



*In the memory of **Yurii Rogozhin**
(November 13, 1949 – March 10, 2014)*

Born in Berdichev, Ukraine, on the 13th of November, 1949, Yurii Rogozhin would have celebrated his 75th birthday this year. Unfortunately, he passed away already more than ten years ago, after a scientific life full of amazing results. Yurii is still well known for his constructions of very small universal machines, especially small universal Turing machines (for example, see [1], [2]), and circular Post machines (for example, see [3]); for an overview on small universal devices, see [4], [5]. An overview on Yurii's scientific work can be found in [6].

Yurii started studying in Beltsy, then continuing at the Chişinău State University and the Kuban State University, Krasnodar. From 1975 to 1978 he was a postgraduate at the Institute of Mathematics, Chişinău, which finally became the home place of his scientific career. In 1981, Yurii defended his PhD thesis “Universal Turing Machines” at the Computer Center of the USSR Academy of Sciences in Moscow and, in 1999, he defended his habilitation thesis “On Formal Models of Computers and Calculations” at the Moscow State University.

After having achieved his outstanding results for small universal Turing machines, Yurii Rogozhin started to focus on the emerging area of molecular computing. For time-varying distributed H systems, which use the splicing operation in a parallel manner, in 2003, Yurii together with Maurice Margenstern and Sergey Verlan showed that such systems of degree one are already computationally complete (see [7]).

In the area of membrane computing, Yurii Rogozhin was a specialist in constructing P systems with minimal symport and antiport rules, for example, see [8], [9]. Yurii together with Artiom Alhazov and Sergey Verlan showed universality results for double splicing extended H systems with five rules, splicing test tube systems with eight rules, and P systems with only five rules, see [10]. An amazing result for insertion-deletion systems was established by Yurii Rogozhin together with Maurice Margenstern, Gheorghe Păun, and Sergey Verlan in [11], showing that, even without using contexts, insertions of size three and deletions of size two (or insertions of size two and deletions of size three) are computationally complete.

Based on his results on circular Post machines, Yurii also constantly improved results for (hybrid) networks of evolutionary processors; after Yurii unexpectedly had passed away in 2014, his last results were completed by Artiom Alhazov and Rudolf Freund together with Yurii's son Vladimir Rogozhin showing computational completeness results for variants of hybrid networks of evolutionary processors with specific underlying communication structures and a small number of processors (see [12]).

Yurii Rogozhin, besides being an outstanding scientist, also was a marvelous mentor for his students, for example, Artiom Alhazov, whom he led to defending his habilitation thesis in 2013 as his supervisor, and Sergey Verlan. Moreover, whenever Yurii was attending a conference, it was always a great pleasure to discuss new ideas with him. Especially I myself enjoyed mutual visits in Chişinău and Vienna, which proved that doing science can also be big fun.

This special volume includes six invited papers, written by co-authors, friends, and colleagues of Yurii Rogozhin. The paper of the “Moldovan team” – Artiom Alhazov, Sergiu Ivanov, Sergey Verlan – gives an overview on the developments of insertion-deletion systems



Artiom Alhazov, Yurii Rogozhin, Sergey Verlan

during the past fifteen years. Erzsébet Csuhaj-Varjú, together with Artiom Alhazov and Pramod Kumar Sethy, discusses several variants of reaction systems. Jürgen Dassow and Bianca Truthe investigate insertion systems controlled by ideals and codes. Oscar Ibarra and Ian McQuillan investigate restrictions on multicounter and partially-blind multicounter languages. Maurice Margenstern discusses meadows in the heptgrid and possible generalizations. A universal reversible Turing machine that directly simulates reversible counter machines is presented by Kenichi Morita.

I am very grateful to all the authors for contributing to this special volume in the memory of our wonderful colleague and friend Yurii Rogozhin.

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*Dear Yurii,
your friends and colleagues will always remember you!*

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