JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

MARA-LEB

An Insight into Nuclear Physics Experiments

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JYFL Acclab

About Me

- Bachelor Degree in Physics at the University of Valencia (Spain)
- Master's Degree in Nuclear Physics at the University of Sevilla (Spain)
- Dual Doctoral Student at the University of Liverpool and the University of Jyväskylä (Finland)
- Outside of Physics: I play basketball, I love videogames and I am interested in many fields of knowledge.

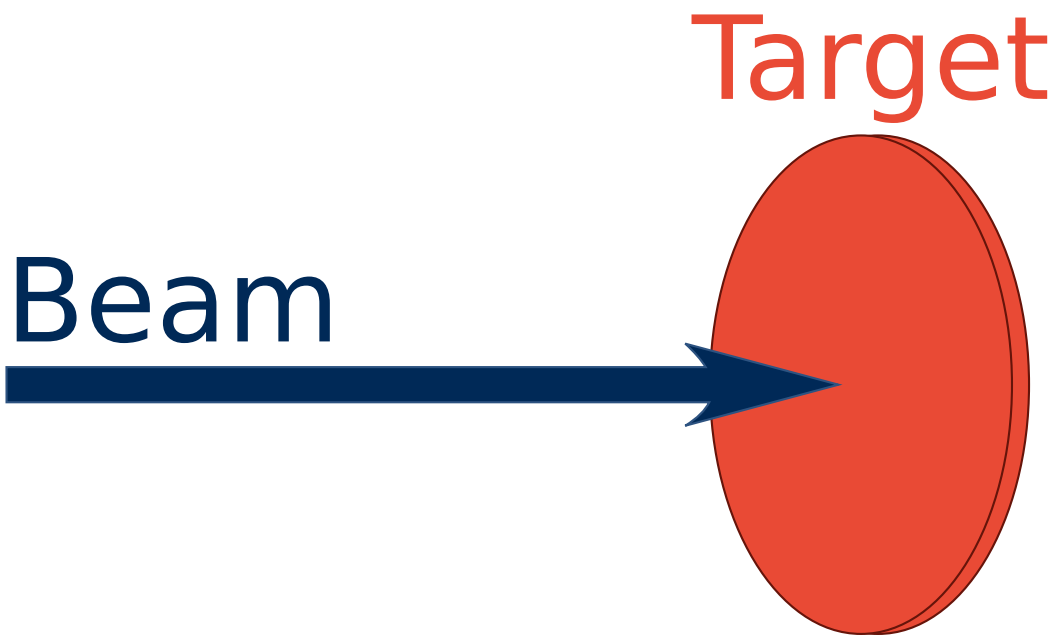
A Nuclear Physics Experiment

- Accelerate something (beam)

K130 Cyclotron at JYFL

A Nuclear Physics Experiment

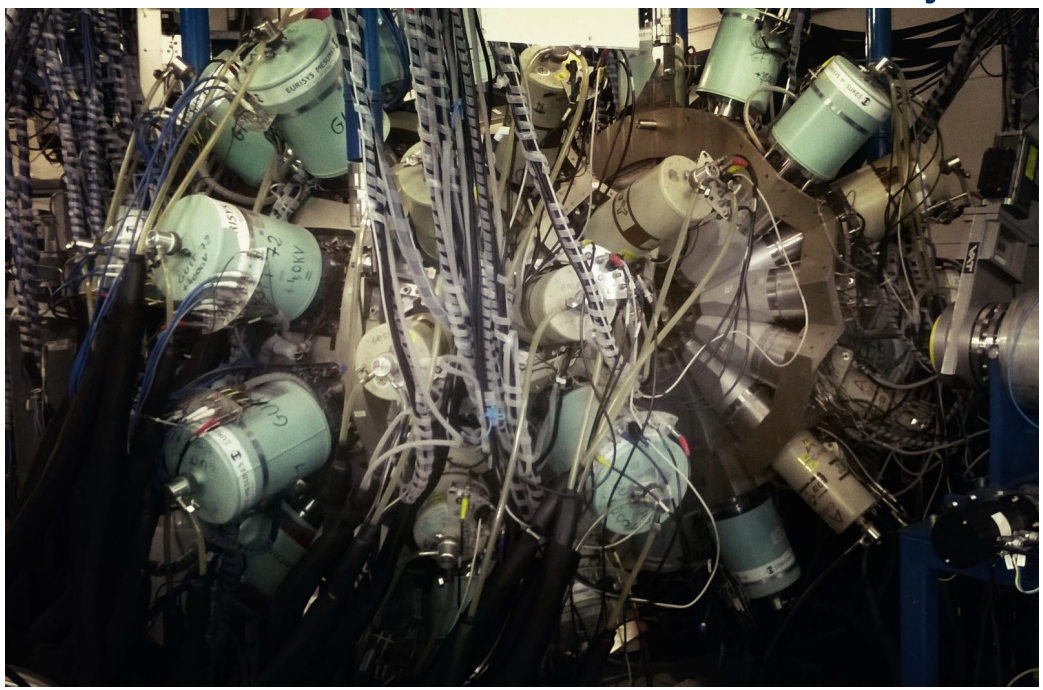
- Accelerate something (beam)
- Crash it into something else (target)



