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SEVENTY YEARS OF PROFESSOR FRANTIŠEK ŠIK

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An outstanding Czech mathematician, Professor František Šik, Doctor of Science, a prominent specialist in the theory of partially ordered groups, celebrated 1991 the 70th anniversary of his birthday on September 25.

He was born in Brno and here he graduated in 1948 from the Faculty of Science. During the years 1948–1950 he was a lecturer at the Technical University in Brno. Then he completed his postgraduate studies at the Mathematical Institute of the Czechoslovak Academy of Sciences in Prague. After finishing these studies he joined the Faculty of Science, J. E. Purkyně University in Brno, where he became Associated Profesor in 1958 and Full Professor in 1963. In the years 1962–1964 he was Visiting Professor at the University of Havana. For the period 1965–69 he was Dean of the Faculty of Science in Brno. Beginning with 1970, for political reasons, he was not permitted to teach at the University. Since 1982 he found a job at the Institute of Physical Metalurgy of the Czechoslovak Academy of Sciences. In 1990 he was oficially rehabilitated and joined again the Faculty of Science in Brno, where he works until now.

His first steps in mathematical research can be characterized as follows. During his university studies he was influenced by Professor O. Borůvka; the first three Šik's printed papers are concerned with notions that were intensively studied by O. Borůvka, namely with congruence relations and partitions of sets. Šik's supervisors at postgraduate studies were E. Čech and V. Kořínek. It was natural that under the guidance of such personalities Šik's interests were directed to the field of algebra, topology and last but not least, to the border field between algebra and topology. In 1955, F. Šik published two topological papers on systems of topologies with given constellation points.

His next publication, the first one of a series of Šik's papers on partially ordered groups, is of fundamental importance for the development of the theory of lattice ordered groups. It deals with properties of polars of a lattice ordered group (we apply the contemporary terminology; the original term in the paper under consideration was "component"). In subsequent papers further deep theorems on this notion are found. Professor Šik's results on polars have been quoted in several monographs and were applied in many papers investigating the structure of lattice ordered groups.

The notion of polar is defined by a binary relation denoted as orthogonality. This notion can be defined also in more general situations; F. Šik introduced it for quasiordered sets and then applied it for studying direct product decompositions of groups (without assuming them to be partially ordered).

Returning to the case when the group under consideration is partially ordered, F. Šik achieved significant results by studying direct and subdirect decompositions of lattice ordered groups and, more generally, of directed groups. Several notions introduced by F. Šik in this area (concerning certain types of subdirect decompositions) belong to standard tools in studying the structure of directed groups.

In the next period F. Šik dealt with extensions of partially ordered groups and the results established in this direction were applied by him to the investigation of additive and isotone mappings of a partially ordered group into the additive group of all reals with the natural linear order.

F. Šik iniciated the study of compactly generated lattice ordered groups; following his fundamental results, A. Bigard, P. Conrad, S. Wolfenstein and other mathematicians investigated this type of ordered groups.

Let us now shortly characterize the important part of Šik's work concerning the border field between the theory of lattice ordered groups and topology. A series of his papers on these problems was published beginning with 1961. The basic idea consists in studying topological aspects of representations of lattice ordered groups as subdirect sums of linearly ordered groups. To each such representation there corresponds, in Šik's terminology, a realizator of the corresponding lattice ordered group G. A more general notion is a regulator of G which is defined to be a pair (R, U), where R is a nonempty set and U is a mapping of R into the system of all simple subgroups of G such that $\cap\{Ux\colon x \in R\} = \{0\}$. Put $Zf = \{x \in R\colon f \in Ux\}$. Šik also investigated the topology on the set R defined by the condition that the system $\{Zf\colon f \in G\}$ is the base of closed sets. F. Šik systematically studied the relations between the topological properties of Z and algebraic properties of the lattice ordered group G.

Several of Šik's algebraic papers do not belong to the theory of ordered groups. As an example, we mention here the deep result on the existence of isomorphic refinements for two chains of congruence relations of a universal algebra; this theorem is a common generalisation of results of O. Borůvka and A. Châtelet.

During his work at the Institute of Physical Metalurgy Professor F. Šik dealt with applications of mathematics (e.g., with applications of fuzzy sets in technological problems).

Besides the duties conferred to him at the University, F. Šik was a member of the Scientific Board for Mathematics at the Czechoslovak Academy of Sciences, and also a member of several committees for doctoral and post-doctoral dissertations.

On behalf of his many friends and students and of Czech and Slovak mathematical community, we take this opportunity of wishing Professor František Šik good health and every success in his life and in his scientific work.

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