

## Foreword

International Olympiad in Informatics, or the IOI as it is often called, runs IOI conference jointly. The conference celebrates its tenth year anniversary and provides an additional volume of papers with a focus on experience and methodological ideas of informatics education from Russia, the host country of IOI this year. Kazan is home for the 28th Russian Olympiad in Informatics and the 28th International Olympiad in Informatics in 2016!

Soviet Union has had a long history of teaching Informatics at schools starting from early 1985. Two years later, in 1987, the Ministry of Education took the decision to start a Russian Olympiad in Informatics for all secondary school students. One year later, the first Russian Olympiad in Informatics took place in Sverdlovsk, now renamed as Yekaterinburg. A chairman was one of the best-known computer scientists of the world Andrei Ershov, notable as a pioneer in systems programming and programming language research (see more about A. Ershov on the website: <http://ershov.iis.nsk.su/english>). A. Ershov started to call programming as “the second literacy”. Fully aware of the social consequences of the ability to use computers, and of the cultural importance of programming, A. Ershov was a tireless forerunner of school informatics and took care introduction of computers and information technologies into pre-university education. He himself wrote (and co-authored) school curricula and textbooks, sponsored computer holiday camps for children, hosted an educational-TV series on Informatics, lectured on the dangers of computer illiteracy to the public, etc.

Now Informatics is well-established subject at school education in Russia: at primary level – grades 3 and 4, at secondary level – schools can choose either grades 5–9 or grades 7–9, and high school – grades 10 and 11. In a high school, Informatics is taught either as one of the basic subjects or as a special training course (students have the possibility to choose one of the options). Additionally, each student in Russia can choose elective courses in information technologies (IT) either at school or in an open-class format, which supports Olympiad informatics as well. It is not surprising that Informatics is a part of school education in the 21st century. It is very important, that each child in Russia could study Informatics in every school.

In the last 10 years, IT education structure has been significantly improved in Russia. Close collaboration between innovative universities and schools are established – special Mathematics lyceums and IT-schools for talented students with a focus on studies in Informatics, Mathematics and IT are examples of the partnership. A brilliant example in the Republic of Tatarstan of such collaboration is a “digital bridge” of IT

education on the campus of one of the oldest universities in Russia – the Kazan Federal University and its IT-lyceum.

Tatarstan is an outstanding innovative educational IT cluster in Russia. Kazan is a city with its famous area of IT education – an Innopolis city. Innopolis has modern IT infrastructure, including an IT school, an IT university (with bachelor, master, and doctoral programs) and a career centre in IT. This is a new educational model and forms so called “IT city”.

The special volume of the “Olympiads in Informatics” presents a modern school curriculum of Informatics in Russia. The current model of IT education “School-University” and “IT-city” Innopolis in Kazan, Tatarstan are discussed as well. Finally, a short overview of a challenge on informatics and computational thinking run by Sankt-Petersburg State university is presented.

A strategy of the Russian government has proposed a long-term plan for training highly qualified IT specialists and development of the IT sector. IT is the basis for an innovative economic cluster. IT can support each new high technology in space, energy, automated production, medicine, ecology, and many more.

Many thanks to the Editorial Board of the IOI journal “Olympiads in Informatics” and to all who had assisted with the special volume – especially authors, reviewers and editorial board. A lot of work is required there by starting from writing papers until finishing their final collection for the volume. Last, but by no means least, particular thanks are due to the Organisational Committee for IOI’2016 in Russia without whose assistance we would be unable to hold the conference and this Special Issue of the IOI journal.

Guest Editor Prof. Marina S. Tsvetkova