



The 5th international conference on particle physics  
and astrophysics

# Bulletin #2

*by ICPPA-2020 Organizing Committee*

2020

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# Introduction

The 5th International Conference on Particle Physics and Astrophysics (ICPPA-2020) will be held in Moscow, Russia, (from the 5th to the 9th of October). The conference is organized by National Research Nuclear University “MEPhI”. The aim of the Conference is to share scientific knowledge, to promote contacts between scientists and to develop new ideas in fundamental research. We will bring together experts and young scientists working in experimental and theoretical areas of nuclear physics, particle physics (including astroparticle physics), and cosmology. Most recent results from the modern experiments in these areas and advanced detector technology development will be presented and discussed.

ICPPA-2020 is dedicated to the 90<sup>th</sup> anniversary of Boris Dolgoshein (1930-2010).

## Committees

### International Program Committee

- V. Matveev, JINR, Dubna, Russia – chair
- M. Skorokhvatov, NRC Kurchatov Institute, Moscow, Russia – co-chair
- M. Strikhanov, MEPhI, Moscow, Russia – co-chair
- D. Besson, University of Kansas, Lawrence, USA
- Bolozdynya, MEPhI, Moscow, Russia
- J. Fabris, UFES, Vitória, Brazil
- D. Froidevaux, CERN, Geneva, Switzerland
- Y. Gurov, MEPhI, Moscow, Russia
- V. Kim, NRC Kurchatov PNPI, Gatchina, Russia
- M. Khlopov, APC, Paris, France
- R. Konoplich, NYU, New York, USA
- Y. Kudenko, INR RAS, Moscow, Russia
- R. Lacey, Stony Brook, New York, USA
- Romaniouk, MEPhI, Moscow, Russia
- S. Rubin, MEPhI, Moscow, Russia
- Selyuzhenkov, GSI, Darmstadt, Germany
- P. Senger, GSI, Darmstadt, Germany
- Starobinsky, Landau ITP RAS, Moscow, Russia
- Y. Suvorov, Università degli Studi di Napoli Federico II, Napoli, Italy
- Vasiliev, NRC Kurchatov IHEP, Protvino, Russia
- R. Veenhof, MEPhI, Moscow, Russia
- M. Vysotsky, NRC Kurchatov Institute, ITEP, Moscow, Russia

## Local organizing Committee

- M. Strikhanov, MEPhI, Moscow, Russia – chair
- N. Barbashina, MEPhI, Moscow, Russia – co-chair
- E. Soldatov, MEPhI, Moscow, Russia – co-chair
- T. Antonova, MEPhI, Moscow, Russia
- N. Belyaev, MEPhI, Moscow, Russia
- B. Chernyshev, MEPhI, Moscow, Russia
- Grobov, MEPhI, Moscow, Russia
- E. Esipova, MEPhI, Moscow, Russia
- Kirillov, MEPhI, Moscow, Russia
- S. Koldobskiy, MEPhI, Moscow, Russia
- E. Kozlova, MEPhI, Moscow, Russia
- V. Mochalov, MEPhI, Moscow, Russia
- G. Nigmatkulov, MEPhI, Moscow, Russia
- V. Nikulin, MEPhI, Moscow, Russia
- S. Smirnov, MEPhI, Moscow, Russia
- P. Teterin, MEPhI, Moscow, Russia – academic secretary
- N. Voznyuk, MEPhI, Moscow, Russia
- E. Zherebtsova, MEPhI, Moscow, Russia

## Timetable

You may find the timetable of the Conference at the following address:

<https://indico.particle.mephi.ru/event/35/timetable/>

The first session of the Conference starts at 11:30, October 5.

## Conference fee

Conference fee is cancelled for all participants.

## Conference proceedings

The selected (after peer-review) proceedings of the Conference will be published in the journal, indexed by Scopus and/or Web of Science.

Deadline for proceeding submission is October 11. Earlier submission is welcome! Please prepare your proceeding until that date if you would like it to be considered to be published and send the draft to [icppa2020@mephi.ru](mailto:icppa2020@mephi.ru).

Plenary talks: up to 10 pages, section talks – up to 8 (>15 minutes) or 6 pages (≤15 minutes) and posters up to 4 pages. More information about the proceedings submission and templates will be available here: <https://indico.particle.mephi.ru/event/35/page/46-conference-proceedings>

## Oral sessions

All oral sessions will be carried out in separate conference **Zoom** rooms. Guidelines for Zoom available in the section [“How to use Zoom”](#)

## Posters

Both A1 and A2 formats are acceptable.

**A0 format is forbidden!**

You should upload your poster before the poster session on indico page:

<https://indico.particle.mephi.ru/event/35/sessions/178/>

Besides the poster you can prepare slides, based on the poster to simplify the conversation with other participants during poster session.

**Poster session will be held in Discord. Detailed guide to Discord is available in the section [“Guide to the poster session with Discord”](#).**

## Emergency Contacts

Information about the event is available at the Conference's website:  
<https://indico.particle.mephi.ru/e/ICPPA2020>

Email: [icppa2020@mephi.ru](mailto:icppa2020@mephi.ru)

In case of any problems **during the conference time (5-9 of October)** or **emergencies** please call to responsible persons of the organizing committee:

Peter Teterin

Mobile phone: +7(962)919-74-71

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

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Evgeny Soldatov

Mobile phone: +7(916)688-87-96

E-mail: [EYSoldatov@mephi.ru](mailto:EYSoldatov@mephi.ru)