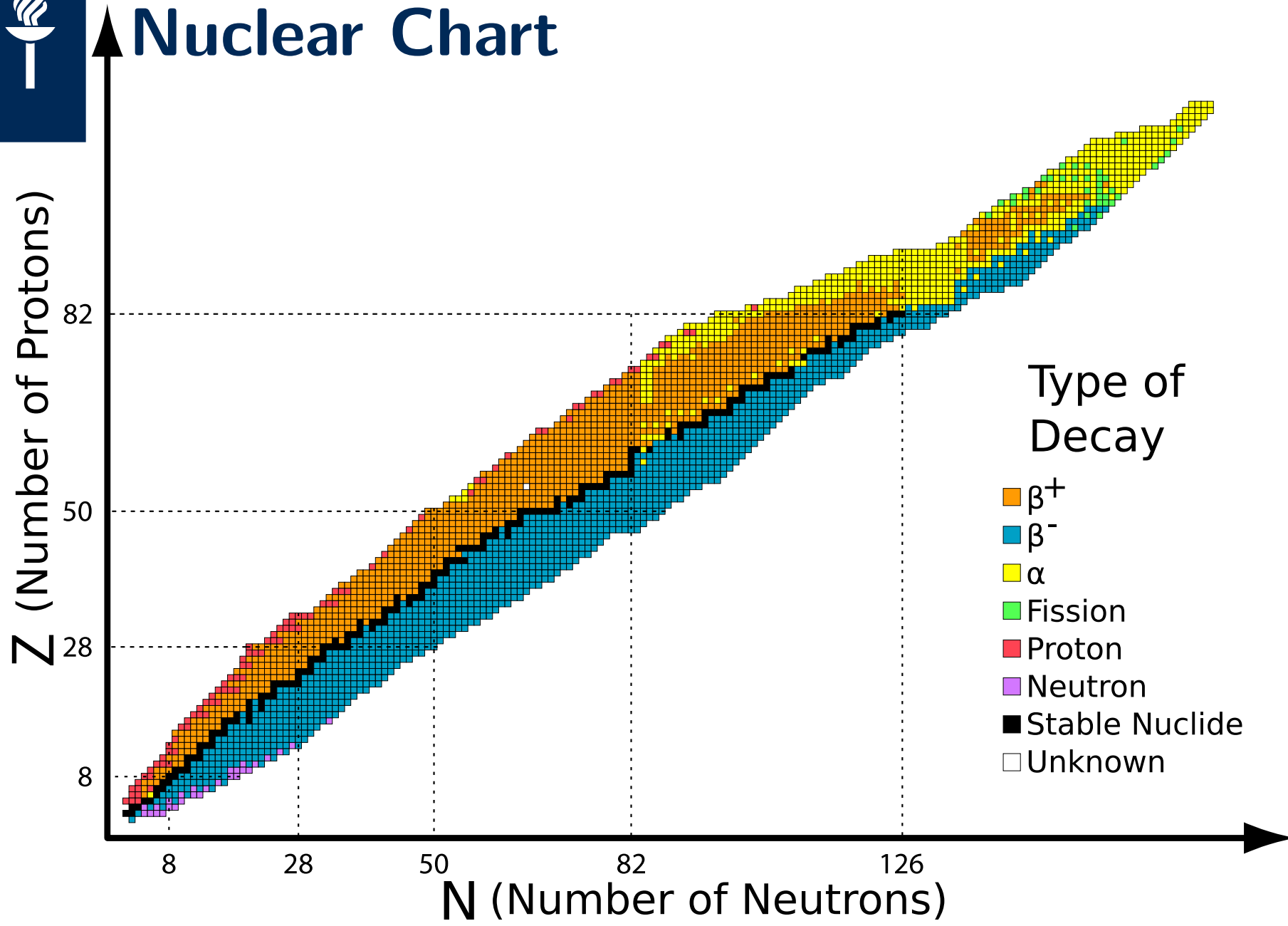
A Nuclear Physics Experiment

- Accelerate something (beam)
- Crash it into something else (target)
- See what happens (detectors)

