



EURO LABS

EUROPEAN LABORATORIES
FOR ACCELERATOR
BASED SCIENCES

Jeremie Dudouet, IP2I,
Adrien Matta, LPC Caen

25-29 November 2024



UNIVERSITÉ
CAEN
NORMANDIE

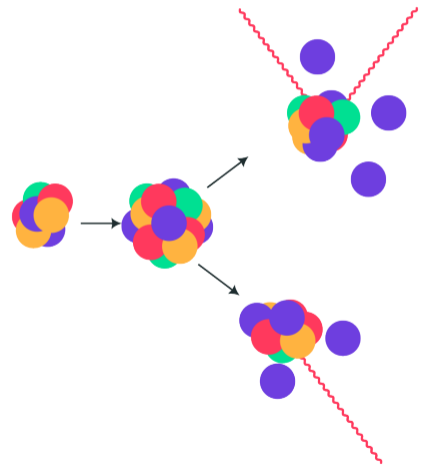
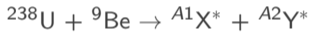


Normandie Université

Physics case 1 : AGATA-VAMOS

Fission induced reaction

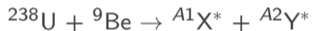
- Initial Reaction:



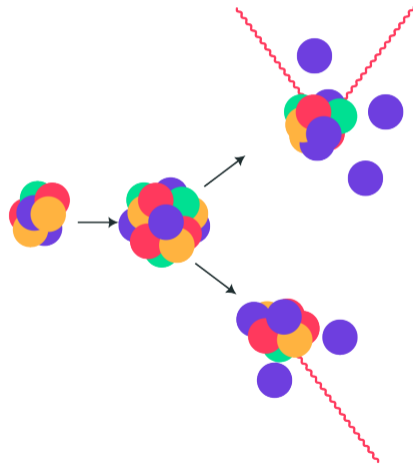
Physics case 1 : AGATA-VAMOS

Fission induced reaction

- Initial Reaction:



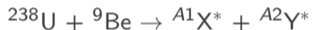
- Neutron Evaporation:



Physics case 1 : AGATA-VAMOS

Fission induced reaction

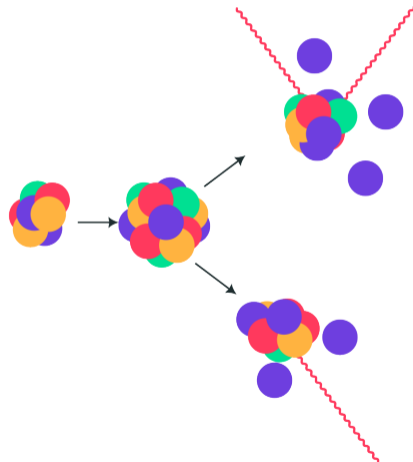
- Initial Reaction:



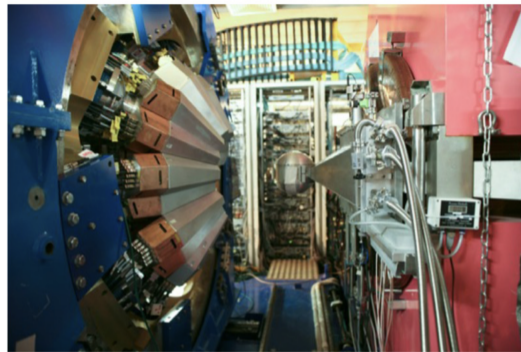
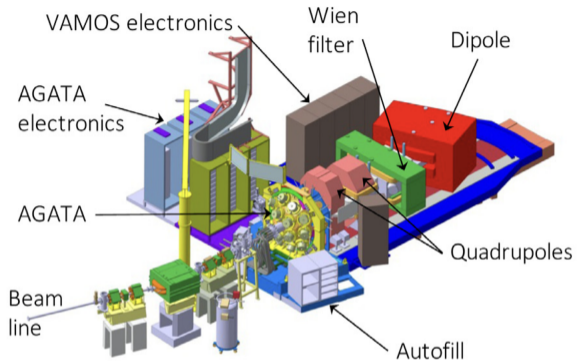
- Neutron Evaporation:



- Deexcitation:



Detection setup: AGATA-VAMOS



What we detect

Fragment:

- A and Z
- θ, ϕ, β

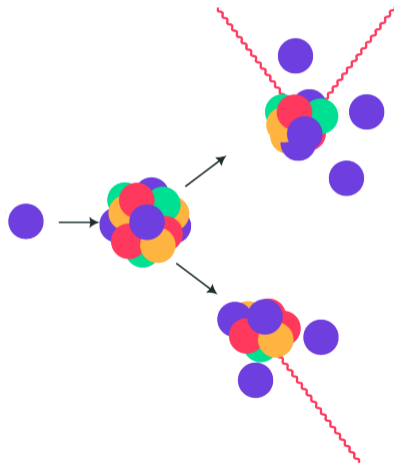
Gamma:

