

Commissioning of a setup to develop chemical isobaric separation techniques

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Gas catchers are widely used to slow down energetic particles in order to prepare them for precision measurements. Chemical reactions of the ions with impurities in the gas can affect the extraction efficiency from the gas-catcher. Our aim is to make use of this effect and to explore the potential of chemical reactions for Chemical Isobaric Separation (CISe)

We want to apply this technique to measure the mass of ^{100}Sn with high precision. ^{100}Sn can be produced in nuclear fusion reactions along with a large amount of unwanted isobaric by-products such as ^{100}Ag , ^{100}Cd , and ^{100}In . In order to develop a suited chemical system, we built a gas-catcher in which stable isotopes of the ions of interest can be produced by laser ablation. The gas-catcher is coupled to a mass-spectrometer which allows us to identify the ablated ions and molecular species created inside the gas-catcher. In this contribution, I will provide an overview of the current status of the project with focus on the performance of the laser ablation source and the optimization of the ion transport efficiency.

Primary author: BLAAUW, Lennart (Rijksuniversiteit Groningen)

Co-authors: Dr ANDELIC, Brankica (Rijksuniversiteit Groningen); Dr GIACOPPO, Francesca (GSI Helmholtzzentrum); EVEN, Julia (University of Groningen); ARCILA, Luisa (University of Groningen); Mr ADAMS, Mark (Universitair Medisch Centrum Groningen); Dr BLOCK, Michael (GSI Helmholtzzentrum); Dr KALEJA, Oliver (GSI Helmholtzzentrum)

Presenter: BLAAUW, Lennart (Rijksuniversiteit Groningen)

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