Deutsche Neutronenstreutagung



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Innovative approach for sustainable and low-waste production of 99Mo for radiodiagnostics using an accelerator based neutron source

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Nuclear medicine diagnostics that are integral to modern healthcare, heavily rely on the radionuclide 99Mo, traditionally produced in nuclear reactors through the fission of 235U [1, 2, 3]. However, the complex radiochemical processing involved generates substantial radioactive waste, necessitating a shift towards more sustainable practices. This poster presents the 99Mo Best joint project, an initiative focused on developing an innovative, cost-efficient concept for the production and utilization of 99Mo-based radiodiagnostics, utilizing the 98Mo(n, γ)99Mo reaction eliminating fissile materials and minimizing radioactive waste.

The project comprises three key sub-projects:

- 1. Process Optimization: This involves refining the processes for generating 99Mo-based radiodiagnostics, as well as improving their processing and utilization in clinical settings.
- 2. Neutron Target Technology: Developing high neutron flux density neutron target technology is crucial for irradiation with reduced radiation doses, ensuring safe handling and processing of Mo samples post-irradiation.
- 3. Radiation Protection and Disposal: Addressing safety concerns, this sub-project aims to determine radiation protection and disposal issues pertinent to the novel 99Mo production process, ensuring a secure and sustainable approach.

This comprehensive approach aims to create a paradigm shift in the field of nuclear medicine by offering a sustainable and efficient alternative to traditional 99Mo production methods, mitigating environmental impact and advancing the application of accelerator-based neutron radiation sources in medical radioisotope production.

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Sitzung Einordnung: Mounting Posters, Beer and light Dinner

Track Klassifizierung: Health & Life