

# Bulgarian Olympiad in Informatics: Excellence over a long period of time

**Emil Kelevedjiev<sup>1</sup>, Rusko Shikov<sup>2</sup>, Zornitsa Dzhenkova<sup>3</sup>**

<sup>1</sup> *Institute of Mathematics and Informatics, Bulgarian Academy of Sciences*

<sup>2</sup> *OpCo Sys Ltd, Yambol and Mathematics High School, Yambol*

<sup>3</sup> *Ivan Vazov High School, Gabrovo*

# Introduction

- Competitions in informatics for secondary school students in Bulgaria have long traditions. The National Olympiad in Informatics started in 1985.
- Bulgaria is the founder and the first host of the International Olympiad in Informatics (IOI) in 1989.

Our participation in IOI has brought us 24 gold, 41 silver and 31 bronze medals, with which Bulgaria ranks 5-th place in the all-time overall standings by medals up to the last IOI 2016.

# *Today's structure of National Olympiad in Informatics (NOI)*

The contestants are divided in 5 age groups:

E (4th–5th grade),  
D (6th–7th grade),  
C (8th grade),  
B (9th–10th grade) and  
A (master group).

Contests in different groups have different duration:

3 hours for E,  
4 hours for D and C,  
5 hours for B and A.

Contests are conforming to the format of IOI.

Three task of algorithmic type, writing the corresponding programs in one of the official languages of IOI: C++.

# Rounds

- Local/School (in February),
- Regional (in March)
- Final/National (in April).

- The teachers of schools are free to prepare their own tasks for the **Local round**.
- The round is not a formal qualification. The teachers, that evaluate the contestants, decide who is ready to participate in the Regional round.

- Tasks for **Regional** and **Final** rounds are prepared by the NC. Regional round is organized in schools in one day with common start.
- Solutions of the pupils are sent immediately to the work groups of NC that evaluate and grade them with common set of test data.
- The round is a qualification for the Finals of the NOI, where 120 students from all age groups participate.



- The Final round is organized in a different town each year.
- There are two contests (in two consecutive days).

- The first 12 students from the Final round in group A form the **long list of the Senior National Team** for Balkan Olympiad in Informatics (BOI) and IOI.
- and similarly the first 12 students from the Final round in group C (aged less than 15.5 years) form the **long list of the Junior National Team** for Junior Balkan Olympiad in Informatics (jBOI).

# *National Tournaments*

- In parallel with the NOI, 3 National Tournaments (NT) are organized by the UBM and with the support of the Ministry of Education.
- The season starts with the **Autumn tournament** in November.
- The traditional **Winter tournament** is in January or February.
- The final for the season is the **Spring tournament** in the beginning of June.
- The NTs are open, but to the level of certain quotas. Format of the contests in the NTs is the same as those of the NOI.

# Preparation and selection of students for the International competitions

- *Control contests for qualifications*
- After forming of the two extended national teams (for junior and senior age) as a result of the National round of the National Olympiad, to continue with the selection of the teams that will represent Bulgaria in the international competitions, we conduct several control competitions.

The senior team has presented our country on the following competitions:

- International Olympiad of Informatics
- Balkan Olympiad in Informatics
- Central European Olympiad
- Romanian Masters of Informatics
- International Tournament in Shumen

# **The junior team has presented our country on the following competitions:**

- Junior Balkan Olympiad in Informatics
- International Tournament in Shumen

Moreover, the junior team is preparing to participate for the first time this year on:

