NUSTAR Seminar

Maxime Mougeot

CERN / Switzerland

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Zoom Link

https://gsi-fair.zoom.us/j/92464447324

Meeting-ID: 924 6444 7324
Kenncode: 432839

News from the ISOLTRAP mass spectrometer

Maxime Mougeot for the ISOLTRAP collaboration

One modern approach to unravelling the complex nuclear many body problem has been to track the evolution of nuclear properties in systems ever closer to the proton or neutron drip-line. Binding energies are among the first observables reaching yet uncharted regions of the nuclear chart and their trends are sensitive to a wide range of nuclear-structure phenomena. As such, they provide invaluable inputs to virtually all nuclear models. In this contribution, recent results from the Penning trap mass spectrometer ISOLTRAP located at ISOLDE/CERN will be presented. One such campaign was dedicated to the study of neutron-deficient indium isotopes in the vicinity of the doubly-magic ^{100}Sn. This campaign performed at the extreme of the nuclear landscape was successful in measuring $^{99\text{-}101}$In. Thanks to the recently commissioned Phase-Imaging Ion-Cyclotron-Resonance technique [2], the mass of a long lived isomeric state in ^{101}In could also be determined. Implications of the newly measured masses for the Z=N=50 shell closure in close proximity with the proton drip-line rp-process will be highlighted [3]. Recent technical developments will also be presented.

REFERENCES:
[1] M. Mukherjee *et al.,* Eur. Phys. J. A 35, 1-29 (2008).
[2] S. Eliseev *et al.*, Phys. Rev. Lett. 110, 082501 (2013).
[3] M. Mougeot *et al.*, Nature Physics 17,1099 - 1103 (2021).

Convener: T. Dickel
Secretary: R. Krause / D. Press
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