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Preface

This issue of *Astronomical and Astrophysical Transactions* comprises papers presented at the 7th International Scientific Conference "Baltic Applied Astroinformatics and Space Data Processing" (BAASP 2021) (Ventspils, Latvia).

The BAASP conference series have been organized by the VIRAC Engineering Research Institute of Ventspils University of Applied Sciences since 2012. The BAASP 2021 was held in Ventspils, Latvia on September 23–24, 2021. Space science is being fundamentally influenced and empowered by computation and information technology and this stimulates its further technological developments. Astronomy, like many other fields, is becoming exponentially data-rich. The tasks of data management, acquisition and mining become central to space research activities, bringing together many technical and methodological challenges. Information technologies also provide the stage where we collaborate and interact, and publish, preserve, use and disseminate knowledge. All these activities contribute to the emerging new branch of science – astroinformatics.

Recent challenges are directed to more human-oriented, highly personalized and trustworthy systems enabling their users to cope with a large variety of frameworks, technologies, data volumes and tools needed to accommodate emerging scientific applications. Therefore, one of the areas of focus is quantitative and qualitative methods for exploiting, predicting, and understanding the value that information and communication state of the art technologies brings to space science, astronomy, geodesy and related fields.

The BAASP conferences are intended as a collaborative platform for cross border partnership and knowledge transfer in the Baltic region as well as all of Europe for astronomers, astrophysicists, space researchers and engineers and also for experts in related research disciplines in fields such as informatics, electronics, satellite technology, geodesy and environment sciences.

While the general scope of BAASP is wide, the specific themes of the BAASP 2021 were astronomy, radio astronomy, space sciences and technologies, instrumentation and data processing, from near Earth space to cosmological distances. Some of the presentations were also dedicated to the modernization and improvement of astronomical and radio astronomical instruments. In BAASP 2021, scientists from Latvia, Russia, Ukraine, Finland, Poland, Sweden, the Netherlands, Italy, Egypt, India, Japan and Greece presented their results. As a consequence, the conference became an international and not only a European regional event.

Due to the existing epidemiological constraints, BAASP 2021 took place online using the ZOOM platform. Thanks to the possibility of attending the conference remotely, a significant number of participants from distant countries, such as Japan and India, and those from countries a little closer such as Greece and the Netherlands, were able to take part. The conference featured 38 reports, including 32 oral presen-

tations and 6 online posters. 117 participants have used the opportunity to register for the conference. As the conference was organized over two days, the total number of participants varied from day to day. On 23 September, 63, and on 24 September, 60 people participated.

It should also be noted that BAASP 2021 not only provided an opportunity to get acquainted with the reports (recorded presentations of the participants' reports are also available online in the VIRAC YouTube channel (https://www.youtube.com/channel/UCWNJkexYySp-Raq7dXJPLJQ/videos) and the BAASP 2021 conference homepage (https://www.virac.eu/en/baasp2021), but also provided an opportunity for its participants to establish new personal contacts. For example, researchers from VIRAC were able to show their new scientific results to the wider professional audience. It also was interesting to hear the discoveries made by researchers from other institutes and observatories around the world, with whom VIRAC have been cooperating for several decades. For example, the conference was attended by representatives from the JIV-ERIC Institute (Netherlands), Lund Observatory (Sweden), Odessa Astronomical Observatory and the Institute of Radio Astronomy of the National Academy of Sciences of Ukraine (Ukraine) and the Nizhny Novgorod Institute of Radiophysics (Russia). The audience were impressed by the conversion of old Ukrainian and Greek telecommunications antennas for use in radio astronomical tasks, as well as the involvement of thousands of Indian students in the processing of astronomical data and the search for asteroids (reported by a representative of the Science and Technology Department of the Government of Rajasthan). During the conference, the possibility of using artificial intelligence for radio astronomical data processing was also discussed.

A unique opportunity was offered to the participants of the conference to take part in a virtual tour of the VIRAC radio telescopes, and even climb to the highest point of the RT-32 radio telescope – the primary focus platform of the antenna, more than 50 m high, as well as to visit the Soviet Army underground tunnels and, even going back to the past, to track how radio telescopes have changed over the last 15 years of modernization. The record of this excursion is also available on the VIRAC YouTube channel (https://www.youtube.com/watch?v=Cq1hWS-i7GU).

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I. Shmeld, Chairman,
Scientific and Local Organizing Committees

V. Bezrukovs, Vice Chairman,
Local Organizing Committee