorphism groups of graphs that act transitively on vertices.

The purpose of this issue is to offer an overview on recent results of some interesting branches of modern Graph Theory and its applications related also to symmetry.





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Prof. Dr. Sergei D. Odintsov

1. Institució Catalana de Recerca
i Estudis Avançats (ICREA),
Passeig Luis Companys, 23,
08010 Barcelona, Spain
2. Institute of Space Sciences
(ICE-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.

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Symmetry Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

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