The JUROGAM Ge-detector array

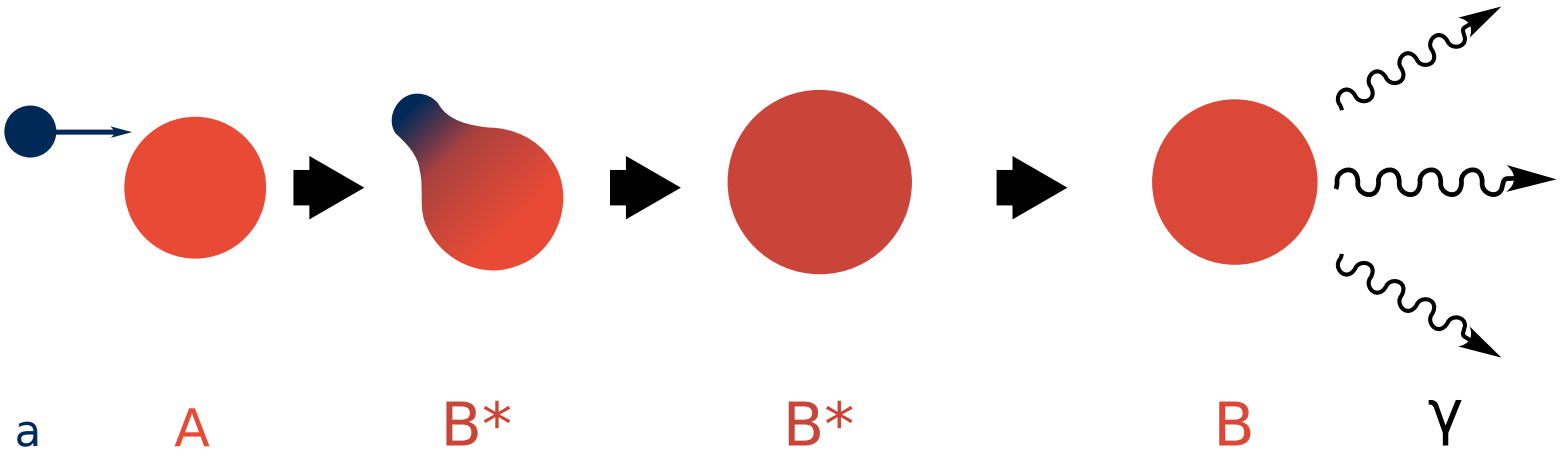


Nuclear Chart



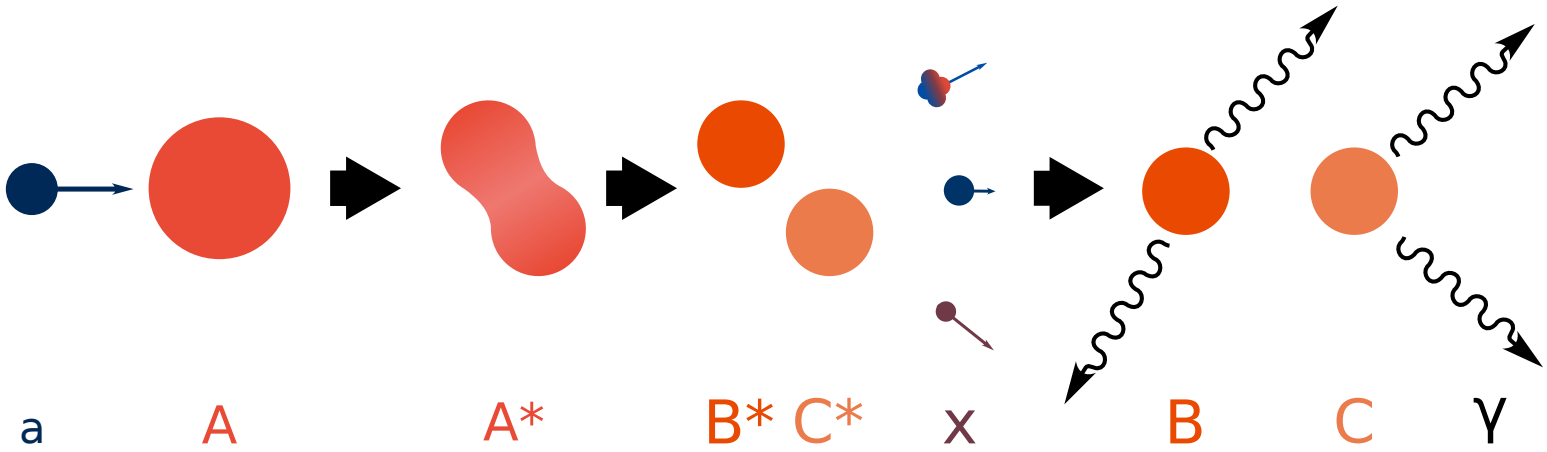
Reactions

Fusion: $a + A \longrightarrow B$



