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In memoriam of Ivan Saxl

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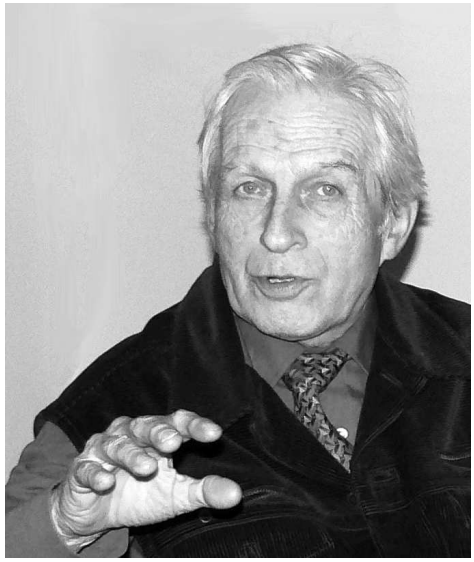
NEWS AND NOTICES

IN MEMORIAM OF IVAN SAXL

RNDr. Ivan Saxl, DrSc. was born in 1936 in Pardubice. In 1959 he finished his studies of physics at Charles University in Prague, Faculty of Mathematics and Physics, obtained the PhD. in 1974 (Interaction of dislocations with twins) and became Doctor of Science in 1984 (Stereology of high temperature degradating processes).



In 1959–1962 he was an assistant at the Department of Physics, Czech Technical University, Prague. Starting from 1962 his scientific career was jointly with the Academy of Sciences of the Czech Republic (formerly Czechoslovak): 1962–1973 Nuclear Research Institute in Řež, 1973–1983 Institute of Physical Metallurgy, 1984–1990 Institute of Geophysics, 1990–2009 Institute of Mathematics. For a long period during his last three affiliations his group worked in a detached place in a basement of a block of flats in Mánesova street in Praha-Vinohrady. In 2002 he also started to work with the Departments of Probability and Mathematical Statistics and of Didactics of Mathematics at Charles University, Faculty of Mathematics and Physics. Since 2000 Ivan Saxl was a member of the Editorial Board of Applications of Mathematics and in 2003 he became its Editor.

Among the scientific specializations of Dr. Ivan Saxl were applications of mathematics in elastic theory and crystallography of dislocations in metals, high temperature deformation and fracture, stereology, integral and stochastic geometry, history of mathematics. To achieve the continuation of his work he supervised students in master and PhD studies.

The outstanding contribution by Dr. Ivan Saxl to the understanding of mechanisms of creep deformation and microstructural changes of polycrystalline, mostly model metals and alloys, can be traced back of Dr. Saxl's involvement in studies of creep dating from the early seventies. His contributions include recognizing the thermally-activated nature of creep flow and its dependence on diffusion, explaining the effects of grain size and the effective and internal stresses in dislocation creep, developing the back stress concept in power-law creep of metals and formulating the importance of dislocation substructure and subgrain strengthening with the concept of constant structure creep. Further contributions include the role of grain boundary sliding, grain boundary migration and the assessment of the ultimate stage of intergranular damage in creep based on the measurement of quantitative stereological damage parameters that were experimentally determined for many metallic materials. These results have provided a new direction for the application of quantitative analysis of creep micromechanisms to engineering design and creep life assessment. In the past few years his attention was paid to the effect of progressive technologies using severe plastic deformation on the grain structure of bulk nanostructured materials. Interest in the processing of bulk nanostructured materials is continuing to grow around the world to the extent that such processing has now become of major importance in the field of materials science. As to his many scientific papers, the mostly cited ones were from the seventies and concerned the steady state creep.

The second half of the last century in the study of materials structure can be characterized by a rapid development of instrumentation and quantitative methods stimulated by ever growing demands for an objective description of the kinetics of processes taking place in space and time. The demands for models of n-dimensional ($n \geqslant 3$) spaces based on corresponding space parameters that have to be estimated by using data collected in a sampling plane of an investigated specimen or on a defined curve passing through the specimen are typical for sciences as metallurgy, biology, medicine, nuclear technology, crystallography, earth sciences, meteorology etc. Corresponding theoretical disciplines backed up by stochastic geometry and theory of probability are together called stereology. The effort for relevant information exchange and for development of new methods in stereology resulted in the foundation of the International Society for Stereology (ISS) in 1961. The interest in these areas was so high that in 1976 the Stereological Section of the Czech Cybernetical Society was established, Dr. Ivan Saxl being one of the Board members.

The Stereological Section has organized regular seminars and a number of conferences and lectures for specialists in various fields. In this connection, it should be mentioned that Dr. Ivan Saxl contributed to the organization of these conferences in a decisive way, especially in ensuring the high scientific level of the 6th European Congress for Stereology, held in Prague in 1993. In the same vein, his lectures at the annual Metallographic Colloquiums held in the High Tatras will be kept as unforgettable in the minds of all participants. In 2006 he was elected Honorary Member of the ISS receiving his diploma during the International Conference on Stereology, Spatial Statistics and Stochastic Geometry (S^4G) in Prague. His scientific contribution to this field was also significant, he became an author of two and co-author of two other monographs in design-based stereology, point processes and applications of stereology in materials science.

Dr. Ivan Saxl was a hard-working and devoted scientist endowed with an extraordinary ability of finding a common language between theory and practice. While being an excellent listener, he liked to discuss problems in a pleasant warmhearted way, however without compromising scientific quality. His professional advice and constructive criticism will be missed by many colleagues. Dr. Ivan Saxl was used to speaking his mind, also he was well known for his keen sense of humour which he did not lose till his last days. He passed away on December 23rd, 2009. His personality will be always remembered with respect and gratitude by his numerous colleagues, students and friends. Those of us who had the opportunity to work with Dr. Ivan Saxl are deeply appreciative of our good fortune.

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