Report concerning the inauguration of Dr. Miroslav Haviar

I met dr. M. Haviar for the first time at Summer School on General Algebra and Ordered Sets in 1989. Afterwards we have met regularly at conferences and seminars in the Czech Republic, Slovakia and all over the world.

Dr. Haviar started his scientific career under the guidance of Prof. T. Katriňák in the area of lattices with pseudocomplementation or dual pseudocomplementation. He was dealing mostly with constructions of special important classes of algebras of the above mentioned type and their affine completeness. Already at this time he achieved astonishing results which were quoted and followed by many distinguished authors including one of the greatest persons of lattice theory prof. G. Grätzer.

After finishing his doctor studies, he started to work on hard and particularly long-standing open problems concerning certain kinds of completeness. One of them was the so-called order-polynomial completeness problem for lattices, namely the problem whether there are lattices in which every monotone function is a polynomial. It was known from the works by prof. Kaiser and prof. Sauer that such lattices have to be uncountably infinite. Dr. Haviar in cooperation with M. Ploščica has shown by using an infinite version of Ramsey theory much stronger result: their cardinality have to be greater than κ_n for each $n \geq 0$, where κ_n is given by $\kappa_0 = \aleph_0$ a $\kappa_n = 2^{\kappa_{n-1}}$ for $n \geq 1$. This result was a big step towards a solution of the OPC problem. Following their ideas, M. Goldstern and S. Shelah improved the result concerning the cardinality by showing that it has to be a strongly inaccessible cardinal, and later they have proved the final solution: there are no such lattices.

The next scientific period of Dr. Haviar was focused on solving hard problems in the theory of dualities. This relatively new part of universal algebra was born from the classical representation theorems of Boolean algebras and distributive lattices by means of certain topological spaces, nowadays called Stone a Priestley spaces. The theory of natural dualities has been created and elaborated in outline during the last decade of 20th century by prof. B. Davey, and it has been proven to be a powerful tool for the representability of special classes of algebras.

In cooperation with the leaders in the area prof. H. Priestley and B. Davey, Dr. Haviar has solved one of the hardest problems of duality theory, namely the so-called Entailment Problem. Later on, he has published a partial solution of another big problem together with prof. R. Willard, called Strong vs. Full Problem. Recently, Dr. Haviar has been working on applications of duality theory in the area of so-called canonical extensions which are very intensively studied in algebraic logic.

I would like to stress the fact that all the crucial results of Dr. Haviar are usually quite extensive, written very carefully and being elaborated to the very last detail. An indisputable proof of their deepness and high scientific quality can be demonstrated by the list of journals. The majority of his results were published in Algebra Universalis, then in Houston Journal of Mathematics, Applied Categorical Structures, Journal of Symbolic Logic and Int. J. of Theoret. Physics.

Also the activity of Dr. Haviar in the field of organizing scientific meetings is considerable: he was the main organizer or co-organizer of several international

scientific conferences and due to his high scientific reputation, he attracted many leading persons from algebra and related areas as invited speakers.

Concerning the impact of works of Dr. Haviar, there are 70 quotations on his papers mentioned in the WOS. One has to have in mind the high difficulty of the content, its theoretical nature and relatively narrow area of the research. With this respect, the number of quotations is creditable.

Dr. Haviar fulfills also another attributes of the title "full professor". He successfully supervised 3 PhD. students, currently he has one PhD. student.

Further, Dr. Haviar serves as an editor of 2 mathematical journals, namely the prestigious algebraic journal Algebra Universalis. As one of the main editors of Acta Univ. M. Belii journal he contributed greatly to incorporating it among internationally accepted periodicals. He spent in total several years at prestigious foreign universities, and he had invited lectures at international conferences.

To sum up the scientific level of Dr. Haviar, he is a personality of an international level, and in my opinion, fulfilling all the attributes of the full professorship.

An integral part of the full professorship is the educational work. Dr. Haviar gives courses continuously since 1993, he supervised 20 bachelor and master theses, he is the author of 2 texts for graduate students, he supervised 8 students attending competitions, as the main investigator or co-investigator he attended 14 scientific projects and 3 projects being focused on education.

I appreciate very much his activity in the area of education of broader mathematical community. For several years, Dr. Haviar has lead the seminar in Banská Bystrica "Aká si mi krásna". It was established by prof. B. Riečan and due to Dr. Haviar, it became a significant platform for the math education having the international reputation.

Summing up the teaching activities of Dr. Haviar, he more than enough fulfills the requirements for the full professorship.

In conclusion, Dr. Haviar is a distinguished personality in both scientific and teaching aspects, fulfilling all the requirements for the full professorship in mathematics at MFF UK in Bratislava. I strongly support his inauguration as a full professor.

Olomouc, December 30, 2016 prof. Mgr. Radomír Halaš, Dr.