

# Moscow International School of Physics 2020

*3–9 March, 2020*

3<sup>rd</sup> bulletin

# Scientific Programme

Time/date	03.03	04.03	05.03	06.03	07.03	08.03	09.03	
08:00 - 09:00		Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	
09:00 - 10:00		Postnov	Postnov	Postnov	E x c u r s i o n	Postnov	Akhmedov	
10:00 - 11:00		Pepe-Altarelli	Pepe-Altarelli	Rattazzi		Rattazzi	Rattazzi	
11:00 - 12:00	Arrival	Ski & outdoor	Ski & outdoor	Ski & outdoor		Ski & outdoor	Coffee	Coffee
	Registration							Akhmedov
12:00 - 13:00	Lunch							Vikman
13:00 - 14:00		Lunch	Lunch	Lunch		Lunch	Lunch	Lunch
14:00 - 15:00	Pepe-Altarelli							
15:00 - 16:00	Ustyuzhanin	Nekrasov	Nekrasov	Akhmedov		Akhmedov	Departure	
16:00 - 17:00	Coffee	Coffee	Coffee	Coffee		Coffee		
	Ustyuzhanin	Nekrasov	Nekrasov	Vikman		Vikman		
17:00 - 18:00	YSF	Ustyuzhanin	YSF	YSF		YSF		
18:00 - 19:00								
19:00 - 20:00	Dinner	Dinner	Dinner	Dinner		School Dinner	Dinner	
20:00 - 21:00	Ustyuzhanin*	Ustyuzhanin*	Poster session	Akhmedov		Bonfire	YSF	
21:00 - 22:00	Ustyuzhanin*	Ustyuzhanin*		Concert	YSF			

Legend:

Lecture	Seminar*	YSF	Outdoor	Poster	Social	Meal
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## List of Lectures

- “Neutrino Physics” by E. Akhmedov (Max Planck Institute for Nuclear Physics)
- “Some Trends and Challenges in Modern Theoretical Physics” by N. Nekrasov (Simons Center for Geometry and Physics & Skoltech & IITP RAS)
- “Flavor Physics” by M. Pepe-Altarelli (CERN)
- “Black Holes and Gravitational Waves” by K. Postnov (Sternberg Astronomical Institute & MSU)
- “Physics beyond the Standard Model” by R. Rattazzi (EPFL)
- “Machine Learning for Physicists” by A. Ustyuzhanin (HSE)
- “The Standard Cosmological Model” by A. Vikman (Central European Institute for Cosmology and Fundamental Physics)

\* For the seminars a laptop able to run Python notebooks (Python + Jupyter Notebook + PyTorch) is required.

## Young Scientist Forum (YSF)

Special sessions will be devoted to the presentations of participants' scientific results. The report should be in form of a brief talk (10+2 minutes) or a poster (portrait A1 or landscape A0). The most interesting talks will be published in the peer-reviewed journal "[Bulletin of the Lebedev Physics Institute](#)" indexed by the Web of Science platform. Authors of the posters, most voted for by the School participants, will receive special prizes.

## Social Program

Midday hours before lunch will be dedicated to sports and other kinds of activity. Cross-country ski rent will be available for free.

**The School social program will also include a bonfire, a concert, and an excursion. There are two excursion options:**

- **guided bus tour to the Kremlin, the Saint Basil's Cathedral and the Red Square**
- **guided bus tour to the [Pafnutiev Abbey](#) and the [Ethnographic park-museum "Ethnomir"](#)**

**Please specify the excursion that you would like to participate in (if any) and the size of the ski boots (if you plan to rent ski) in the Social Program section of your Application form. The same is to be done for the accompanying person(s). Kindly note that the number of ski sets available for rent is limited.**