**For all other cases, please, use conference email: [icppa2020@mephi.ru](mailto:icppa2020@mephi.ru)**

**We are looking forward to meet you virtually!**

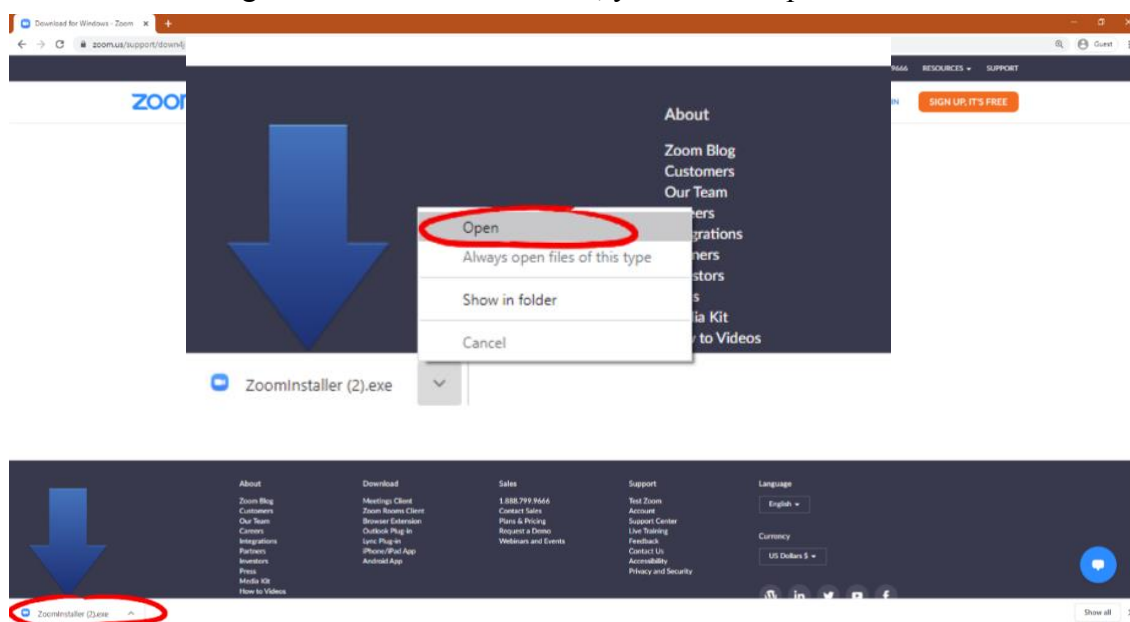
# How to use Zoom

To organize ICPPA-2020 in an online format, the Zoom conference system will be used. This guide describes how to install the Zoom application and enter virtual conference rooms that will be used for parallel and plenary sessions.

## Installation and configuration the Zoom client

1. Follow the link <https://zoom.us/support/download> and download the required package. Your browser will start the download of the software installer (in some browsers, you will need to specify whether to save the file).

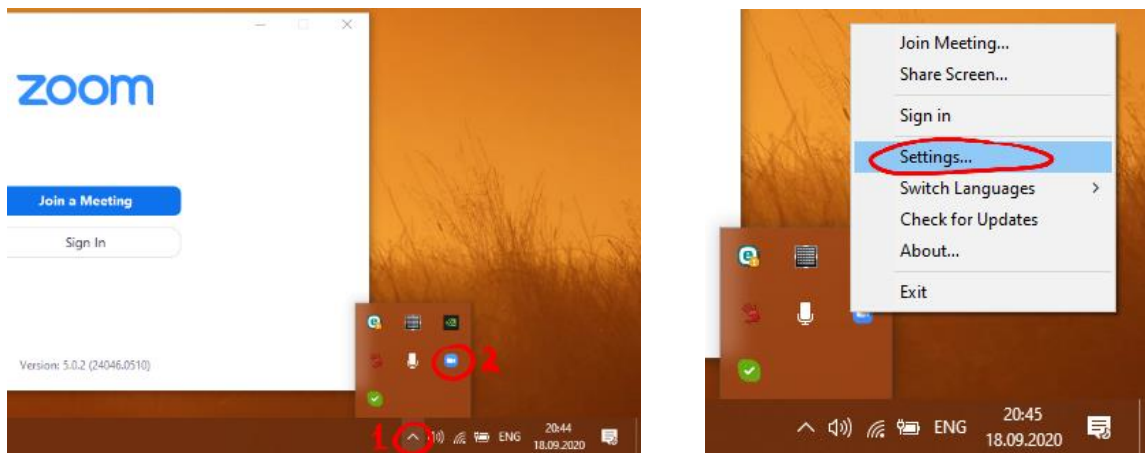
- 1.1. After downloading the file ZoomInstaller.exe, you need to open it.



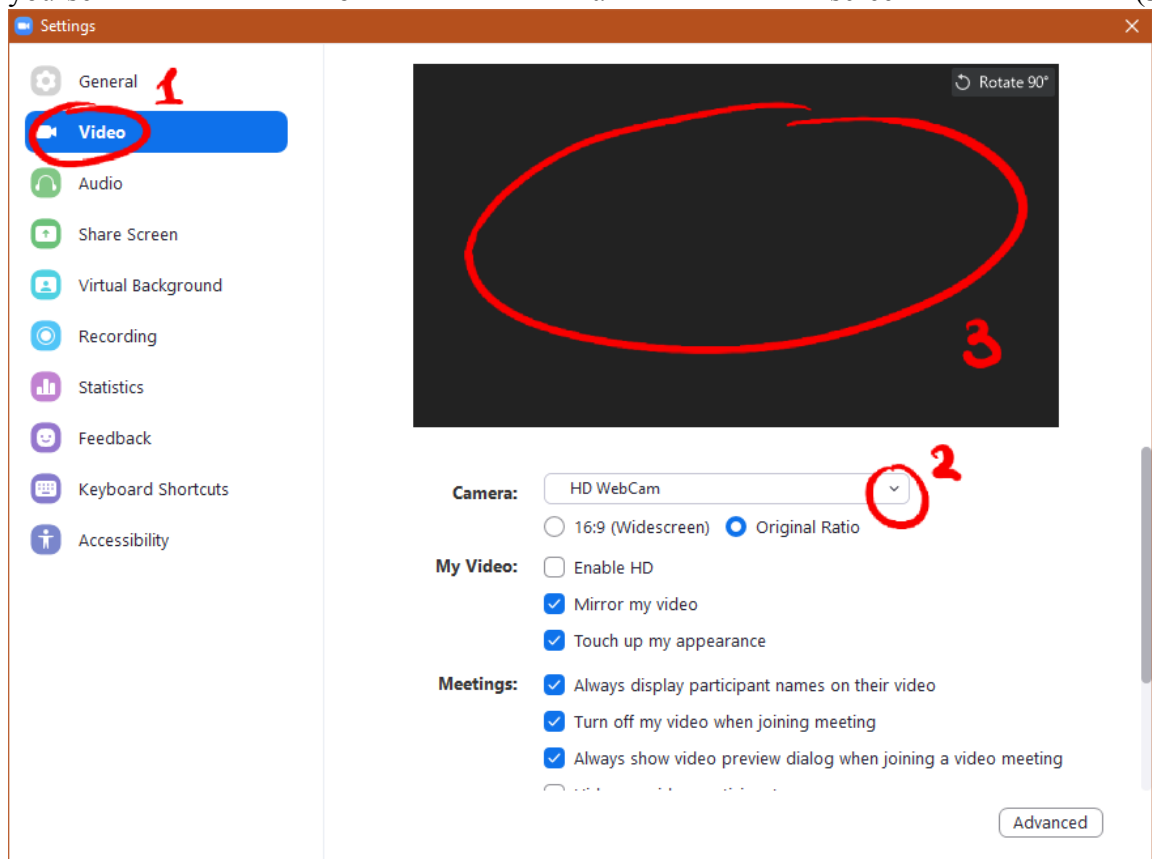
- 1.2. Start the application installation. A window will open displaying the progress of the installation. Wait for the installation to be completed.