- γ energy
- Interaction position
- Multiplicity 1 only

Physics case 2 : EXILL

Neutron induced Fission

- Initial Reaction:



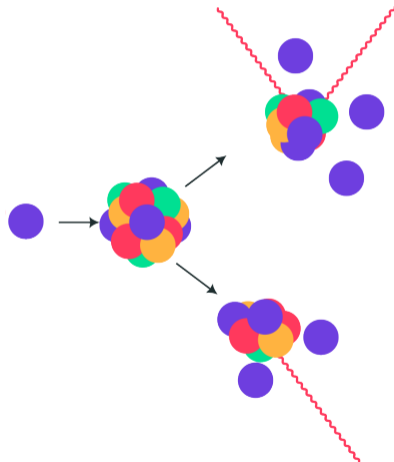
Physics case 2 : EXILL

Neutron induced Fission

- Initial Reaction:



- Neutron Evaporation:



Physics case 2 : EXILL

Neutron induced Fission

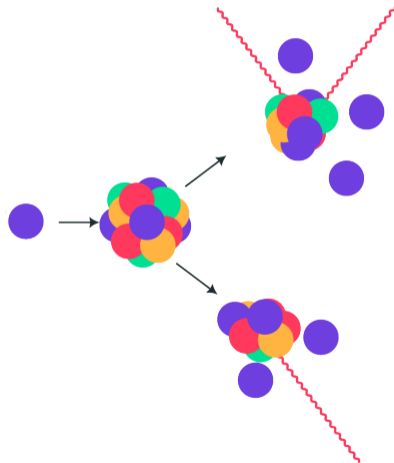
- Initial Reaction:



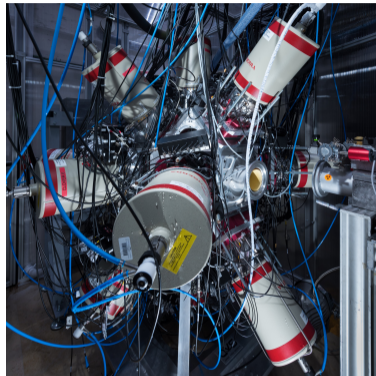
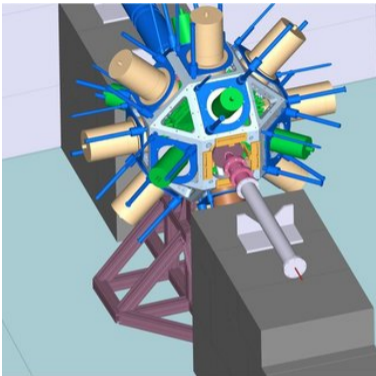
- Neutron Evaporation:



- Deexcitation:



Detection setup: EXILL



What we detect

Fragment:

- Unknown

Gamma:

- Multi Hit energy

AGATA: Adrien Matta

Fork Bandits

- Raúl Varela Ferrando
- Andi Messingschlager
- Ana Sofia Sousa
- Charlie Paxman

Issue Muggers

- Adrian Moraru
- Angelos Laoutaris
- Vitor Jose Shen
- Jyoti Pandey
- Felipe Demigio

EXILL: Jeremie Dudouet

Merge Pirates

- Quentin Fable
- Cristian Costache
- Carolina Felgueiras
- Maria Brezeanu
- Saeid Masoumi

Commit Looters

- Vicente García Távora
- Margarida Paulino
- Vlad Vasilca
- Suraj Kumar Singh
- Nicolas Hubbard

Physics goals

- Produce Histogram for a given nuclei
- Check Data vs Known Gamma ray
- Found new transitions in ^{90}Br , ^{96}Kr , ^{102}Sr , ^{97}Kr

Skill goals

- Basics of collaborative programming
- Efficient workflow
- Reproducible analysis

Dataset

- Prepared by J. Dudouet (IP2I)
- GEF+TKEN+SToGS (Geant4)
- nndc decay + some extra physics :D

Repo address

- gitlab.in2p3.fr/eurolabs-os-school
- gitlab.in2p3.fr/eurolabs-os-school/teaching/project-zero

Micromamba setup

```
"SHELL" < (curl -L micro.mamba.pm/install.sh)
```

```
curl "https://gitlab.in2p3.fr/lpc-dev/misc-examples/micromamba/-/raw/main/root_py11.yaml?ref_type=heads" > root_py11.yaml  
micromamba env create -f root_py11.yaml
```