**The deadline for Application form modification is February 25, 2020.**

## School Fee

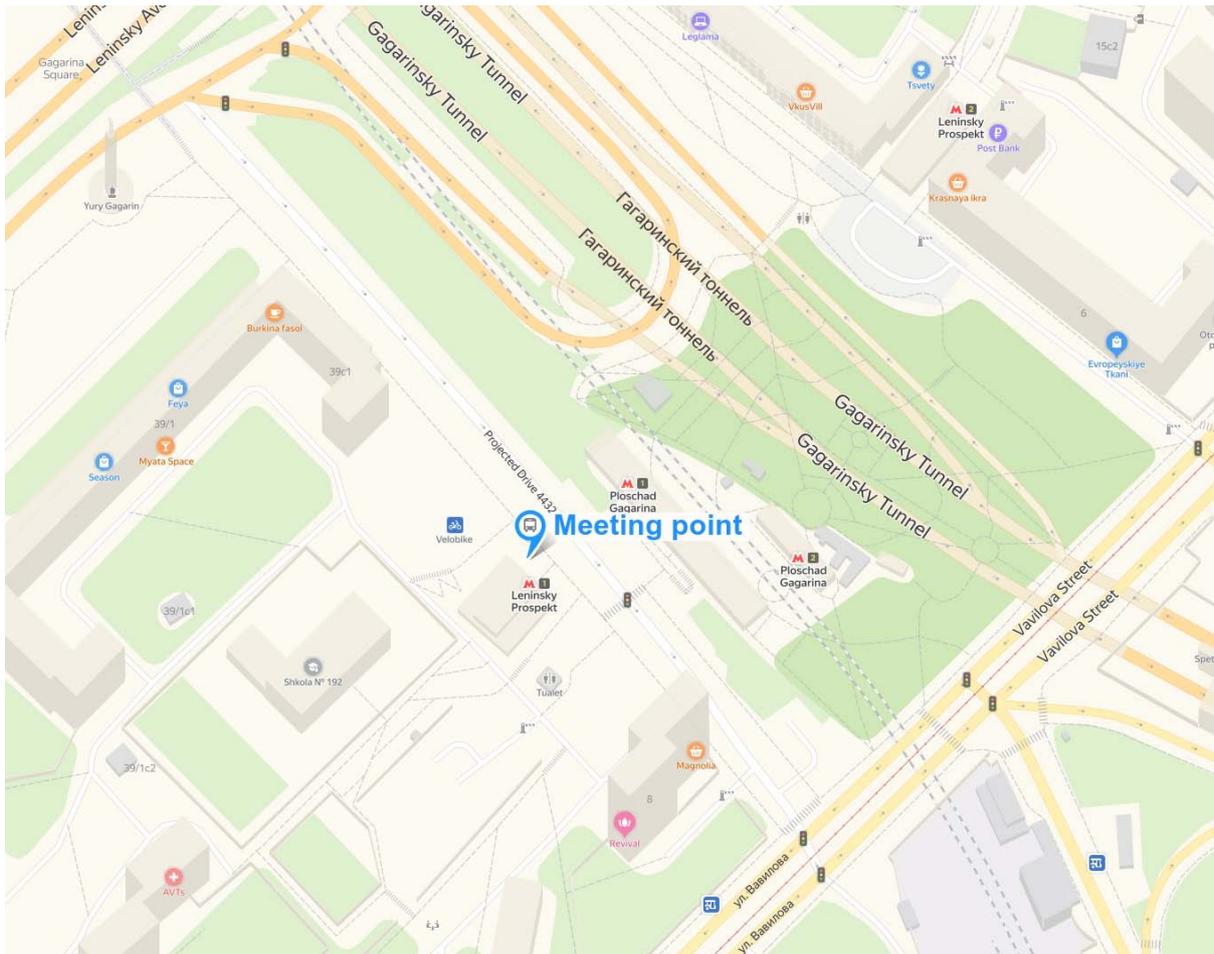
Before the departure, the School participant will receive documents, confirming the participation in the School and the payment. **If you need extra documents prepared, please contact the Organizing Committee in advance.**

## Transportation

There are three major airports in Moscow equally well connected to the center of Moscow by Aeroexpress trains. It is cheap, but easy and comfortable way to get to Moscow. Trains run to one of railway stations in the city center. Travel time is about 35–40 minutes, 43–48 minutes, and 53 minutes from Vnukovo, Domodedovo, and Sheremetyevo airports, correspondingly. The interval between train departures is 30 minutes (1 hour from Vnukovo airport). Tickets cost 500 rubles (~€7) and can be purchased at ticket windows, ticket machines or at turnstiles. If you buy a ticket at the [company's website](#) (printed or saved at a smartphone ticket with QR code is required) or with the mobile app, the cost is 450 rubles (~€6). The working hours are from 06:00 till midnight.

