



**Moscow International  
Workshop  
2021**

**November 21-27**

Moscow Institute of Physics and Technology

# **SCHEDULE DIVISION B**



ORGANIZED BY:



PARTNERS:



[mw.it-edu.com](http://mw.it-edu.com)



moscowicpc



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## ABOUT THE WORKSHOP

Moscow International Workshop 2021 is held by Moscow Institute of Physics and Technology and ITMO University in the online format. The purpose of the Workshop is to help students to prepare for the ICPC World Finals and other programming championships. The official language of the Workshop is English. The trainings include every-day contests, tasks analysis and lectures from former participants and winners of ICPC and the best Russian universities professors.

Training is conducted in two divisions for experienced programmers.

**Division A** is designed to prepare students to participate and win medals in the ICPC World Finals.

**Division B** is designed to help teams prepare for regional and international competitions.

Our team and Moscow Workshops coaches will make every effort to provide participants with full support and comfortable training, despite the new online format.

Welcome!

## INFORMATION ABOUT CONTESTS

The contests can be accessed using the link:

<https://official.contest.yandex.com/mw2021international>.

The Workshop schedule includes RuCode festival on November 21 and five training days (November 22-24, 26-27), one day-off (November 25).

For contests, you can use an operating system which is comfortable for you. But if you are World finalist we recommend to install the World Finals Image ([icpc.baylor.edu/worldfinals/programming-environment](http://icpc.baylor.edu/worldfinals/programming-environment)).

Available programming languages are:

- » C++ standard 17
- » Java 8 and above
- » Kotlin
- » Python 3

You may download contest materials after the beginning of a contest (pdf statements only).

The Workshop has 2 days with the common for div. A and div. B contests. Other 3 days are different for the divisions:

- for div. A – contest and contest analysis;
- for div. B – lecture (on the evening of the previous day), thematic contest and contest analysis.

You can start each contest from 7 to 11 am Moscow time (UTC+3). After your start time, you'll have 5 hours for solving problems. We decided to make an open start time because of the variety of participants time zones.

**But if you live in a time zone that allows you to start the contest at about 11 am Moscow time, we kindly ask you to start at this time because it will be more competitive for all the teams.**

## OTHER INFORMATION

If your city is under the quarantine now and you can't meet with the team, we offer you to use Skype, Zoom, etc. for communication inside the team during the contest. The fact that your team is coding only from one computer simultaneously depends on you. We hope that you understand that the Workshop is a training program and following ICPC rules is in your best interest.

All the lectures and contest analyses will be in the format of live conferencing with the opportunity to ask questions. The platform for these conferences is Zoom. All links to Zoom conferences you can find in the schedule: <https://it-edu.com/me1c>. Please don't forget to rename yourself to your real first and last name in all zoom conferences.

Also, you can watch lectures and analysis through the mobile app (available on the App Store and Google Play).

The contest materials with the recordings of contest analysis and lectures will be updated daily in your personal account on our website: <https://it-edu.com/member/meroprijatija/moscow-international-workshop-2021/>. The materials will be available at this page for personal accounts registered by email which participants filled in the team registration form. If you specified an incorrect email there, please send us the correct one to [icpc@phystech.edu](mailto:icpc@phystech.edu).

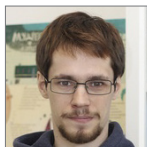
Join our Telegram chat <http://t.me/MW2021fall> (@MW2021fall) to be aware of all the updates!

## ABOUT MIPT

The Moscow Institute of Physics and Technology is one of the world's most prestigious educational and research institutions and a leading Russian technical university. Ever since its foundation in 1951, MIPT has been at the forefront of Russian science and technology and is currently ranked joint first in the country for Physical Sciences by The World University Ranking. Among MIPT alumni are Nobel laureates and founders of high-technology companies, inventors and engineers, politicians and scientists. All MIPT students and alumni proudly call themselves “phystechs”, and the university itself is informally known by the same name – Phystech.

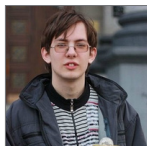
## KEY FACTS

- » Founded in 1951
- » 10 Nobel Prize Winners among professors and alumni
- » Over 8,100 students
- » Over 1,000 international students from 76 countries
- » Consistently ranked among top 5 Russian Universities



### Sergey Kopeliovich

- » ICPC Gold medal 2009
- » Topcoder Open Finalist 2008
- » IOI Gold medalist 2005 and 2006



### Filipp Ruhovich

[Coordinator of the programming committee Moscow Workshops](#)

- » Four-time winner of the ICPC semi-final
- » Finalist ICPC 2014
- » Coach of of bronze medalists of ICPC 2019
- » Programming teacher at MIPT



### Nikolay Budin

- » ICPC Gold medal 2020
- » Topcoder Huawei Cup 2021



### Alexander Golovanov

- » ICPC Gold medal 2018, 2020
- » Postgrads of Phystech School of Applied Mathematics and Computer Science at MIPT

## NOVEMBER 21: Education Festival RuCode\_4.0

### NOVEMBER 22-24, 26-27: training days

Common contests: November 22, 26

Thematic contests: November 23, 24, 27

7:00 – 11:00

Start of the contest

12:00 – 16:00

Finish of the contest

17:00 – 18:30

Contest analysis

19:00 – 20:30

Lecture for the next day contest - **ONLY!** on November 23, 24, 26

**November 22** – **Alexander Golovanov**, Number theory:  
Möbius inversion formula, Dirichlet convolution, and their friends

**November 23** – **Ilya Stepanov**, Suffix automaton and its  
appliances

**November 26** – **Nikolay Budin**, Advanced optimization in  
dynamic programming: convex-hull trick, Knuth's optimization, divide-  
and-conquer optimization, lambda optimization

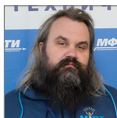
**NOVEMBER 25: day-off**



## Organizers



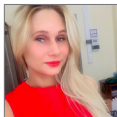
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