



## Possible Scenarios for Homochirality on Earth

Guest Editor:

**Prof. Dr. Michiya Fujiki**

Division of Materials Science,  
Graduate School of Science and  
Technology, Nara Institute of  
Science and Technology (NAIST)  
8916-5 Takayama, Ikoma, Nara  
630-0192, Japan

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### Message from the Guest Editor

Dear Colleagues,

In 1978, Fred Hoyle proposed that interstellar comets carrying several viruses landed on the Earth to ensure these panspermia hypotheses. With respect to our life, the origin of homochirality on the Earth has been the greatest mystery because our life cannot exist without molecular asymmetry.

Many scientists have proposed several possible hypotheses to answer this long-standing L-D question. Previously, Martin Gardner raised the question about mirror symmetry and broken mirror symmetry in terms of the homochirality question in his monographs (1964 and 1990). Possible scenarios for the L-D issue can be categorized into (i) Earth and exoterrestrial origins, (ii) by-chance and necessity mechanisms, and (iii) mirror-symmetrical and non-mirror-symmetrical forces as physical and chemical origins. These scenarios should involve further great amplification mechanisms, enabling pure L- or D-world.





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### Prof. Dr. Sergei Odintsov

1. Institució Catalana de Recerca  
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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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