HSE Study Center "Voronovo" is situated in a remote place, about 70 km to the south from Moscow. The transportation by the public transport is complicated and time-consuming. There will be buses provided for transportation from Moscow to the School site and back at arrival and departure days. **The School buses will depart from the Leninsky Prospekt Metro station (south exit) on March, 3 at 09:30 and will return to the same place by**

## 17:00 on the departure day.



## Transportation by Taxi

There is a possibility to reach the school site from the Moscow airports by taxi. The approximate fares are 1 500 rubles, 2 000 rubles, and 2 500 rubles from Vnukovo, Domodedovo, and Sheremetyevo airports, respectively. It is highly recommended to use Yandex, UberRussia (which is a part of Yandex) or Gett services with convenient online application or use special desks at the airport buildings. Yandex is the most popular taxi service in Russia. Please beware that most of taxi drivers do not speak English. We advise to book the ride at the taxi desk at the airport. Personnel there does speak English.

We strongly recommend not to use non-official taxi carriers. There are lots of drivers offering their services, please do realize that taking them on you can end paying much more than expected.

Please print the next page and show it to the driver or at the taxi desk if you go to the School site (Voronovo).

Please drive me to the following destination:

Kaluzhskoe shosse, Voronovo, HSE Study Center “Voronovo”

GPS coordinates: 55°18'54.13"N (55.315035), 37°07'25.77"E (37.123825)

Contact phone: +7 (906) 762-14-66

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Пожалуйста, отвезите меня по следующему адресу:

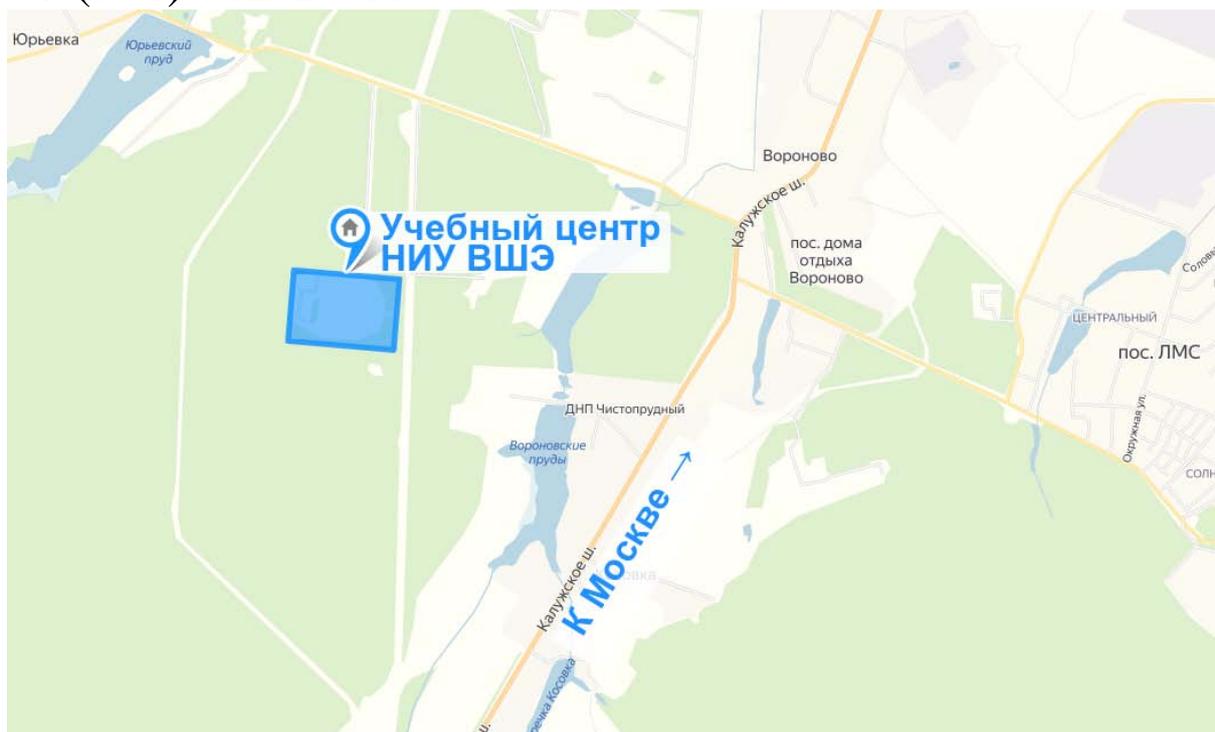
Калужское шоссе, дер. Вороново, Учебный центр НИУ ВШЭ

