Preface for the 5th International Conference on Particle Physics and Astrophysics (ICPPA-2020)

1. Introduction
The 5th International Conference on Particle Physics and Astrophysics (ICPPA-2020) was held online, from October 5 to 9, 2020. Such type of conference was chosen because of global Covid-19 pandemic. The conference was organized by the National Research Nuclear University "MEPhI" (Moscow, Russia).

The aim of the Conference was to share scientific knowledge, to initiate discussions and to develop new ideas in fundamental research. We brought 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 have been presented and discussed.

One of first plenary talks was the review of two-phase emission detectors technology: the technology which was developed by Boris Dolgoshein, to whom this ICPPA conference was dedicated. Other methods and technologies for low energy neutrino and dark matter physics were also presented by COHERENT, LEGEND and EXO collaborations. High energy neutrino physics topics were also widely discussed by Baikal-GVD, Hyper-Kamiokande, Borexino and other collaborations. Large-scale accelerator experiments were presented by the talks given by ATLAS and CMS collaborations from the Large Hadron Collider concerning the search for "new physics" and the absence of deviations from the Standard Model of particle physics. Scientific programs, future plans and current status of such projects as ESS (European Spallation Source) were also presented. Theoretical topics such as axion physics and primordial black holes (PBH) studies were also discussed. PBH reports were of special interest of the audience because of this year Nobel Prize in Physics which was awarded for BH studies. New results of multi-messenger astronomy experiments also sparked wide-ranging discussions.

The oral sessions were conducted in Zoom videoconferencing system, the poster session was organized via Discord. Youtube live webcast was organized for all plenary and poster sessions. The ICPPA-2020 conference had the following format: plenary talks (25+5 / 30+5 min), long and short section talks (12+3 / 15+5 / 20+5 min) and poster session. The average attendance was roughly 150-200 persons during plenary sessions and roughly 40-50 on each parallel session. The number of registered participants is 534.

Conference website: https://indico.particle.mephi.ru/e/ICPPA2020
Sponsor:

RUSSIAN ACADEMIC EXCELLENCE PROJECT

ICPPA-2020 was dedicated to the 90th anniversary of Boris Dolgoshein (1930-2010).

Boris Dolgoshein was a pioneer of many detector technologies. He is one of the fathers of a new branch of the detectors for high energy physics – transition radiation detectors (TRDs).

For his very creative and innovative work, Boris got rewarded with many prizes, such as the Lenin Prize, the Humboldt Prize and the Kapitza Gold Medal. He was an Academician of the Russian Academy of Natural Sciences and a long-standing member of the Advisory Editorial Board of the Journal on Nuclear Instruments and Methods in Physics Research Section A, following and monitoring the progress on design, manufacturing and performance of scientific instruments.

For several generations of experimental physicists, Boris has been an inspirational mentor and a model. His creativity has continuously motivated his colleagues to produce new ideas and to work with great enthusiasm.

It has been an unforgettable experience to all of us to work with a personality like Boris.
Figure 2. Boris Dolgoshein at his office in MEPhI (2010).

2. Lists of committees

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