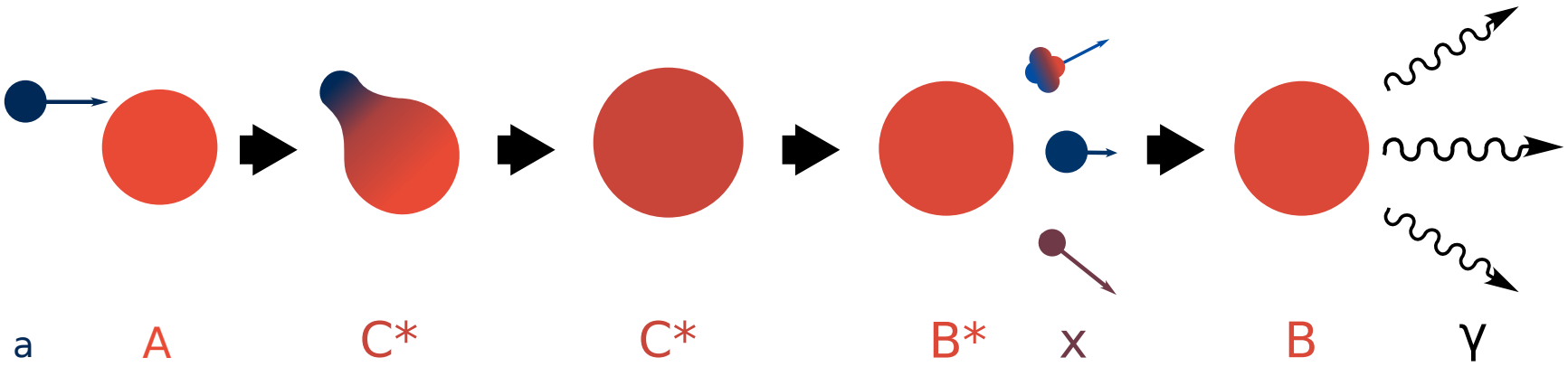
Reactions

Fission: $a + A \longrightarrow B + C\ (+x)$



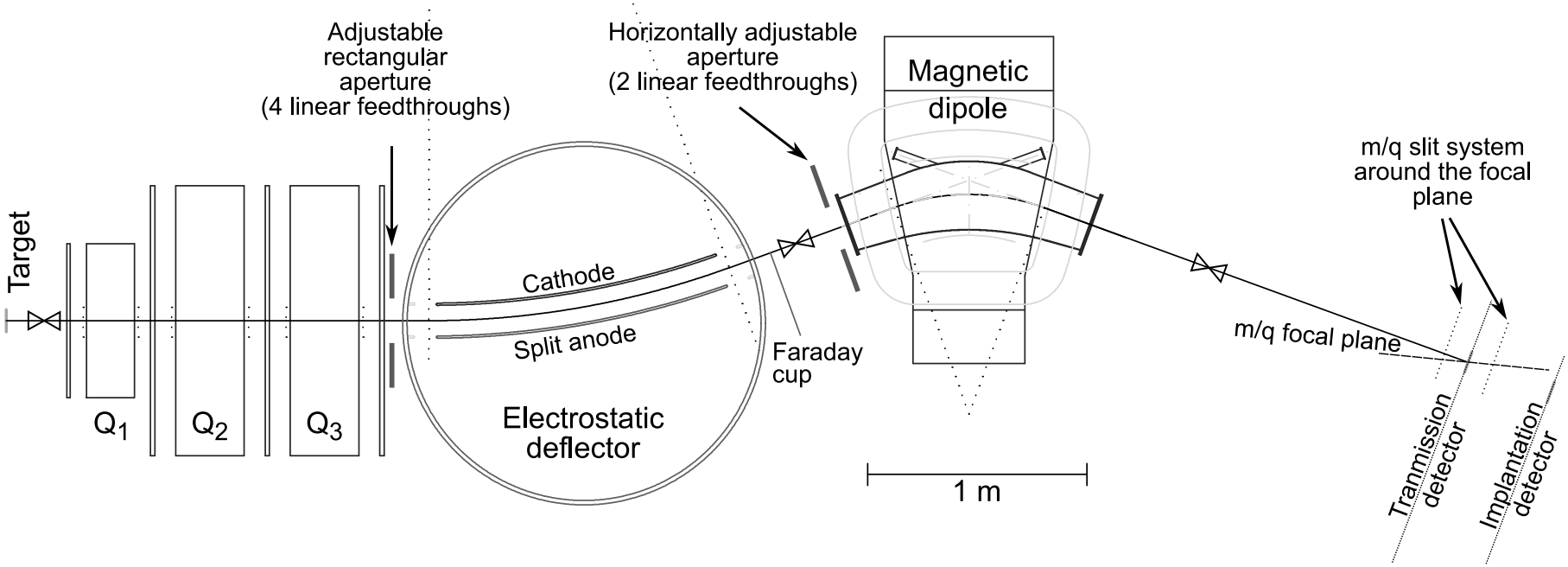
Reactions

Fusion-Evaporation: $a + A \longrightarrow B + x$