2. Configure Zoom. Immediately after the installation finishes, Zoom window and a tray icon (a white camera on a blue background) will be launched. A click on the icon (1, 2) with a right mouse button will open the Zoom application menu. In the menu, select Settings....



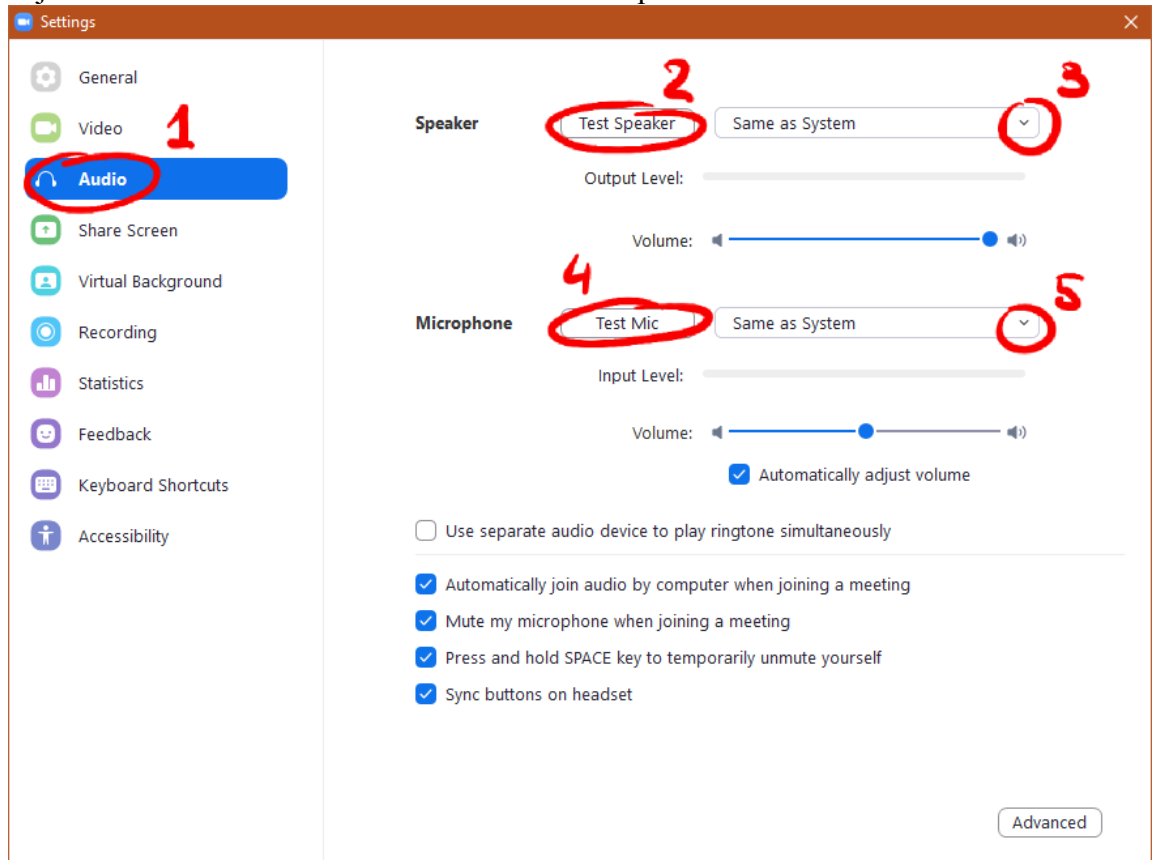
- 2.1. Select the Video item (1). In the Camera panel press the down arrow (2) and select a camera you need to use. If there is only one camera, your video will be shown (3) immediately. Make sure that access to your camera is allowed for the Zoom application, and you can see yourself on a screen (3).



- 2.2. Select the Audio item (1). In the Speaker panel press the Test Speaker button (2). If a sound is not audible, press the down arrow (3) and select other speakers/headphones, then check again. Sound volume is adjusted in the Volume bar of the speaker. After you check the speaker volume, press Stop (2).

