

## **Doc. RNDr. František Kôpka, CSc. 22.2.1953–28.4.2008**

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In Liptovský Mikuláš, May 2, 2008, there was a funeral farewell for an outstanding young Slovak mathematician, F. Kôpka, one of the founders (together with F. Chovanec) of D-posets that brought fame to the Slovak school of quantum structures. He passed away after a short but hard disease.

F. Kôpka was born on Feb. 22, 1953 in Zázrivá, northern Slovakia. He studied mathematics at the Faculty of Natural Sciences, University of P.J. Šafárik, Košice. After these studies he began to teach at the Military Technical University, Liptovský Mikuláš in 1980. He obtained his degrees RNDr.—1984, CSc.(= Ph.D.)—1991, Associate Professor—1998. He dedicated a lot of his efforts to development of mathematics at the Military University, but since 2002 he started to work at the new-founded branch of the Electro-Engineering Faculty of Žilina University in Liptovský Mikuláš, where he was the Head of the branch.

The joy of mathematics was his basic feature. The second author, A.D., met for the first time both F. Kôpka and F. Chovanec at the Summer School at Liptovský Ján, circa 1987, where all three spent together a wonderful trip to the Low Tatra Mountains collecting blueberries and discussing mathematics. And here high-up in the mountains our mutual close collaboration and friendship began.

At the beginning of his mathematical career at the Military Academy, he was a student of Prof. RNDr. B. Riečan, DrSc., studying mainly probability theory, quantum structures, and the theory of fuzzy sets. He also studied with A.D. together with F. Ch. In 1992, F. Kôpka and F. Ch. created a fundamental contribution to quantum structures, the theory of D-posets, see [16], and this pioneering paper has today more than 250 citations. The main observation was that knowing two comparable events,  $a$  and  $b$  with  $a \leq b$  say, our knowledge of  $a$  in  $b$  is completely sufficient to describe the rest of  $a$  in  $b$ , that is the difference  $b \ominus a$ . This theory was very stimulating because it combined both sharp and unsharp reasoning into one theory. The basic example is the set of all Hermitian operators on a Hilbert space between the zero operator and the identity operator. They also show that MV-algebras present an important class of examples of D-posets and MV-algebras play an analogous role as Boolean algebras do in the theory of orthomodular posets. Motivated by D-posets, the theory of D-posets today has an equivalent form with a partially defined addition, the theory of effect algebras, which was founded by D. Foulis and M.K. Bennett, [8]. Other forefathers of effect algebras were R. Giuntini and H. Greuling, [9], with their weak orthoalgebras. Nowadays D-posets and effect algebras are the most important theories of quantum structures of the last 15 years, and they are still intensively studied. Included in a D-poset with the Riesz decomposition property is an interval in a po-group with strong unit and interpolation, [18], an analogous result as that for MV-algebras by D. Mundici [17] where the po-group is an  $\ell$ -group. This gives a wonderful relationship between D-posets, effect algebras, and po-groups, respectively.

In 1998, when the Fourth Biennial IQSA meeting was held in Liptovský Mikuláš, F. Kôpka was awarded the IQSA prize for his achievements in the theory of D-posets (together with F. Ch.).

He was an author or coauthor of 24 scientific articles published in prestigious journals. He was invited also to contribute to the Handbook of Quantum Structures [7]. In the following references, there is an incomplete list of his most important papers dedicated to theory of D-posets. He also participated in the preparation of two monographs. He presented many talks at important scientific meetings. Thanks also to his enormous effort, the Valley of Liptovský Ján became a famous mathematical center of many meetings in Slovakia that were well-known over the whole mathematical world, and F. Kôpka was a very unselfish and active organizer of each of these conferences.

He liked his native region Orava among the beautiful peaks Big and Little Rozsutec and the region Liptov with the majestic peak Kriváň where he lived 28 years. For many

decades he sang in the church choir “František” (named according to St. Francis of Assisi). Together with his beloved wife, they have two daughters and one son. Recently he became the grandfather of two lovely granddaughters. Unfortunately, his short life was interrupted on April 28, 2008.

Friends and colleagues of Fero Kôpka from the whole world of quantum structures decided to dedicate the proceedings of the Ninth IQSA Meeting Quantum Structures Brussels-Gdansk '08, Sopot, Poland to his memory and the authors of these lines are very grateful to each contributor of this issue.

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