In memory of Zinoviy Gurskii (1944-2004)

Professor Zinoviy Gurskii, longtime head of the Department for theory of metals and alloys at the ICMP of the National Academy of Sciences, passed away on January 28, 2004 in Lviv after a heavy illness. He was just before 60.

Zinoviy Gurskii was born on May 29, 1944 in Lviv. After graduation from the high school in 1961 he entered Department of Physics at Lviv State University. As one of the most talented young Ukrainian students Zinoviy Gurskii spent three last years of studies in Moscow and graduated from the Moscow State University in 1967. Immediately thereafter he began his research as a Ph.D. student at the Baikov Insitute of Metallurgy of the Academy of Sciences of USSR in Moscow under the guidance of Professor G. Krasko. His Ph.D. studies concentrated on the development of model electron-ion interactions within the pseudopotential theory. A new type of model pseudopotential, later widely cited in the literature as Krasko-Gurskii pseudopotential, was proposed in his Ph.D. work. This new model effective electron-ion interaction was quite weak, which made possible to use it in perturbation expansions, and at the same time it permitted to treat valence electronic orbitals as nodeless "pseudo"-wavefunctions in the core region.

In 1971 Zinoviy Gurskii received his Ph.D. degree having defended the thesis titled "A method of model pseudopotentials and some atomic properties of simple metals" and started his scientific career at the Lviv Division of Statistical Physics of the Institute for Theoretical Physics. Here he developed a new direction in the pseudopotential theory based on a formalism of completely orthogonalized plane waves (COPW). At that time the COPW pseudopotentials were the only mathematically exact form of *ab initio* effective electron-ion interactions obtained from atomic Hamiltonian via unitary transformation in order to get rid of the core electronic states.

Starting from 1978 the problems connected with phase transitions in solid alloys in frames of the collective variables method and dynamic properties of disordered alloys were in focus of Zinoviy Gurskii and his group. The statistical theory of binary alloys with thermal vibrations of atoms was constructed. Very important results were obtained in describing the effects of short-range order on phonon spectra and static atomic displacements in disordered alloys.

Active research on applying the pseudopotential theory to liquid metals obtained a wide recognition. In 1983 Zinoviy Gurskii together with a group of physicists from the Lviv State University received the State Award of Ukraine for a series of works entitled “Experimental and theoretical studies on physics of liquid metals”.

Most results obtained by Zinoviy Gurskii within the pseudopotential theory were summarized in his Doctor of Sciences thesis entitled “A method of pseudopotentials in theory of metals and alloys” defended in 1985 at the Moscow State University. Later on all the results in pseudopotential theory and statistical theory of binary alloys were put together in the book “Quantum-statistical theory of disordered systems” (Kyiv, Naukova Dumka, 1991) written together with Professor I.Yukhnovskii.

Being a pure theorist Zinoviy Gurskii also realized the importance of computer simulations in condensed matter physics. In collaboration with the scientists from Germany, Thailand and Poland he devoted his several studies to different methods of obtaining the effective two- and three-particle interactions to be used in molecular dynamics simulations.

His knowledge in physics, and not only in physics, was truly encyclopedic and he could always be relied upon for advice and constructive discussion. A smooth and modest person, he created an atmosphere of warm human relations so crucial for successful work. All those who were fortunate to know this extremely intelligent and very warm man will miss him greatly.

Editorial Board, colleagues and friends