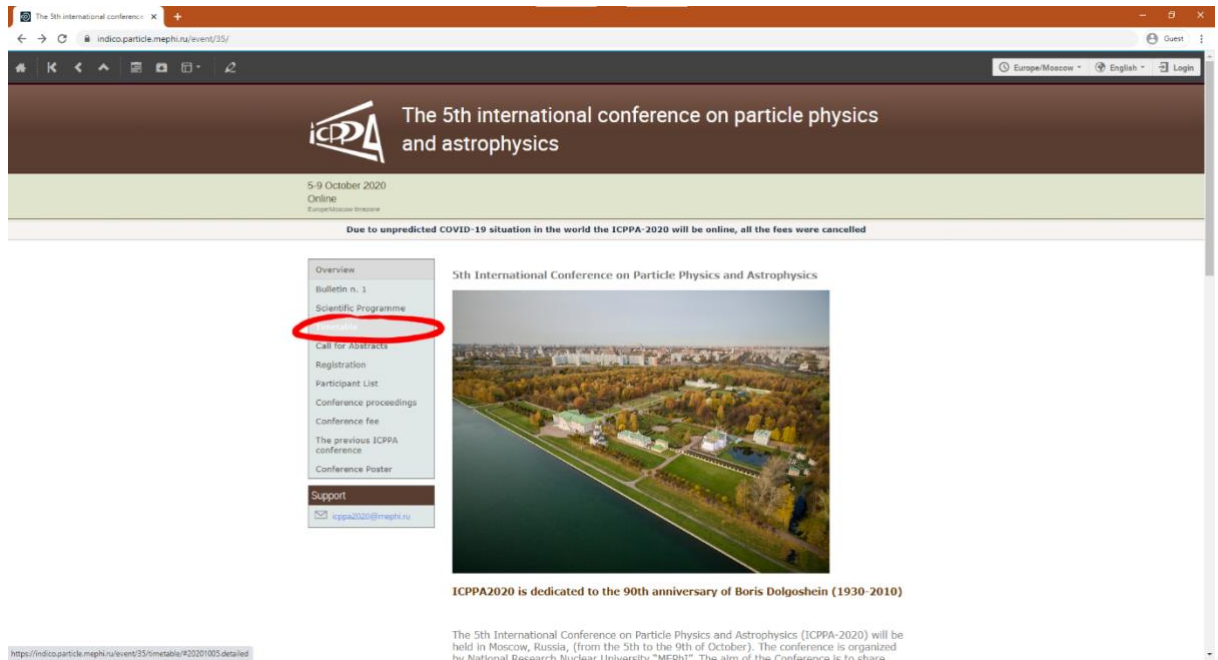


In the Microphone panel press the Test Mic button (4) and say something to test your microphone. Make sure you hear an audio recording of your speech. It will play with the previously configured speakers. If there is no sound, press the down arrow (5) and select another microphone and check again. By default, microphone volume is automatically adjusted in the microphone Volume column.

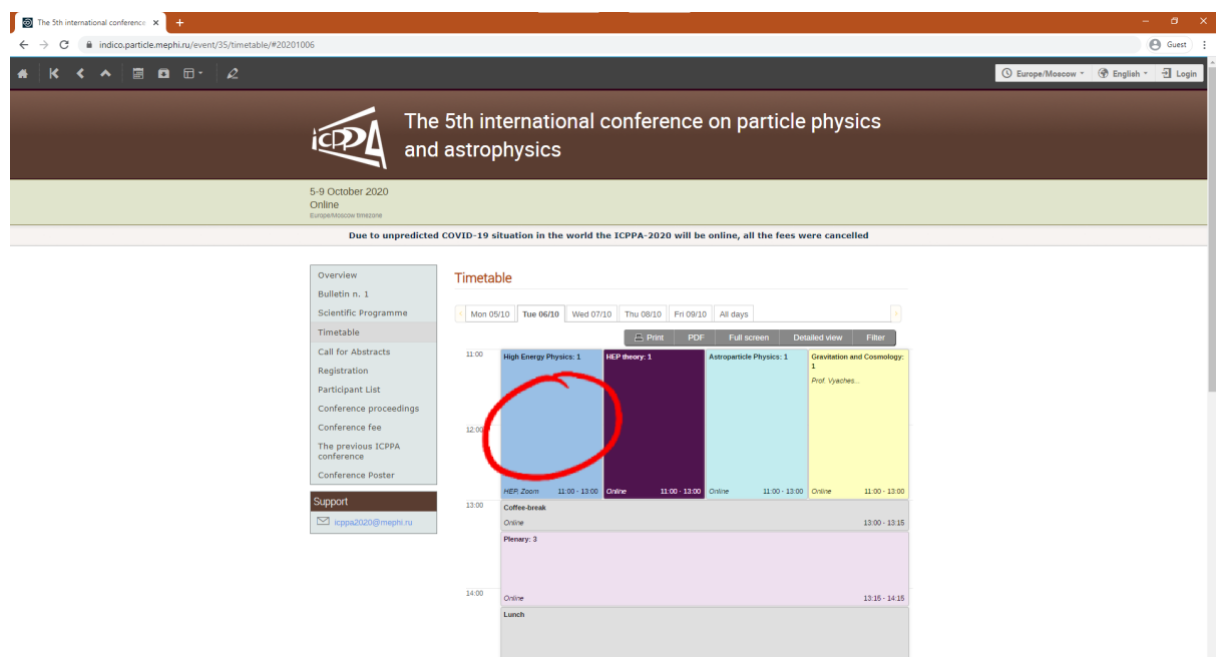


## Connection to the conference room

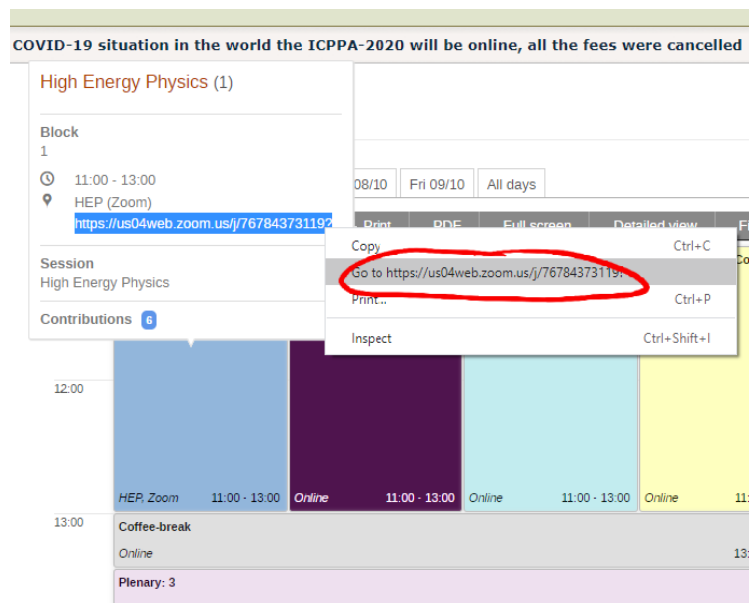
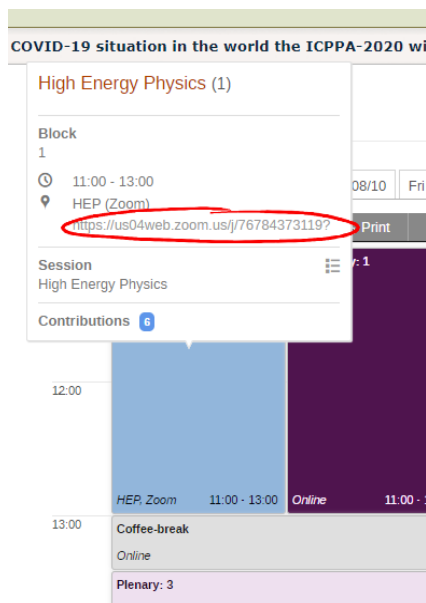
1. Go to the ICPPA-2020 conference website and click on the Timetable section.



