

Dines Bjørner
Manfred Broy
Alexandre V. Zamulin (Eds.)

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Perspectives of System Informatics

**4th International
Andrei Ershov Memorial Conference, PSI 2001
Akademgorodok, Novosibirsk, Russia, July 2001
Revised Papers**



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Preface

This volume comprises the papers presented at the Fourth International Andrei Ershov Memorial Conference “Perspectives of System Informatics”, Akademgorodok (Novosibirsk, Russia), July 2–6, 2001. The main goal of the conference was to give an overview of research directions decisive for the growth of major areas of research activities in system informatics.

The conference was held to honor the 70th anniversary of the late Academician Andrei Ershov (1931–1988) and his outstanding contributions towards advancing informatics. It was the fourth conference in the line. The First International Conference “Perspectives of System Informatics” was held in Novosibirsk, Akademgorodok, May 27–30, 1991, the second one on June 25–28, 1996, the third one on July 6–9, 1999. The three conferences gathered a wide spectrum of specialists and were undoubtedly very successful.

The fourth conference included many subjects of the previous ones, such as theoretical computer science, programming methodology, and new information technologies, which are the most important components of system informatics. The style of the three previous conferences was preserved to a certain extent: a number of invited papers were presented in addition to contributed regular and short papers.

This time 73 papers were submitted to the conference by researchers from 19 countries. Each paper was reviewed by three experts, at least two of them from the same discipline as the authors or a closely related one. The reviewers generally provided high quality assessment of the papers and often gave extensive comments to the authors for the possible improvement of the presentation. As a result, the program committee selected 26 high quality papers as regular talks and 22 papers as short talks. Some hot topics in System Informatics were covered by four invited talks given by prominent computer scientists from different countries.

To celebrate the 70th anniversary of the late Academician A. P. Ershov, a special memorial session was organized. It included two invited talks and a number of short informal communications. The invited talks were given by two prominent Russian computer scientists who worked either side by side with A. P. Ershov or in a closely related area.

Andrei P. Ershov was a man for all seasons. He commanded universal respect and received affection all over the world. His view of programming was both a human one and a scientific one. He created at Akademgorodok a unique group of scientists – some now in far away regions of the world: a good example of “technology transfer”, although perhaps not one that too many people in Russia are happy about.

Many of his disciples and colleagues continue to work in the directions initiated or stimulated by him, at the A. P. Ershov Institute of Informatics Systems, which is the main organizer of the conference.

We are glad to express our gratitude to all the persons and organizations who contributed to the conference – to the sponsors for their moral, financial, and organizational support, and to the members of local Organizing Committee for their efforts towards making a success of this event. We are especially grateful to N. Cheremnykh for her selfless labor when preparing the conference.

July, 2001

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¹ Igor Shvetsov was a member of staff at the A.P. Ershov Institute of Informatics Systems, and an internationally known specialist in the field of constraint programming. He prematurely passed away in April 2001. Right up until the last days of his life, he took part in the work of the PSI 2001 Program Committee.

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A.P. Ershov — A Pioneer and a Leader of National Programming

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April 19, 2001, seventy years had passed since the birth of Andrei Petrovich Ershov. He was a pioneer of programming in this country, and one of its leaders; a scientist with considerable and decisive influence on the development of national programming. I have already tried to overview A. P. Ershov's scientific findings in a paper recently published in a collection of his selected works; this memorial report is primarily intended to tell the story of A. P. Ershov as a pioneer of programming and as its leader for many years.

A. P. Ershov was becoming a scientist just at the time when programming was becoming a science. This is unique to his scientific career, so different from that of his contemporaries who had previously worked in other domains. Not only did he have to be a researcher but also a propagandist, a defender, and an organizer, as this newly created discipline required him to be. His scientific findings and his organizational activities are important both in themselves and for their role in the auto-identification of the new scientific trend and in setting up the framework for its internal research.

1950 was the starting point for programming in this country, when a model of MESM was created, the first computer in the USSR and in continental Europe. Ershov had devoted his life to programming two years later, choosing his major in computational mathematics at the Faculty of Mathematics and Mechanics at Moscow State University. He was in the group of graduates who were the first to be certified as programming specialists in the USSR. Among his fellow graduates were E. Z. L'ubimsky, V. S. Shtarkman, I. B. Zadyhaylo, V. V. Lucikovich, O. S. Kulagina, N. N. Rikko, and others.

It is interesting to look at the origins of the first generation of programmers. In no case they dreamed of devoting their lives to programming from the school bench. As a rule, they came from related branches of science: mathematics, mechanics, physics, engineering; and some teachers of mathematics were also among them. Ershov and his colleagues were distinguished from others as an elite, since only they had a basic education in this new field. Actually, Ershov had dreamed of becoming a physicist and only circumstances urged him to enter the Faculty of Mathematics and Mechanics. Ye. A. Zhogolev, who has contributed to the orientation of Ershov towards programming, remembers that it was Ershov's interest in the physical principles of computers that has led him to study computational mathematics — the only course where these principles were being studied.