

## FOREWORD

### “ROMANIAN REPORTS IN PHYSICS” DEDICATED TO INTERNATIONAL YEAR OF LIGHT

*The physicists celebrate in 2015 the INTERNATIONAL YEAR OF LIGHT, which was declared by United Nations and UNESCO. The Romanian optics community and our friends from abroad also celebrate IYL.*

The topics of our special issue 4/2015 of “ROMANIAN REPORTS IN PHYSICS”, are related to the fast evolutions of optics and photonics providing essential technologies for new materials, information science and technology, biology and medicine, manufacturing, sensing and metrology. The results in these fields demonstrate the important role of photonics in the progress of modern society, in the 21<sup>st</sup> century.

The purpose of this journal issue is to provide an opportunity for the optics scientists to discuss their newest results, to stimulate interdisciplinary research and to consider the perspective of applications. The position of our country, Romania, in European Union, plays an important role in the promotion of the scientific contacts in this region. In the national strategy in R&D, photonics plays an important role in basic research, development and innovation. An actual challenge for all of us is the financial and economic crisis, which has effects on the research funding, the participation in scientific meetings and many others. We follow with interest the new strategy of the EU in research, development and innovation, *Horizon 2020*, including partnerships in the new projects. An important objective of our research is the Project ELI-RO, an European facility including two 10 PW lasers. Acad. Nicolae Zamfir is the director of this facility.

The organization of this special issue was possible thanks to the *actions and support of several national and international institutions*. We have to mention and address our thanks to the Romanian Academy, the Romanian Ministry of Education and Research and the National Agency for Science, Technology and Innovation, the National Institute of Laser, Plasma and Radiation Physics (NILPRP), the Bucharest University, the “Menahem H. Elias” Foundation, the “Politehnica” University of Bucharest and the Division of Optics and Quantum Electronics of the Romanian Physical Society (which is a Territorial Committee of ICO and EOS).

We address our thanks to the *co-sponsoring institutions of this IYL event*: the International Commission for Optics (ICO), the « Abdus Salam » International Centre for Theoretical Physics (ICTP, Trieste, Italy), the International Society for

Optics and Photonics (SPIE), Optical Society of America (OSA), and European Optical Society (EOS). Particularly, I express my entire gratitude to many professors who accepted to referee the papers in this issue and more generally, to support our optics community.

I would like to express my thanks to the members of the Editorial board of RRP for their hard work. Our thanks are to: Prof. Dumitru Mihalache, Corresponding Member of Romanian Academy, Dr. Adrian Petris, Dr. Valentin Craciun, Chief of Laser Department in NILPRP, Dr. Tatiana Bazaru Rujoiu, Petronela Gheorghe, and Margareta Oancea. Special thanks are addressed to Dr. Ion Morjan, General Director of NILPRP and Dr. Traian Dascalu, Deputy Director and OSA representative, as well as to Acad. Nicolae Zamfir for the partial funding of the special issue.

This issue of RRP includes 42 scientific papers by authors from 11 countries. The issue was divided in 6 sections, namely:

1. Lasers and Radiation Sources
2. Nanophotonics and Quantum Optics
3. Non-linear and Information Optics
4. Biophotonics and Optics in Environment Research
5. Optoelectronics and Optical Components
6. Lasers in Materials Science.

These sections contain papers related to the most advanced topics in the field.

Finally, I hope that the participants in this special issue of RRP dedicated to IYL will have the opportunity to start new scientific collaborations and will increase the contacts and projects with Romanian scientists in optics and photonics. I wish you all and to world community of optics and photonics to keep in their souls and minds the LIGHT, which was celebrated this year.

Prof. VALENTIN I. VLAD

*President of Romanian Academy*

*Chief Editor of RRP*