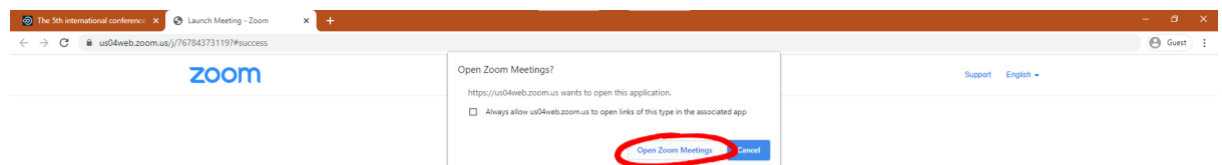
2. Click on the section of interest.



3. You will see information about the section and a link to the virtual Zoom room. Highlight the link completely and right-click on it. From the drop-down menu, select Go to `https://<link_you_see>`.



4. Opened web page will redirect you to the corresponding Zoom room. If you have the installed Zoom application, click Open Zoom Meetings in the pop-up window.



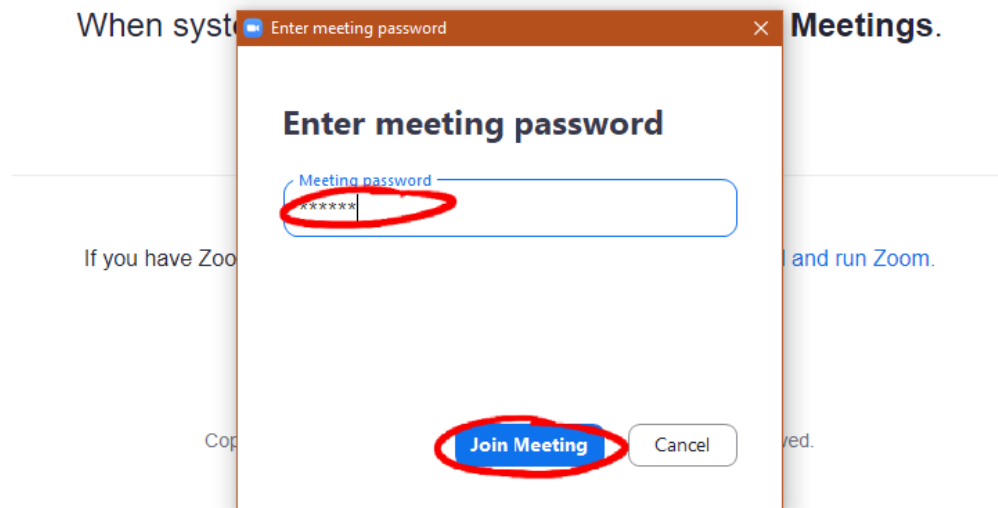
When system dialog prompts, click **Open Zoom Meetings**.

If you have Zoom Client installed, [launch meeting](#). Otherwise, [download and run Zoom](#).

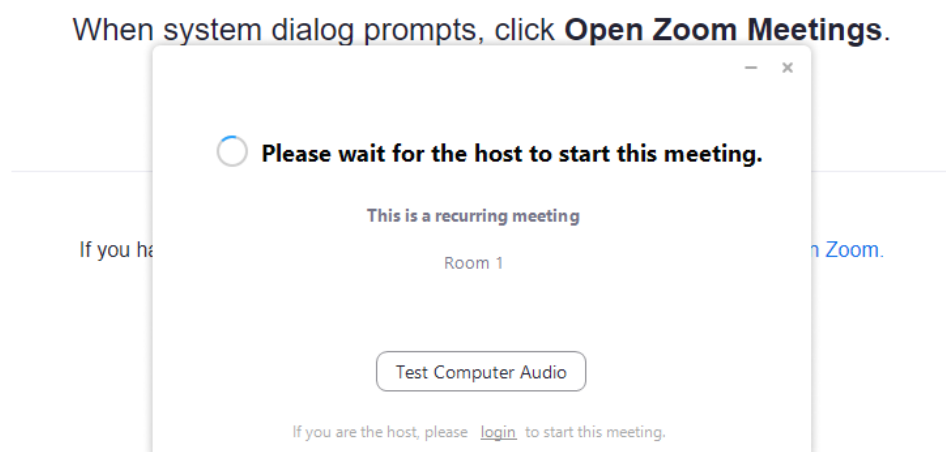
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Privacy & Legal Policies



5. In a login window you should enter your password. We will forward the password to all participants. Please do not share this password with anyone! We would like to prevent our Conference sessions from unintended participants. Click on the Join Meeting button to connect.