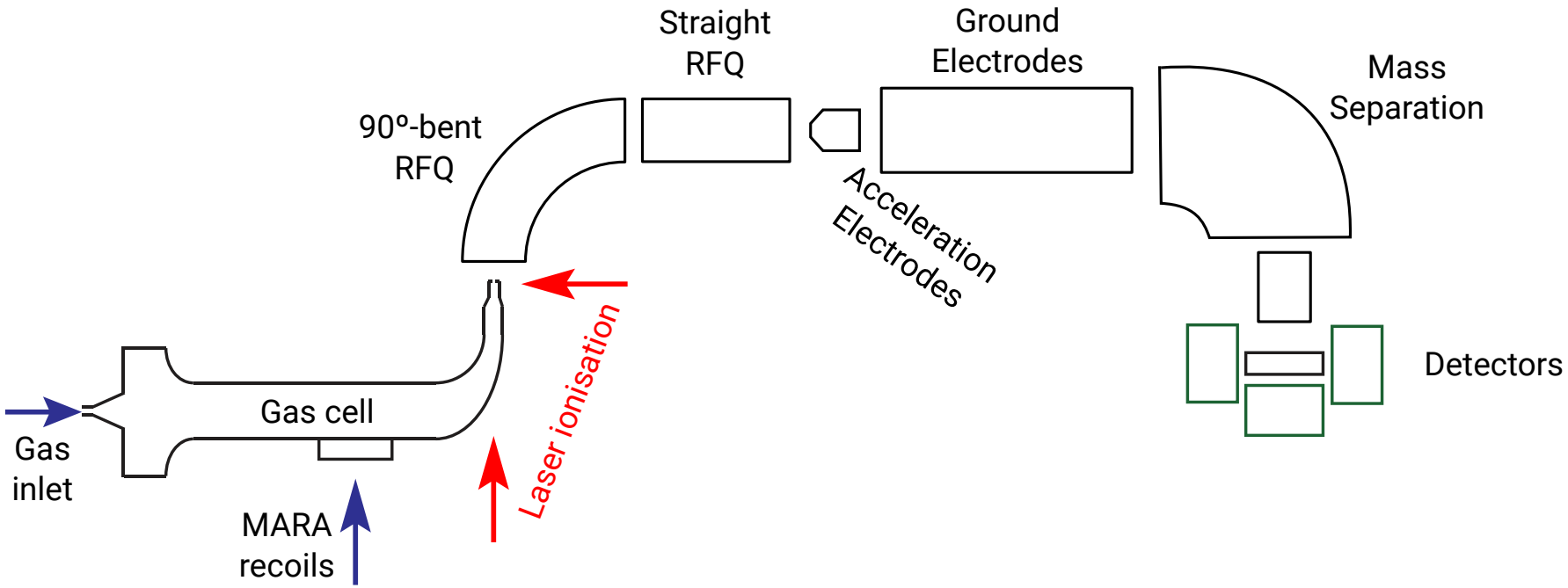
MARA

The Mass Analysing Recoil Apparatus (MARA) uses electric and magnetic fields to select specific recoils from fusion-evaporation reactions.