GPS координаты:

55°18'54,13"N (55,315035), 37°07'25,77"E (37,123825)

В случае проблем звонить по телефону:

+7 (906) 762-14-66



## Transportation in Moscow

The Metro is the easiest and the most reliable way get around Moscow. Its layout is quite simple. Radial lines, which cut across the city in most directions, are joined together by a circular line, which also joins together the city's largest railway stations. Transport system also includes monorail and Moscow Central Circle (MCC). Each radial line has its own name, number, and color on the Metro map, and you can get from practically any station to another one with a maximum of three transfers.

To pay for your ride, buy a smart-card (“Ediniy” or “Troika”) from a cashier or ticket vending machines in the Metro (MCC) station vestibule.

Recline the smart-card to a yellow circle on the automatic gates, when green light is on or displays the number of remaining trips or the amount of money left on the card — pass through the gate. No matter how long you ride is or how many transfers you make, you pay no extra fee.

To help you find your way, there are several multicolored Metro maps in every car, and a loud speaker that announces the name of the station at every stop. The doors open and close automatically. There is a first-aid station and police post at every station. For information you can turn to any Metro employee — they wear blue uniforms and red hats.

Mobile communication (GSM) works at stations of the Moscow underground. Free Wi-Fi (“MT\_Free”) available in trains.

The Metro starts work at 06:00, but stations open at 05:30–05:40. At 01:00 the entrances close and passengers must complete their transfers. Last train leaves also at 01:00.

Moscow Central Circle (MCC, Line 14) works from 05:45 to 00:30 every day. Transfer from Metro to MCC (and back) is free for 90 minutes from the first enter.

Fares information could be found at [Metro site](#).

## Tips and Tricks

- You can pay using your credit card both for Aeroexpress and Metro tickets, however at least small amount of Russian rubles in cash is desirable.
- Taxi will require to pay in cash in Russian rubles.
- Foreign currency exchange offices at the airport have extortionate exchange rates compared to the offices in the city. It is better to get cash from ATMs (however you have to pay a commission, charged by your bank).
- **We highly recommend to have offline maps of Moscow and Moscow region downloaded to your smartphone (for example [maps.me](#) service). This will drastically simplify your orientation in Russia.**

## Accommodation

The majority of the School events will be held at the HSE Study Center “Voronovo”. The Center is set in scenic surroundings on the edge of an old forest and boasts spacious premises that are fully equipped for both educational and extracurricular events, and also for leisure activities ranging from sports to intellectual games. Wi-Fi is available across the site.

The Study Center comprises of two connected but separate buildings — main and public. The main building offers hotel-style accommodation consisting of fully equipped standard rooms

and suites that have bathrooms, TV sets, and fridges. During the School participants will be accommodated in double rooms.

## Climate

Moscow region climate is typically continental. Weather in the first half of March used to fit well for various winter sports, however this year the snow depth is extremely low (we hope that there will be snowfalls this February). It is usually sunny. The average temperature is about 0 degrees Celsius though sudden drops of temperature could be expected, as well as thaws, so having proper warm clothes is advised. This winter the depth of the snow in March is estimated to be above 20 cm (**but we cannot guarantee it this year!**).

## Currency and Credit Cards

Money exchange (preferably Euro or US dollars) is possible in various exchange offices in Moscow. There are also many ATMs (“Bankomat”) in Moscow which accept major credit cards. We recommend to have some cash since credit cards are not accepted in small shops sometimes.

HSE Study Center “Voronovo” is situated in a remote place. There are no money exchange offices in the vicinity.

## Contacts

E-mail: [mosphys@gmail.com](mailto:mosphys@gmail.com)

WWW: <https://mosphys.ru>

**Phone: +7(906) 762-14-66 (Nataliya Skrobova)**

Post address: P.N. Lebedev Physical Institute of the Russian Academy of Sciences  
53 Leninskiy Prospekt  
119991, Moscow  
Russia

Coordinator of the School (fee payments): Stanislav Stegalin

Phone: +7(495)943-60-60

Mobile: +7(985)960-12-09

E-mail: [stas@mesol.ru](mailto:stas@mesol.ru)