Contribution ID: **75** Type: **Invited talk**

Off-line and on-line applications of the high-resolution laser ion source PI-LIST

Wednesday, 10 May 2023 09:00 (30 minutes)

Klaus Wendt
Institute for Physics
Johannes Gutenberg University Mainz

The laser ion source trap LIST has been proposed about 20 years ago [1] and meanwhile successfully been implemented at ISOLDE and also elsewhere for strong selectivity enhancement in the ionization of exotic isotopes [2,3], specifically addressing those, which exhibits strong isobaric interferences. Recently the capability of using the device for direct in-source high resolution laser spectroscopy has been added by incorporating a transversal overlap region between laser beam and evaporating atomic species. This refinement was first tested off-line and afterwards adapted for on-line application at ISOLDE [4]. The technical developments and some recent results on direct in-source hyperfine structure and isotope shift measurements, carried out off-line on isotopes of Tc, lanthanides [5,6] and actinides [7] as well as the new on-line installation at ISOLDE will be discussed in the presentation.
[1] K. Blaum et al., Nucl. Instrum. Meth. Phys. Res. B 204 331–335 (2003)
[2] D.A. Fink et al., Nucl. Instr. Meth. in Phys. Res. B 344, 83-95 (2015)
[3] D.A. Fink et al., Phys. Rev. X 5,011018 (2015)
[4] R. Heinke et al., Hyp. Int. 238, 6 (2017)
[5] T. Kron et al, Phys. Rev C 102, 034307 (2020)
[5] D. Studer et al., Eur. Phys. J. A 56, 69 (2020)
[7] F. Weber et al., Phys. Rev. C 107, 034313 (2023)

Primary author: WENDT, Klaus

Presenter: WENDT, Klaus

Session Classification: Plenary Session 7