

## **IMPRUVMENT in RILIS SELECTIVITY and SPECTRAL RESOLUTION by the use of TIME-OF-FLIGHT TECHNIQUE**

*Wednesday 18 November 2009 16:30 (20 minutes)*

Although the selectivity of resonance ionization laser ion sources is high, nevertheless, it does not sufficiently large to carrying out many crucial experiments with radioactive isotopes particularly in studies of isotopes located very far from the valley of element stability.

This report discusses the improved selectivity of the RILIS made possible by in-source time-of-flight ion compression. Brief description of the principle and some preliminary experimental results are presented. In off-line experiments Tm ion peaks of 5  $\mu$ s duration were observed using the time-of-flight assemble, ionizer and free field region, of 60 mm length and the voltage drop across the ionizer of 15 V. In case of Sn the ion peak width of 1  $\mu$ s can be obtained at the voltage drop across the ionizer of 45 V. By this is meant that the selectivity of Sn production can be as much as 100 employing the ISOLDE –RILIS with TOF ion bunch compression and the ion bunch gating technique.

Also this report discusses a possibility in principle carrying out the sub-Doppler laser spectroscopy using the RILIS and the time-of-flight technique.

**Primary author:** MISHIN, Viacheslav (Institut for Spectroscopy RAS)

**Presenter:** MISHIN, Viacheslav (Institut for Spectroscopy RAS)

**Session Classification:** Session 4: Technical Progress