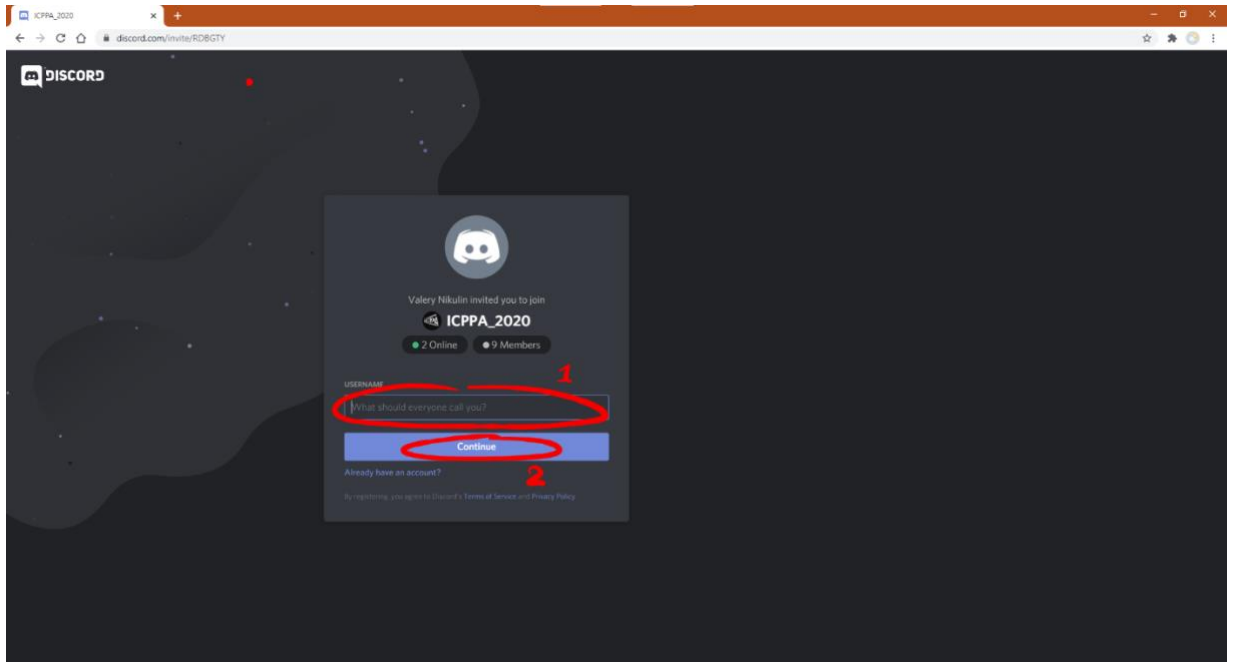


6. In case the section has not started yet, please wait. When the conference room is started you will be redirected there automatically.

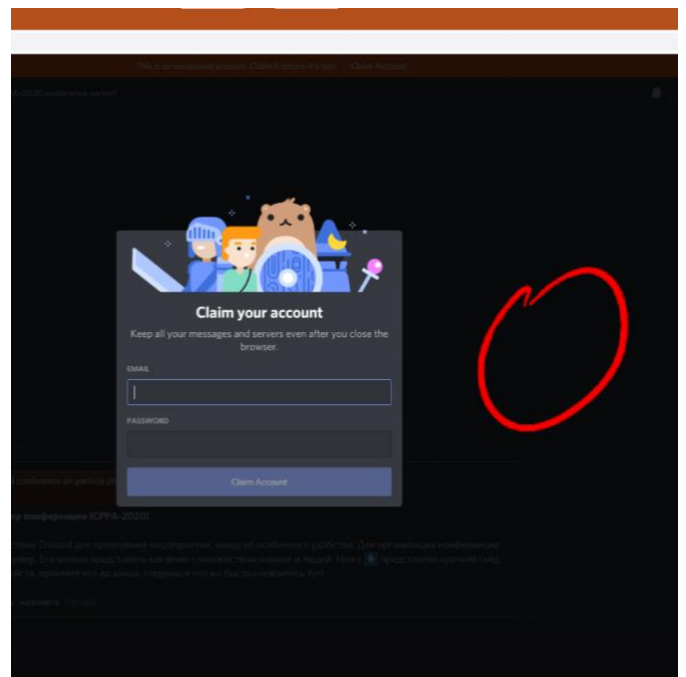
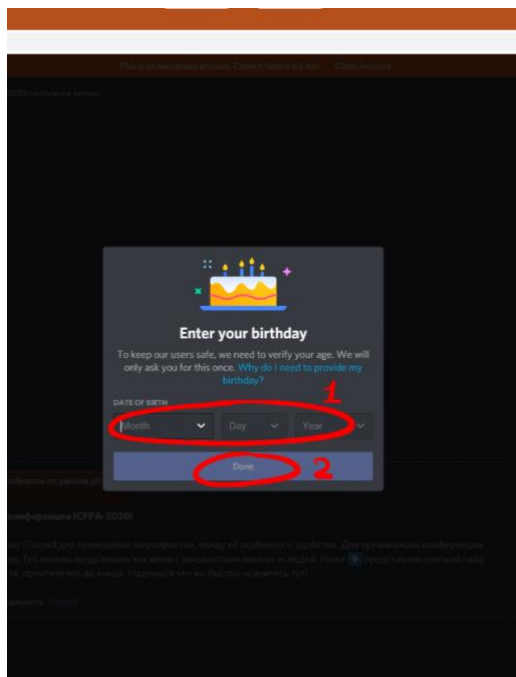


