



Advances in Synchrotron and Undulator Radiation Studies

Guest Editor:

**Prof. Dr. Konstantin
Zhukovsky**

Department of Theoretical
Physics, Moscow State University,
Moscow, Russia

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Message from the Guest Editor

Dear Colleagues,

Radiation from accelerated charges and the underlying physical symmetries have been attracting researchers' attention for more than 70 years. The synchrotron radiation (SR) was discovered in 1947, following its prediction in 1944. Its beam has strongly asymmetric spatial distribution along the direction of the charge motion and it is highly polarized in the plane of the orbit. The undulator radiation (UR) is based on the physical principles of the SR. Interacting with the electrons, the UR groups them in micro-bunches separated by the radiation wavelength, resulting in intense short bursts of coherent UR. This idea, expressed by Ginzburg, gave rise to the development of the theory of the free electron laser (FEL), invented by John Madey in 1971. The SR, UR and FELs have been intensively studied and exploited by researchers. The applications appear in many branches of science, such as medicine, archeology, chemistry, biology and others...





Editor-in-Chief

Prof. Dr. Sergei D. Odintsov

1. Institutió 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, St. Alban-Anlage 66
4052 Basel, Switzerland

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