



## P r e f a c e

Dear reader,

This special issue of the “Bulgarian Chemical Communication” contains selected full texts from reports presented during the 4<sup>th</sup> National Crystallographic Symposium (**NCS’12**), which took place on 01-03 November, 2012 in the “Assen Zlatarov” hall of the University of Chemical Technology Metallurgy (UCTM), Sofia. For a third consecutive year, the participants in this event gratefully obtained opportunity to publish in this journal. The acceptance of the papers was based on the Journal’s normal reviewing procedure.

NCS’12 was conducted under the auspices of the Bulgarian Crystallographic Society (**BCS**) with the invaluable effort of organizing committee members from the Institute of Mineralogy and Crystallography (BAS), University of Chemical Technology and Metallurgy, Sofia, Institute of General and Inorganic Chemistry (BAS), Institute of Geology (BAS), Institute of Catalysis (BAS), and Institute of Physical Chemistry (BAS).

The organizers of NCS’12 invited leading researchers from abroad to inspire the interdisciplinary audience and attract young researchers to this interdisciplinary field of science.

Main purpose of such meetings is to gather the crystallographic community in Bulgaria to meet and share knowledge in modern crystallographic approaches on study of new materials achieved by scientists from national research institutes and universities in the fields of structural crystallography, crystal chemistry, crystal physics, mineralogy and materials science.

**The National Crystallographic Symposium (NCS)** is the annual meeting of the growing Bulgarian crystallographic community and is the principal activity of the recently established Bulgarian Crystallographic Society (**BCS**). These symposia became the leading scientific events, not only for the Bulgarian crystallographers, but also for participants from different

European countries. A testimony for the growing interest to the National Crystallographic Symposium is the fact that this special issue collected 37 papers – a number exceeding by about 60% the ones in previous NCS issues.

The papers in the present issue outline the latest developments in the research of the Bulgarian crystallographers. They cover a wide interdisciplinary range – main essence is the synthesis, structure and properties studies on a great variety of materials – “glaserite” type compounds, ion-exchanged natural zeolites and micro-porous titanosilicates, sedimentary apatite, Ni-Al layered double hydroxides, ZnO powders, borate materials,  $ZnFe_2O_4$ ,  $LiNbO_3$  and  $LiTaO_3$ ,  $TeO_2/TiO_2$  powders, Fe-doped  $TiO_2$  nanoparticles, magnesium chlorates, amorphous Ge–Te–In system, molybdenum modified aluminum bronze, bacteria and DNA samples, proteins, urea and thiourea adducts, orthodontic archwires, polycaprolactam, hybrid materials, organic dyes.

Special attention is paid to the 100 years Anniversary of X-ray diffraction discovery.

We very much hope that this issue, representing the accepted full texts, reveals the high quality work of the Bulgarian crystallographers, is good basis for provoking business interest in investment in production of high technological materials and is an in-time product at the dawn of 2014 – The International Year of Crystallography. The decision was proclaimed by the United Nations General Assembly in July 2012. The official Opening Ceremony of the International Year of Crystallography (IYCr2014) will take place at UNESCO Headquarters in Paris on 20 and 21 January 2014.

We are looking forward to successful organization of the Fifth National Crystallographic Symposium to be held in Sofia in 2014.

Special acknowledgements are due to the sponsors of the 4<sup>th</sup> National Crystallographic Symposium – ASTEL, PANalytical, Bruker, RETSCH, and **Labexpert Ltd.** for their help and making the symposium a success and this special issue possible.

*Prof. Ognyan Petrov  
Guest editor of the special issue of the Journal  
Bulgarian Chemical Communications,  
and President of the Bulgarian Crystallographic Society*