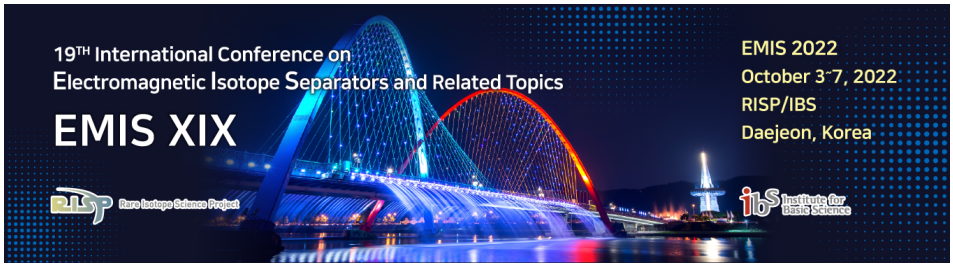

Contribution ID: **192** Type: **Invited**

Precision laser spectroscopy of fast radioactive beams and trapped ions

Monday, October 3, 2022 2:00 PM (30 minutes)

Laser spectroscopy techniques provide nuclear-model independent access to nuclear electromagnetic moments, spins and charge radii. Advances in radioactive ion beam instrumentation and laser technologies have enabled the study of a wide range of elements and isotopes, pushing out far from the valley of stability towards the drip lines.
In this contribution, I will present experimental progress along several important frontiers in the field. I will discuss the use of methods based on laser ionization spectroscopy and how they have allowed us to reach exotic nuclei such as 96Ag or 52K. Crucially, these measurements relied on the use of decay detection or ultra-selective mass separation tools to provide low-background measurement conditions.
Besides using efficient laser ionization and particle detection methods, another important area of research relies on the use of ion traps. I will show a recent example of how ions trapped in a linear Paul trap can be optically pumped into a beneficial metastable state. In particular, I will show how this approach enabled fluorescence spectroscopy of neutron-deficient singly-charged cobalt isotopes. Finally, I will conclude with a discussion of future avenues for spectroscopy, which entail doing optical and radiofrequency spectroscopy of radioactive ions while they are trapped in a linear Paul trap.

Presenter: Prof. DE GROOTE, Ruben

Session Classification: Session 3