

Foreword

Special issue featuring papers from the 24th International Conference on New Cryogenic and Isotope Technologies for Energy and Environment (EnergEn 2023)

Guest Editor

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I am pleased to present this *Fusion Science and Technology* (FST) special issue featuring papers from the 24th International Conference on New Cryogenic and Isotope Technologies for Energy and Environment (EnergEn 2023), which took place October 18–20, 2023, and was hosted by the National Research and Development Institute for Cryogenic and Isotopic Technologies in Rm. Vâlcea, Romania.

EnergEn 2023 provided all participants a chance to share their thoughts and exchange ideas on new goals, opportunities, and challenges for research on emerging technologies related to hydrogen, energy storage, or environmental analysis. The theme of the conference, “New energy technologies and their impact on the environment: Moving forward in green living,” was carefully chosen to agree with most of the main players in the field. EnergEn 2023 was attended by 211 researchers from 15 countries (the United States, Germany, France, Belgium, Italy, the United Kingdom, Turkey, China, Norway, Croatia, Canada, Slovenia, Kazakhstan, Ukraine, and Romania), with 137 papers presented (three plenary lectures, 58 oral presentations, and 76 posters) and 24 sponsors. The conference covered five main topics:

1. Hydrogen energy technologies.

2. Battery technologies.

3. Material science for energy and environment.

4. Isotopes in environmental studies and life quality applications.

5. Tritium R&D and technological transfer for fusion and fission.

For this special issue of FST, authors of papers from the tritium topic were invited, with presentations from Belgium (one article), China (five articles), Kazakhstan (one article), and Romania (five articles). Of these, five papers were ultimately accepted for this issue. These articles present information, research, theories, experiments, and interpretations of results on diverse subjects, such as decommissioning techniques, hydrogen interactions with materials under radiative fluxes, hydrogen isotope separation through permeation and adsorption, deuterated water distillation, tritium recovery, and cryogenic distillation of hydrogen isotopes.

Reviewing the achievements presented in these articles, from current and future research projects, I must thank the authors for their hard work and willingness to write these manuscripts.

Finally, I invite you to read this special issue of FST with pleasure and not to forget the next EnergEn conference, which will take place in 2025 in Rm. Vâlcea, Romania.