- European Junior Olympiad in Informatics

## *Training*

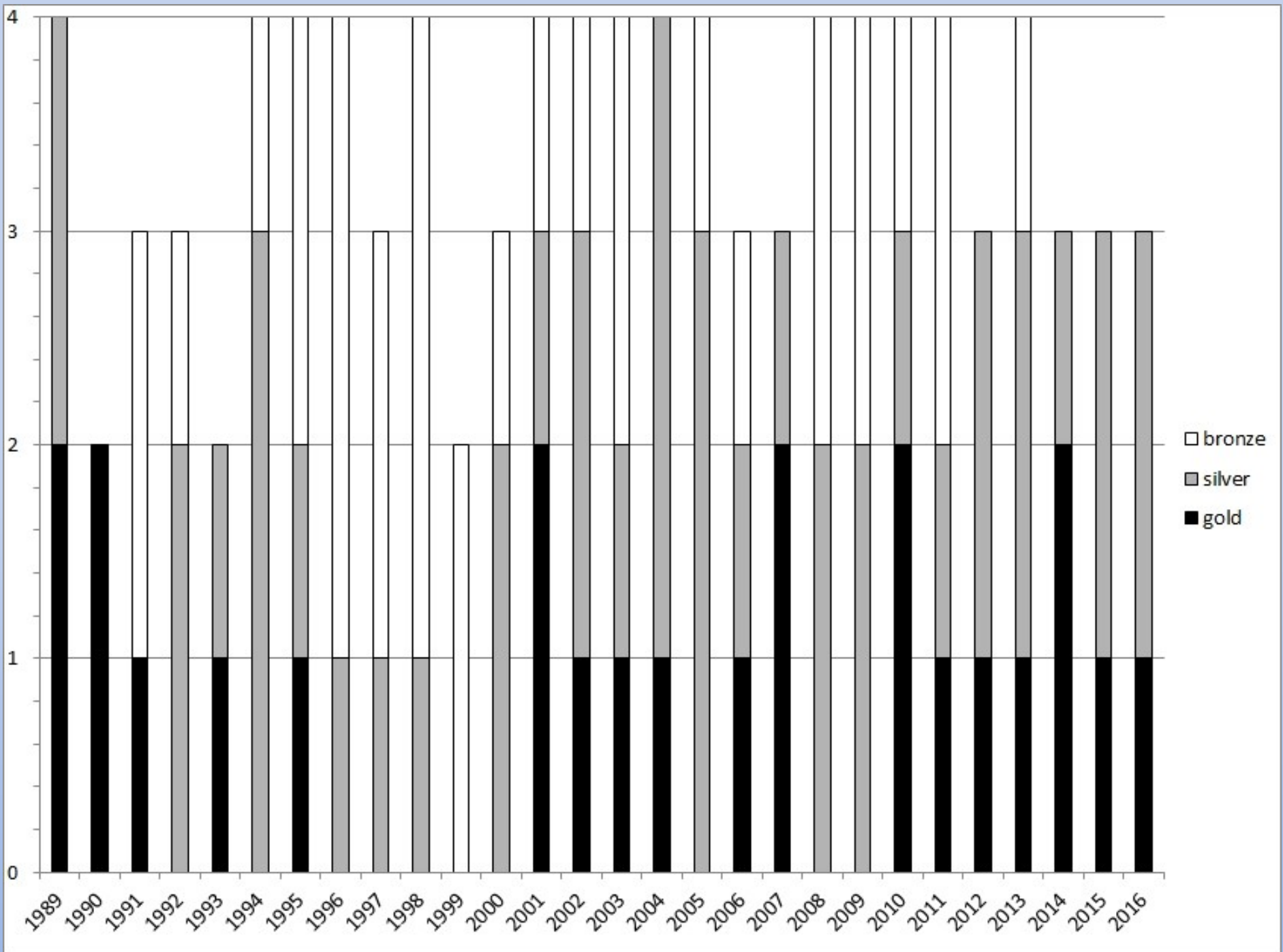
- In about ten major cities in Bulgaria there are developed networks of **out-of-school training** through various forms of group organization.
- These groups are closely connected with mathematical high schools, where students are taught and are led by teachers, university lecturers and people from companies.

It is very important to note the role of **students' own motivation and self-preparation**, which has become particularly possible in the last years due to the contribution of the Internet to giving access to numerous foreign websites, related to competitions in informatics, including many online competitions.

