XI Meeting “Fundamental Problems of Solid State Ionics”

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The XI International Meeting “Fundamental Problems of Solid State Ionics” was devoted to the quickly developing new scientific field, solid state ionics, which embraces the whole complex of problems of solid state chemistry, solid state physics, electrochemistry, material science, and solid-state electrochemical devices. This meeting was held on July 5–8, 2012 on the basis of the Institute of Problems of Chemical Physics, Russian Academy of Sciences (Chernogolovka, Moscow Oblast) under supervision of the Scientific Council on Physical Chemistry (Section “Electrochemistry”) of the Russian Academy of Sciences.

The meeting was dedicated to the memory of professor Ukshe Evgenii Aleksandrovich (1928–1993), the initiator of annual seminars “Solid State Ionics” which were successfully carried out in the 80s of the last century being alternately held in Chernogolovka and Baltic Republics (Latvia and Lithuania). Scientists in quite different fields, namely, theoretical physics, chemistry, crystallography, electrochemistry, were drawn by E.A. Ukshe into studying the phenomenon of superionic transfer in solids. This approach favored the extension of scientific research into many adjacent fields including applied electrochemistry. E.A. Ukshe founded a scientific school the representative of which now successfully work in various Russian regions and abroad.

In subsequent years (from 1994), these Seminars were transformed into the Meetings “Fundamental Problems of Solid State Ionics” with participation of foreign scientists and became the traditional meeting place where the leading and young scientists in the field of solid-state ionics can communicate ideas.

The XI Meeting presented the recent achievements in studying the problems such as the mechanism of fast ion transfer in solids, elucidation of the relationship

between the superionic transfer and the crystal structure, methods for research and simulation of ion-conducting systems, development and investigation of proton-conducting membranes and composite materials with ionic and mixed electron-ionic conductivity and also investigation of electrochemical processes and electrocatalysis at the ion conductor/electron conductor interfaces. A large number of studies were devoted to the use of superionic conductors in various electrochemical devices (fuel cells, sensors, Li-ion batteries). Within the frames of this meeting, a round table on electrochemical power sources was organized.

The XI Meeting drew in nearly 350 leading scientists of 18 Russian towns and also from foreign countries (Slovakia, Azerbaijan, Kazakhstan, Latvia, Lithuania, Ukraine) who delivered 55 oral lectures and 87 posters. The substantial contribution by young scientists into the work of this meeting deserves mention. The materials of this meeting served the basis for preparation of papers to be published in this (and the following) special issue of the Russian Journal of Electrochemistry.

The Organizing Committee of the XI Meeting “Fundamental Problems of Solid State Ionics” is grateful to the Russian Foundation for Basic Research for the financial support within the frames of project no. 12-03-06020. Special gratitude should be given to the Directorate of the Institute of Problems of Chemical Physics of the Russian Academy of Sciences and all participants of this meeting.

On behalf of the Organizing Committee
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