Preface

The conference "RFBR Grants for NICA" was held on 20–23 October 2020 in Dubna, Russia, at the Veksler and Baldin Laboratory of High Energy Physics of the Joint Institute for Nuclear Research. Due to the current pandemic situation, the conference was held online. More than 180 participants from 9 countries attended the four-day meeting.

A Welcome Session, featuring Academician of RAS V. Matveev — Director of JINR, Academician of RAS G. Trubnikov — First Vice-Director of JINR, Academician of RAS V. Panchenko — Chairman of the Russian Foundation for Basic Research (RFBR), Corresponding Member of RAS V. Kvardakov — Deputy Chairman of RFBR, and Corresponding Member of RAS V. Kekelidze — Acting Vice-Director of JINR for NICA, was held on 20 October.

The Conference opened with a talk by J. Cleymans from the University of Cape Town that highlighted the physics case for NICA. The first day of the Conference included a series of talks reviewing results and status of other major experiments (ALICE at the LHC CERN, CBM at FAIR, HADES at GSI, NA61 at the SPS CERN, STAR at RHIC) in the field of relativistic heavy ion physics of relevance to the NICA science. Review talks showcasing the status and plans of the NICA facility complex and of the planned experiments, BM@N, MPD and SPD, were also included in the program of the first day.

The bulk of the Conference centered around the 36 projects devoted to the "NICA Complex" megaproject, that have been supported by RFBR grants since 2019. The Conference offered to each grant holder an excellent opportunity to present results and the current status of his project together with the prospects for further work in the framework of the RFBR grant.

The scientific topics dealt with at the Conference were:

I. Theoretical studies of the dense baryonic matter produced in heavy-ion collisions at NICA.

II. Global characteristics of heavy-ion collisions at NICA.

III. Collectivity and correlations.

IV. Calorimetry and electromagnetic probes.

V. Precision tracking and production of light hadrons, strangeness, hypernuclei and heavy-flavor.

VI. Development of detectors and detection methods for the NICA experiments.

VII. Big data processing and species recognition.

These topics were covered by 48 plenary speakers and by 52 speakers in parallel sessions, including many young scientists. They reflected the impressive breadth and scope of the ongoing research carried out in preparation of the NICA scientific program. This effort would not have been possible without the grant program initiated and supported by RFBR. It played a pivotal role in attracting many groups from leading Russian research institutions, that are now fully engaged into building up and developing the science to be carried out at the NICA facility. These Proceedings focus on the research performed in the framework of the 36 RFBR grants.

General information about the Conference, including the complete scientific program as well as copy of all the talks presented, can be found on the Conference website at https://indico.jinr.ru/e/RFBRfornica.

The Conference was hosted and sponsored by the Joint Institute for Nuclear Research. First and above all, we wish to thank the participants and all the speakers whose contributions made this Conference a memorable and successful event. We are grateful to the members of the Organizing Committee and of the Program Committee for their advice and recommendations in the selection of topics and plenary speakers which resulted in a rich and stimulating program. Last but not least, we would like to thank the Scientific Secretary of the Conference N. Molokanova and the Secretary O. Belova. Their professionalism and dedication were essential for the smooth running of the Conference.