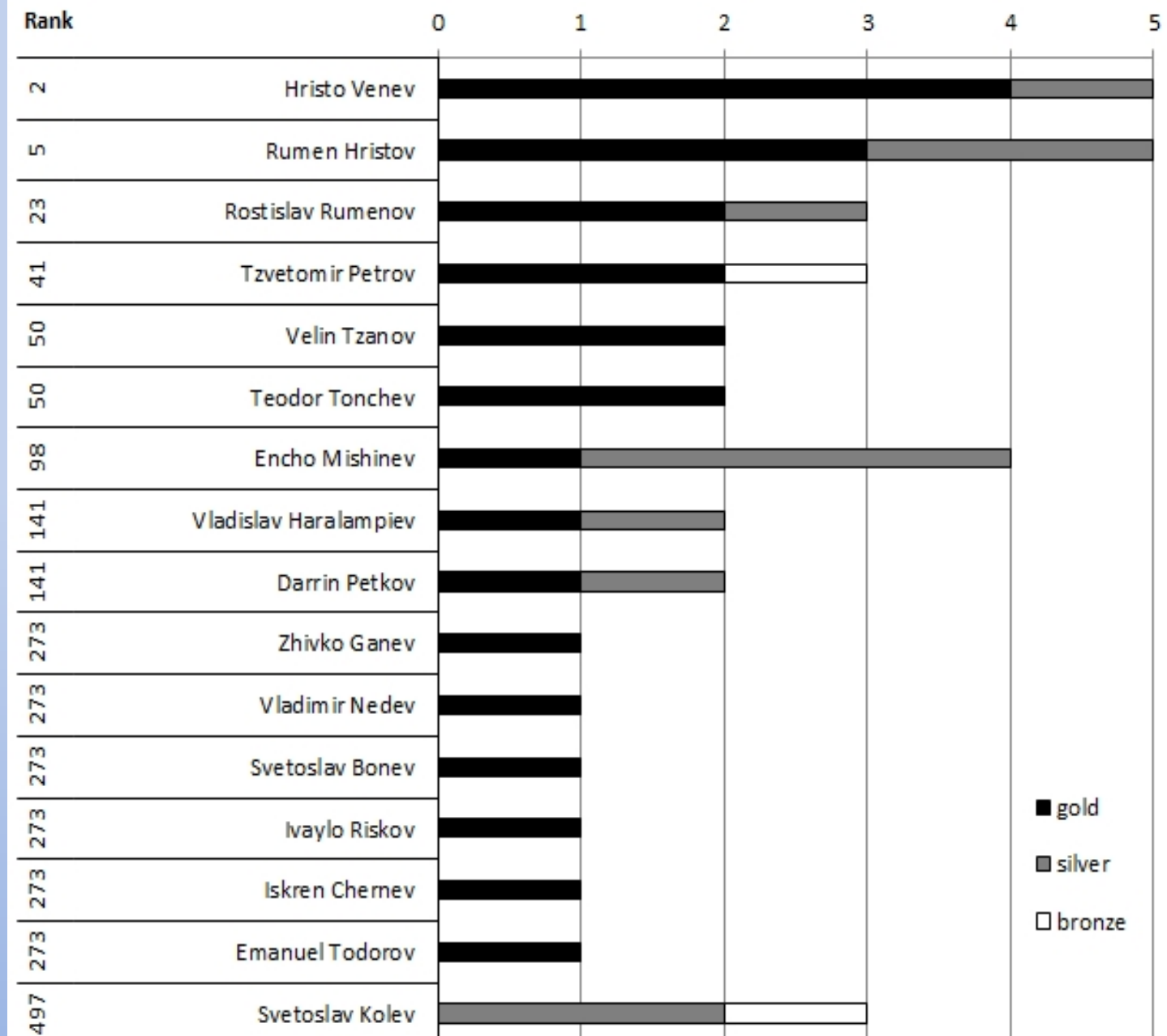


- **The full publicity** of all materials related to Bulgarian competitions in informatics is a great encouragement. The Competitive Informatics Committee of the UBM maintains the “Infos” website with the full information on all national and international competitions.

We conduct two **summer training camps** to prepare students from the extended national teams for juniors and seniors, and one **National academy** where all competitors ranked in the top 10 places in the overall rankings for each school grade are invited.



## Medals



# Conclusion

- The institutions that organize and support the overall running of the Bulgarian national competitions and our participation in the international events are:
- Ministry of Education
- Union of Bulgarian Mathematicians
- Institute of Mathematics and Informatics at Bulgarian Academy of Science
- National Sciences Olympic Team Association

- *Alumni Involvement*
- With the increasing number of competitors from year to year, stronger and more solid alumni were built, especially since the establishment of National Sciences Olympic Team Association.
- Since most of them are still active participating in many programming competitions at the university level, they are up to date and exposed to the various new problems and materials that are suitable for training.

- Although we are supported by alumni, we are facing to a problem of **shortage of young people**, which are to be team leaders, coaches and task writers.
- Another problem that is appropriate to mention is the **insufficient public attitude** for recognition of the status of contestants and coaches in competitive informatics.

## *Possibility for scientific research*

- After having accumulated enough tasks previously given in competitions, it becomes possible to start an attempt for classification and introducing measure of difficulty.



Thank you for your attention!