# Guide to the poster session with Discord

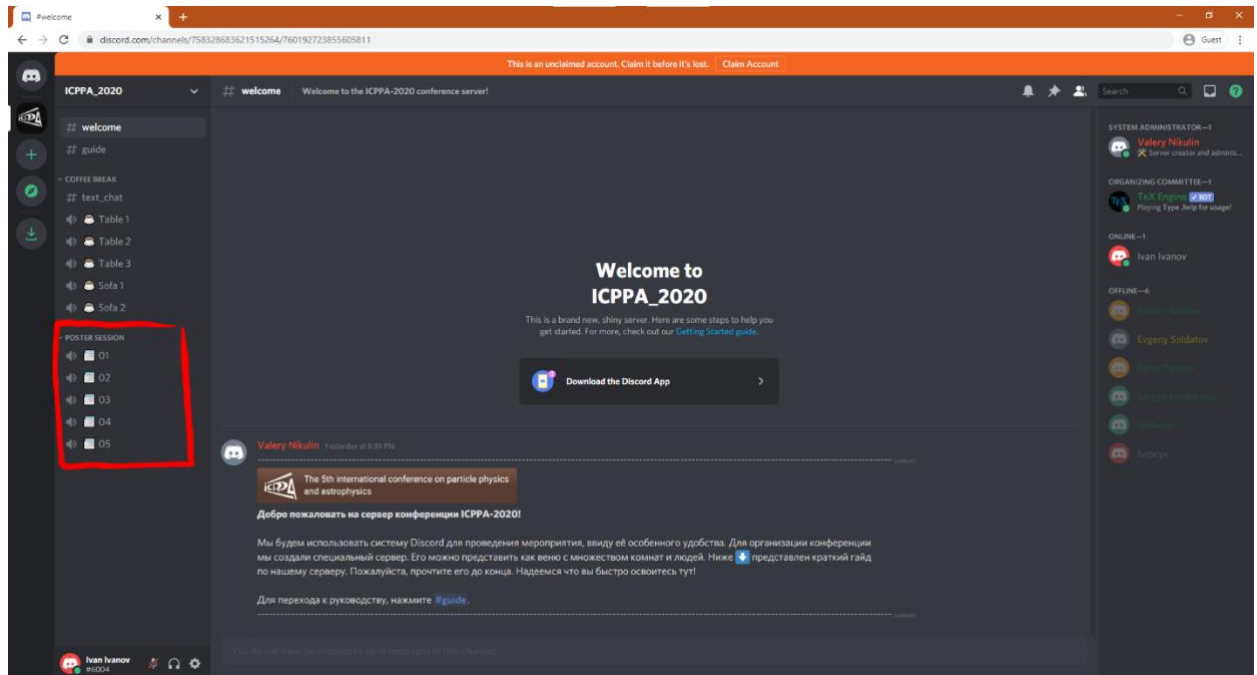
1. Follow the link to the poster session that we will send you in an email. You will be taken to a screen where you will be prompted to enter your name (1). After you have done this, click on the button Continue.



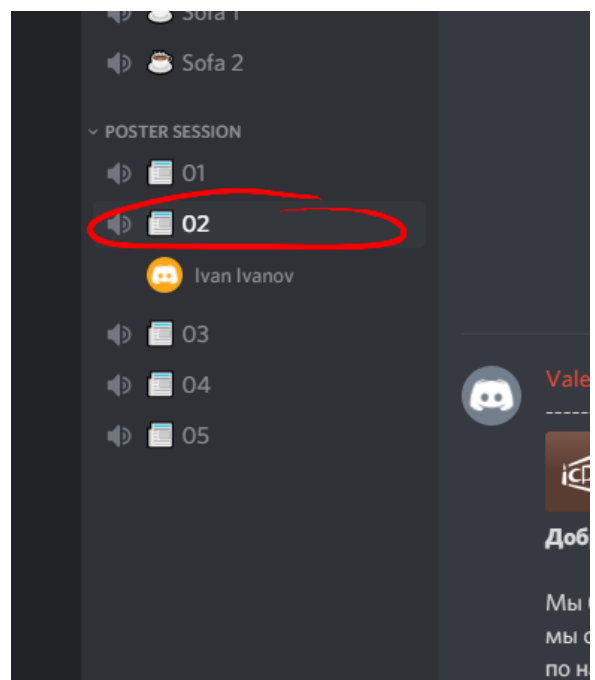
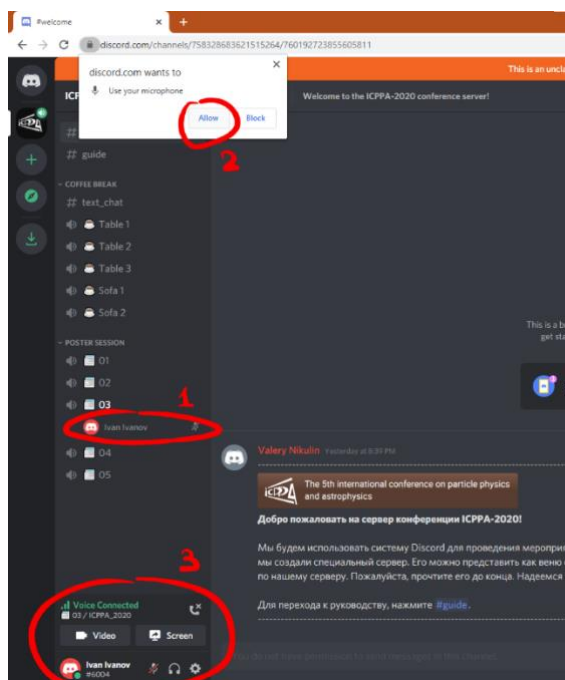
2. Discord will need to verify your age. Enter (1) any number here so that you are over 18 years old and click Done. If you wish you can register with the service with your email address, but it is not necessary. You are able to continue without registration in Discord – just click on the field outside the message frame.



3. You will go to the discord server. On the left panel there is a list of channels that you can go to. The channels act as separate conference rooms. If you want to see posters, check out the channel of the poster you need in the category POSTER SESSION.

