

# Special Issue

## Astrodynamics and Control

### Message from the Guest Editors

Dear colleagues, The symmetry of the solar system, particularly of the dynamic relations of celestial bodies in groups, has been known by astronomers since antiquity. Astrodynamics is the inheritor of this knowledge in terms of how we understand the orbital dynamics of systems under the influence of gravity and applies this knowledge to create orbital maneuvers, plane changes, and interplanetary transfers of artificial satellites and spacecraft. Control theory is applied to 'operate' the dynamical system of these bodies in space to control them optimally, without delay or overshoot and with control stability. The interplay of the geometry of the dynamical system and the geometry of the controlled vehicle provides a terrain rich in symmetries to be exploited for purposes of control and to be better uncovered and understood. The purpose of this Special Issue of the journal *Symmetry* is to present some recent developments as well as possible future directions in the control of spacecraft using the symmetry of interactions in astrodynamics...

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### Guest Editors

Prof. Dr. James Douglas Biggs

Dr. Helen Clare Henninger

Dr. Yadong Zhou

Dr. Dario Spiller

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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

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