MARA-LEB

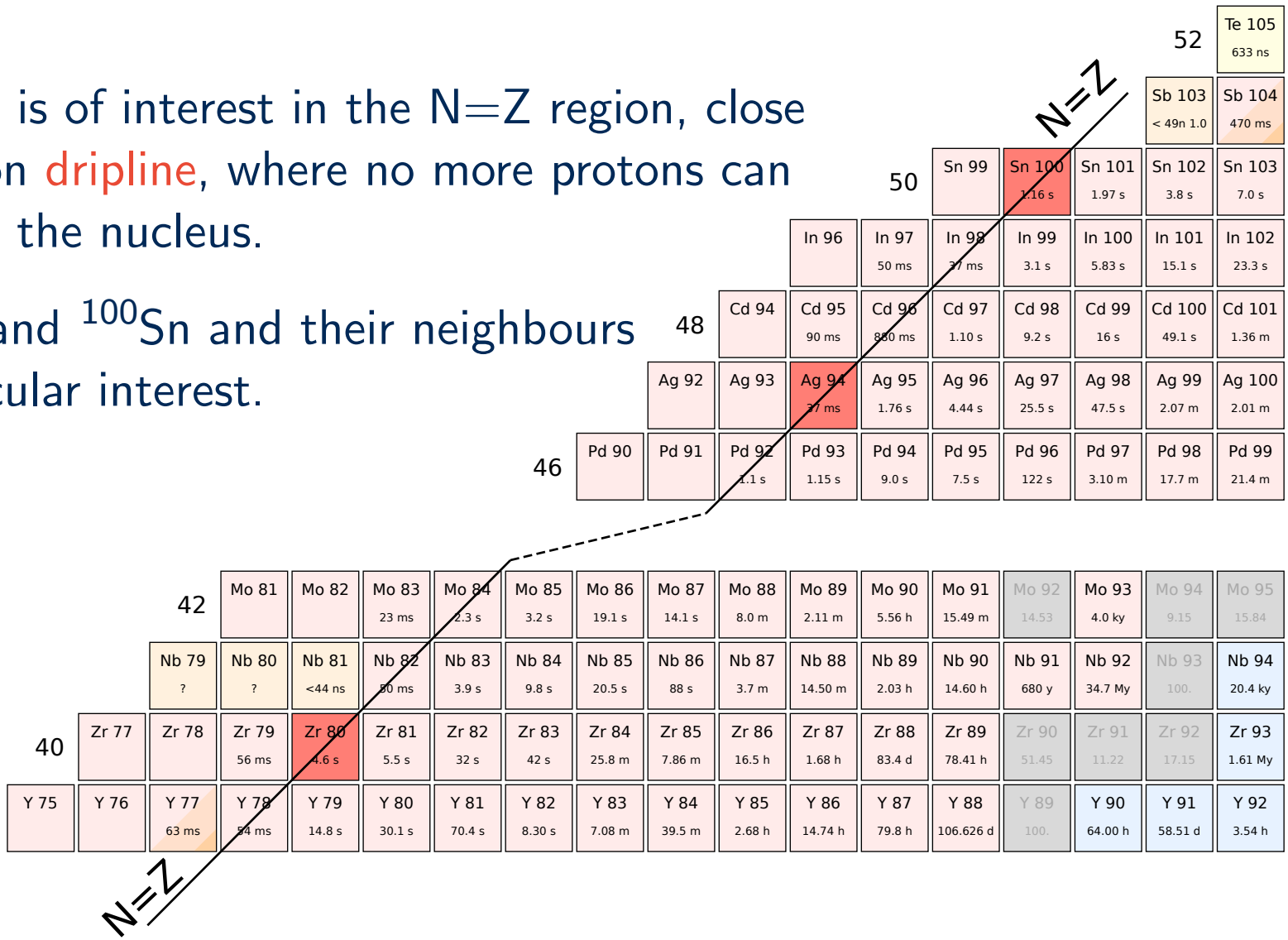
The MARA Low Energy Branch (MARA-LEB) will be used for exotic cases to suppress background.
It will use laser ionisation for both measurement and purification.



