Editorial

Proceedings of the XVIIIth International Conference on Electromagnetic Isotope Separators and Related Topics (EMIS 2018), CERN, Geneva Switzerland, 16–21 June 2018

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The 18th International Conference on Electromagnetic Isotope Separators and Related Topics (EMIS 2018) was hosted at CERN from the 16th to 21st September 2018. The EMIS 2018 conference was co-organized by two of the ISOLDE-related teams of CERN, responsible for the functioning of the ISOLDE Facility: the ISOLDE Physics group belonging to the Experimental Physics Department and the STI (Sources, Targets and Interactions) group of the Engineering Department at CERN.

EMIS is a long-running flagship conference series, first organized more than 60 years, for the presentation and discussion of new techniques and instrumentation in the field of low-energy nuclear science. The first EMIS conference took place in 1955 in Harwell in the United Kingdom, with a periodicity of five years. The growing number of facilities being upgraded or newly constructed worldwide, along with the appearance of many new innovative technological advances in the field of radioisotope production and science, quickly led to the need for more frequent meetings. Since 2012, the conference is organized every three years, with the latest editions in Matsue, Japan (2012) and Grand Rapids, Michigan, USA (2015).

Target and ion source developments as well as **iso- tope** separation techniques at ISOL and fragmentation facilities have been the central topics in the EMIS conferences. Scientific discoveries are being made at modern radioactive beam facilities thanks to continuous technological advances. The same techniques are also used in related fields, such as atomic and solid state physics, medical and biophysics and nuclear engineering. The field continues to expand with the construction of new high-power radioactive beam facilities around the world, providing new possibilities for the use of radioisotopes in fundamental and applied sciences. By bringing together an international audience, the EMIS 2018 conference continues to provide a platform for the presentation of new technologies and constructive dialogue between scientists in this field.

The conference attracted 178 participants from 21 countries. The 2018 edition of the EMIS conference series covered a variety of topics presented in 10 dedicated sessions introduced by one or two invited speakers. The 15 invited talks were complemented with 52 contributed talks, and 85 posters were presented during two very interesting poster sessions. Almost a full day was dedicated to the pro-

duction of radioisotopes using the ISOL method, with presentations on various new developments related to targets and ion sources used at facilities around the world. Laser techniques are playing an increasingly important role in the production of radioisotopes, as highlighted during these sessions. Lasers also play an important role in the study of the fundamental properties of exotic isotopes, as highlighted in a dedicated session where new laser experimental methods were presented, allowing the study of the most exotic species towards the drip-lines and the very heavy mass region where no stable isotopes exist. Ion traps and storage rings are becoming indispensable tools for the manipulation, purification and study of radioactive isotopes, both at ISOL and fragmentation facilities. Developments of these methods and their application in state-of-the-art mass measurements were presented in two sessions. New instrumentation for radioactive ion beam experiments are key to advance our knowledge on the properties of exotic nuclei towards the drip-lines. Three dedicated sessions revealed very interesting results from new instruments developed world-wide. For future facilities, high-power radioactive ion beam production methods are most challenging, with ongoing R&D presented in a dedicated session. Low-energy and in-flight mass separators, the indispensable tools to select specific isotopes out of a cocktail of produced radioisotopes, are still being further developed. In particular, new modes of operating the in-flight mass separators were presented during a dedicated session on ion optics and spectrometers. Finally, our field has a growing impact in other related fields. The production of radioisotopes for research in new diagnostics and therapies in medicine, as well as for research in biochemistry, was highlighted during two sessions on applications of radioisotopes in other fields.

Following recommendations by the International Advisory Committee, the next EMIS conference will be hosted by the RISP Facility at the RAON complex (Rare Isotope Accelerator Complex for On-line experiments) in Daejeon, South Korea in 2021. The traditional cigar was handed over to the future organizers.

We would like to thank the international advisory committee for their excellent choice of invited speakers and oral contributions, together with the local organizing committee for their valuable contributions to the overall organization of the conference. Finally, we

would like to thank all the participants for their excellent presentations and lively discussions, thus maintaining the collaborative spirit of the EMIS conference series.

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