PREFACE

The current volume of the *Acta Physica Polonica B Proceedings Supplement* contains selected papers presented at the Zakopane Conference on Nuclear Physics — *Extremes of the Nuclear Landscape* which took place on August 28–September 4, 2022 in Zakopane. The conference was the 55^{th} edition of the Zakopane School of Physics, organized by the Institute of Nuclear Physics of the Polish Academy of Sciences, this time in cooperation with Coti Conference Time, and with the support of NAWA, NUPECC, and CAEN.

It should be emphasized that 2022 marks the 60^{th} anniversary of the organization of the first School of Physics — an initiative of a group of students associated with professors Henryk Niewodniczański and Andrzej Hrynkiewicz, who have been meeting regularly to combine the discussion of nuclear physics with hiking in the mountains, and in earlier years when the meetings were held in winter, skiing. Since then, the School has evolved into an international congress, one of the most important positions in the calendar of meetings of nuclear physicists in the world. Due to the scale of this event, the conference is now held every two years.

This year's Zakopane Conference was a unique event because due to the COVID-19 pandemic, it was the first meeting of our community in four years (the previous Zakopane Conference took place in 2018). Also in the global dimension, our conference was one of the few events of this rank that took place in the form of direct participation, an essential element of effective scientific cooperation that has been so important and missing in the recent period. Indeed, the turnout exceeded the organizers' expectations. The conference was attended by about 180 participants from 23 countries, including a large delegation from North America and the Far East, and foreign guests accounted for over 70% of the participants. Nearly 100 lectures were given and 60 posters were presented. The scientific program, prepared in consultation with the international program committee, consisted of four original thematic sessions, convened by leading experts in the fields of:

(i) Structure of exotic nuclides (Prof. Alexandra Gade, MSU, USA),

(ii) NUSTAR and APPA experiments in the laboratory FAIR (Prof. Wolfram Korten, CEA, France),

(iii) Nuclear Collective Phenomena (Prof. Adam Maj, IFJ PAN, Poland),

(iv) Nuclear Astrophysics (Prof. Jorge Piekarewicz, FSU, USA).

In addition, the status of the latest theoretical and experimental research on the structure of the atomic nucleus and nuclear reactions was presented. Particular attention was given to research on superheavy nuclei, discussed in a session spontaneously organized by Professor Sigurd Hofmann's associates in his memory. The conference featured a series of special lectures delivered by the luminaries of nuclear science, Prof. Witold Nazarewicz (MSU, USA), who presented the status and prospects of theoretical research in nuclear physics, Prof. Marek Lewitowicz (GANIL and NuPECC, France), who presented the long-term research plans of physics in Europe, formulated by the NuPECC committee, and Prof. Philippe Chomaz (CEA, France), who considered the use of quantum computers for nuclear physics calculations. The poster session was very popular, and the four authors of the best works were awarded generous prizes funded by NuPECC. Several of the youngest foreign participants, presenting seminars on their doctoral dissertations, received scholarships from NAWA — The Polish National Agency for Academic Exchange to participate in the conference. On the sidelines of the conference, an important meeting of representatives of Polish and German research groups related to the FAIR program was held.

A novelty of this year's edition was the streaming of the debates on the IFJ PAN YouTube channel, which allowed remote participation of colleagues whose presence was impossible, *e.g.* from Ukraine.

The presented proceedings reflect the course of the conference and document the continuous development of nuclear physics research.

The Editors

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