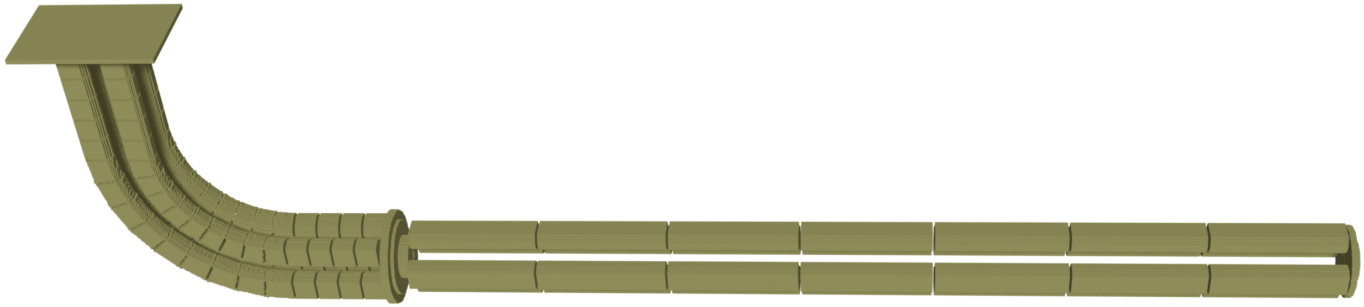
MARA-LEB

MARA-LEB is of interest in the N=Z region, close to the proton dripline, where no more protons can be added to the nucleus.

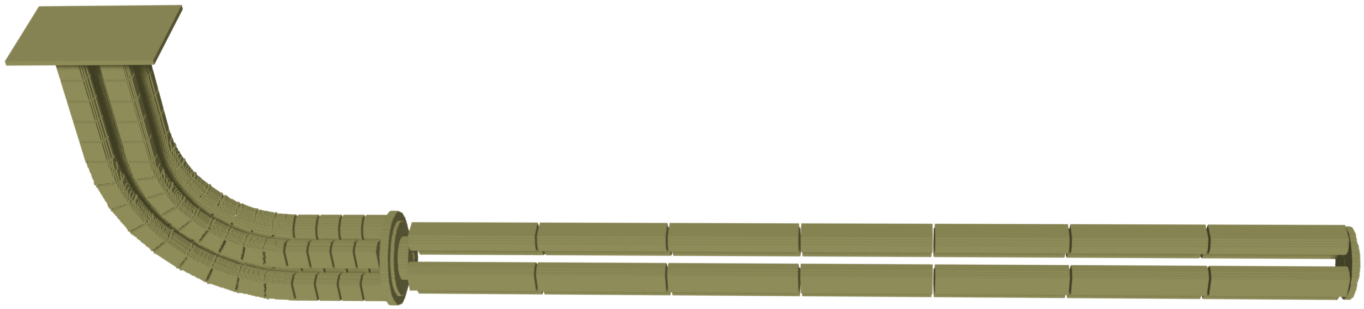
^{80}Zr, ^{94}Ag and ^{100}Sn and their neighbours are of particular interest.

