

# SMI-2023: 14th International Conference on Stopping and Manipulation of Ions and Related Topics



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

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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)

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