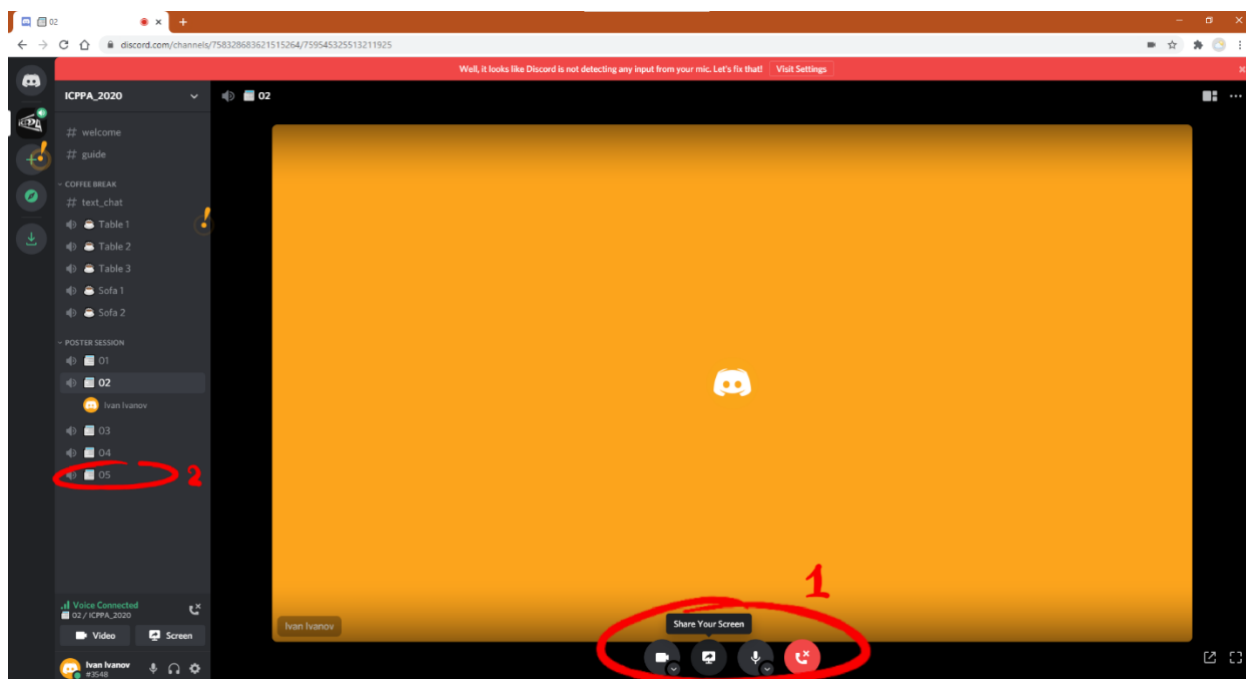


4. You will find yourself in a separate voice room (1) with the presenter and those who are interested in his poster. The browser will ask for permission to turn on your microphone. Click on the Allow (2) button. Your connection status will be shown on the panel (3). To switch to the usual conference mode, click on the selected channel again.



5. In conference mode, you can share the screen, video from the camera, and mute the microphone. The control buttons are on the panel (1). If you are interested in another poster,

just find it in the list on the left and click on it (2). Posters will be signed according to their numbers and authors in the same way as in the schedule on the conference website.



6. Once poster session is ended, we welcome you back to the main conference Zoom Room.

### For Presenters

1. You will be provided with link to Discord beforehand to test it. In case of problems please contact our [Support](#).
2. Please head on to Voice channel dedicated to your poster 5 minutes before the start of poster session.
3. We encourage you to share your poster.
4. People interested in your poster will enter Voice channel and discuss it with you.
5. Please stay in the channel with your poster till the end of the poster session!
6. Once poster session is ended, we welcome you back to the main conference Zoom Room.

### For Participants

1. Visit poster session page on Indico:  
<https://indico.particle.mephi.ru/event/35/sessions/178/>
2. Choose poster you want to look through from Contribution List.

Timetable

Call for Abstracts

Registration

Participant List

Conference proceedings

Conference fee

The previous ICPPA conference

Conference Poster

Support

✉ icppa2020@mephi.ru

🕒 5 Oct 2020, 17:30

📍 Online

Conveners

Poster session

👤 Alexey Grobov ()

📎 Presentation Materials

There are no materials yet.

☰ Contribution list

920. A stratospheric and satellite CubeSat format probe capable of detecting relativistic runaway electron avalanches

👤 Tatiana Kurmasheva , Kirill Briukhanov

🕒 05/10/2020, 17:30

Facilities and advanced d... Poster Poster session

In planetary atmospheres, runaway electron avalanches could happen due to large scale electric fields, which accelerate electrons to energies about 0,1 - 10 MeV. This phenomenon is not fully understood. Nowadays, most of the data is

586. An investigation of  $^{28}\text{Si}$  ( $\alpha$ ,  $\alpha$ )  $^{28}\text{Si}$  elastic scattering at energies from 18 to 240 MeV

👤 Mr. Ahmed Hammad Amer<sup>1,2,\*</sup> (National Research ...)

🕒 05/10/2020, 17:30

Nuclear physics Poster Poster session

In the present research, the analysis of experimental elastic scattering angular distributions data of alpha particles on  $^{28}\text{Si}$  nuclei carried out using SFRESCO computational code in the energy range from 18 to 240 MeV. The data were

919. calibration of prototypes of detectors of GAMMA-400 space-based gamma-ray telescope on synchrotron C-25P «PAKHRA» of Lebedev Physical Institute

👤 Irene ARKHANGELSKAJA (National Research N...)

🕒 05/10/2020, 17:30

Facilities and advanced d... Poster Poster session

GAMMA-400 space-based gamma-ray telescope represents the core of the scientific complex intended to perform a search for signatures of dark matter in the cosmic gamma-emission, measurements of diffuse gamma-emission

- Click on the title and open page dedicated to the poster.
- You can download poster's pdf onto your computer. To discuss it with the presenter please proceed to the Discord and find an appropriate Voice Channel, assigned to the poster. The voice channels have the same numbers as Poster Contributions.



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## A stratospheric and satellite CubeSat format probe capable of detecting relativistic runaway electron avalanches

5 Oct 2020, 17:30  
2h 30m  
Poster Room (Zoom)

Poster

Facilities and advance...

Poster session

Download here

### Speakers

Tatiana Kurmasheva  
Kirill Briukhanov

### Description

In planetary atmospheres, runaway electron avalanches could happen due to large scale electric fields, which accelerate electrons to energies about 0,1 - 10 MeV. This phenomenon is not fully understood. Nowadays, most of the data is obtaining using satellites on low orbits. However, breakdown can also occur at altitudes of less than 30 km. In this case, most of the radiation is scattered without reaching the satellites on high orbits. The formation of charged particles in the atmosphere can affect the results of other experiments. It is important to have the most proper model of this phenomenon. Project goal is to create a stratospheric CubeSat format probe capable of collecting data about these events at an altitude of ~ 30 km and above. The purpose of experiment is to observe changes in the fluxes of both high - energy electrons and radiation, as well as an analysis of possible correlations of the measured parameters. We developed a concept of the probe, performed structural analysis of CubeSat CAD model and created a detector prototype, consisting of a thick polystyrene scintillation counter, wrapped with a mylar, and connected to two SiPM SensL MicroSB-30035-X13 to collect statistics.

- Done! You are in the Voice channel with poster you are interested in. Feel free to discuss it with the presenter.
- You can choose another poster from Contribution List on Indico page. To find it just navigate through the Voice channels.