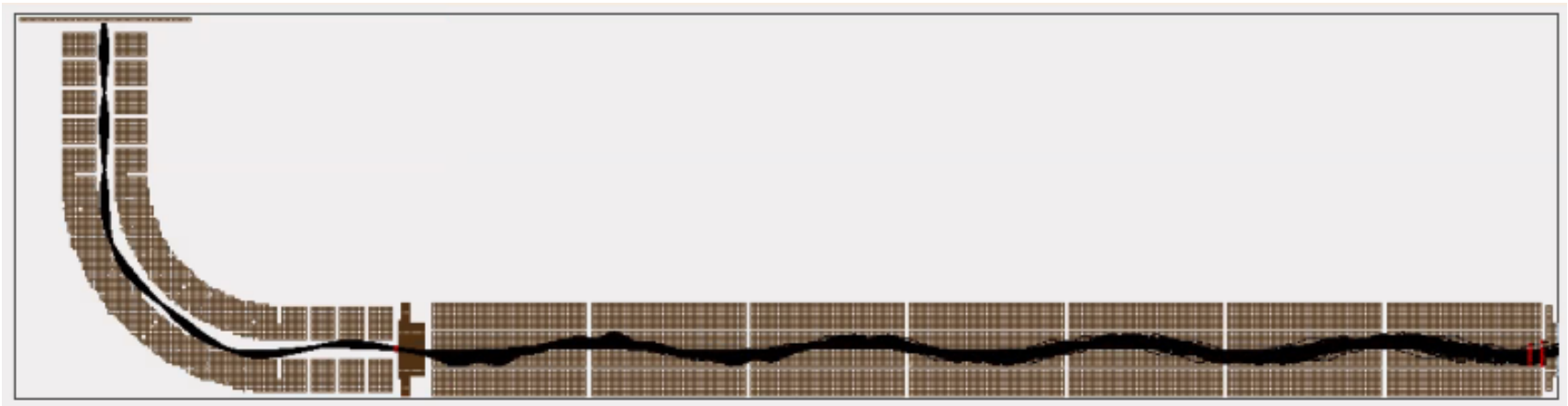


Simulations - Ion Transport System



Simulations - Ion Transport System





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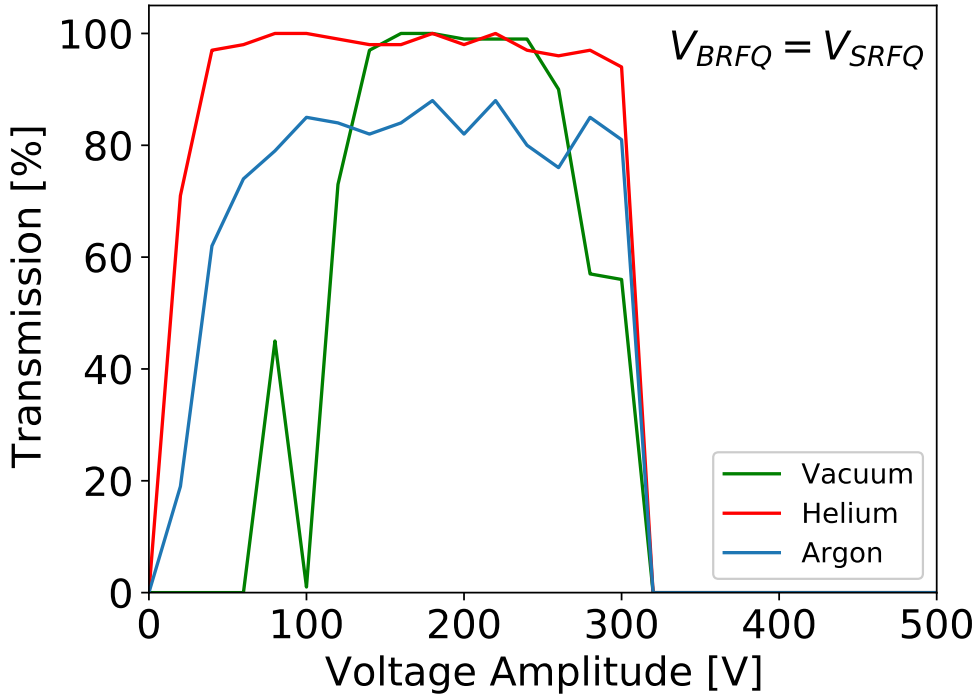

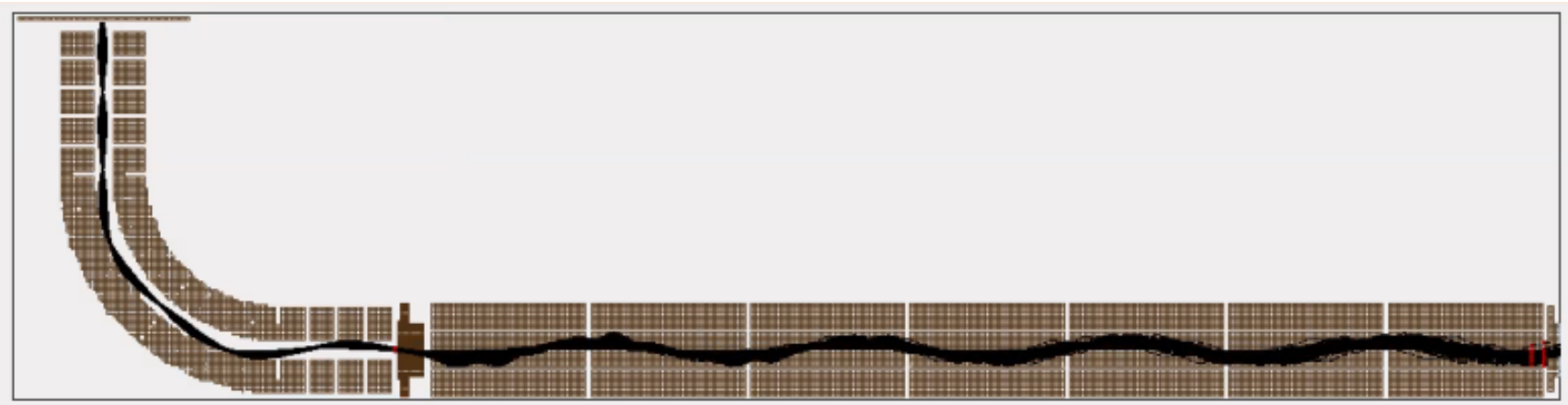

SEMF

Society for Multidisciplinary and Fundamental Research

"SEMF aims to establish a pluralistic community of scientists, creatives, academics, artists, students, intellectuals and, generally, enthusiasts united under the common goal of delving deeper into fundamental questions."

`http://semf.org.es`