

A search for a new type of radioactivity : the double alpha decay

Journée Nouveaux Entrants @IJCLab
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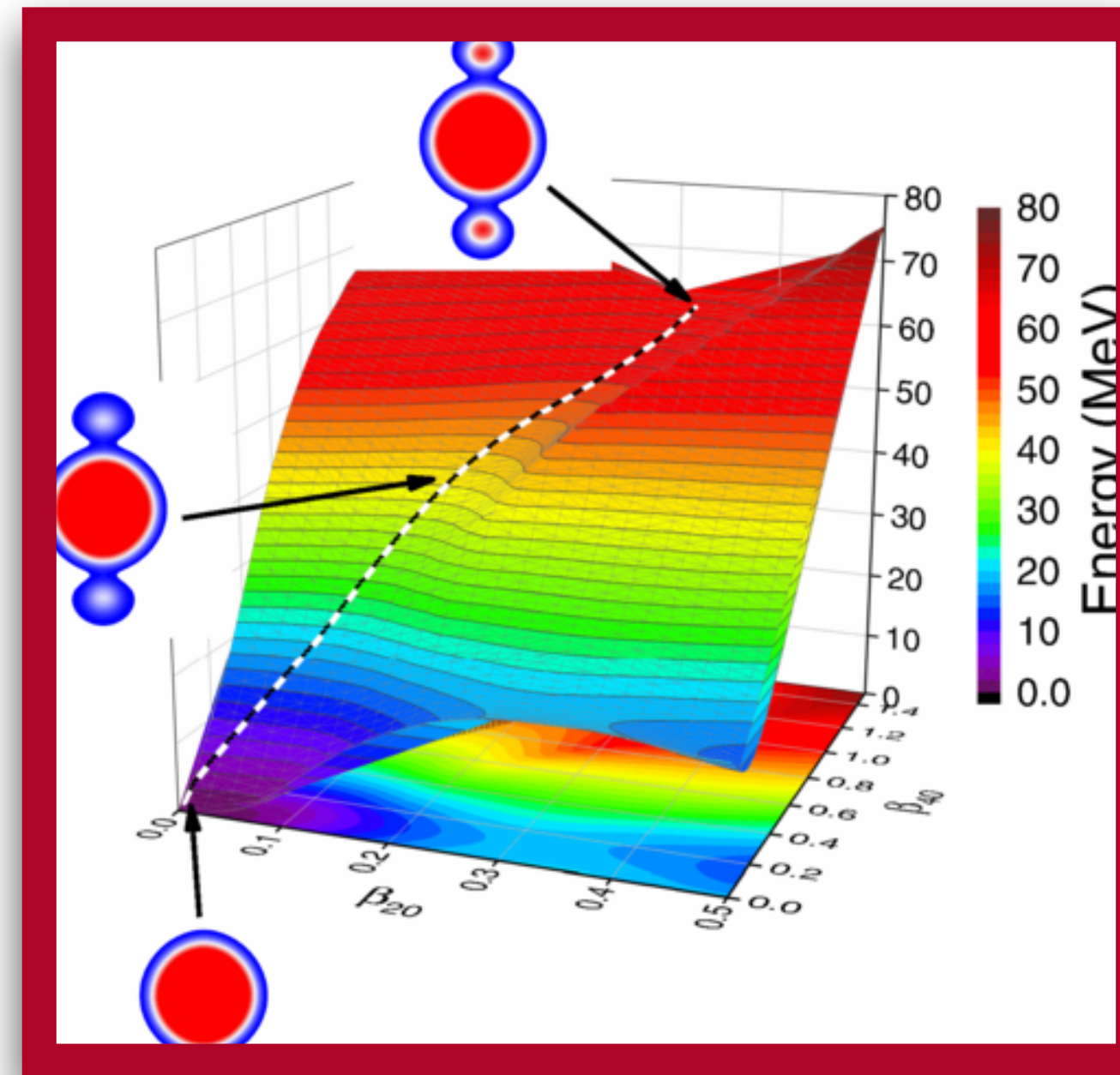
Double alpha decay

Theoretical insights & perspectives

- Framework : Covariant Energy Density Functional + collective inertial masses (ATDHFB)
- Can compute half time for **alpha** and cluster decay
- ... And **double alpha decay**

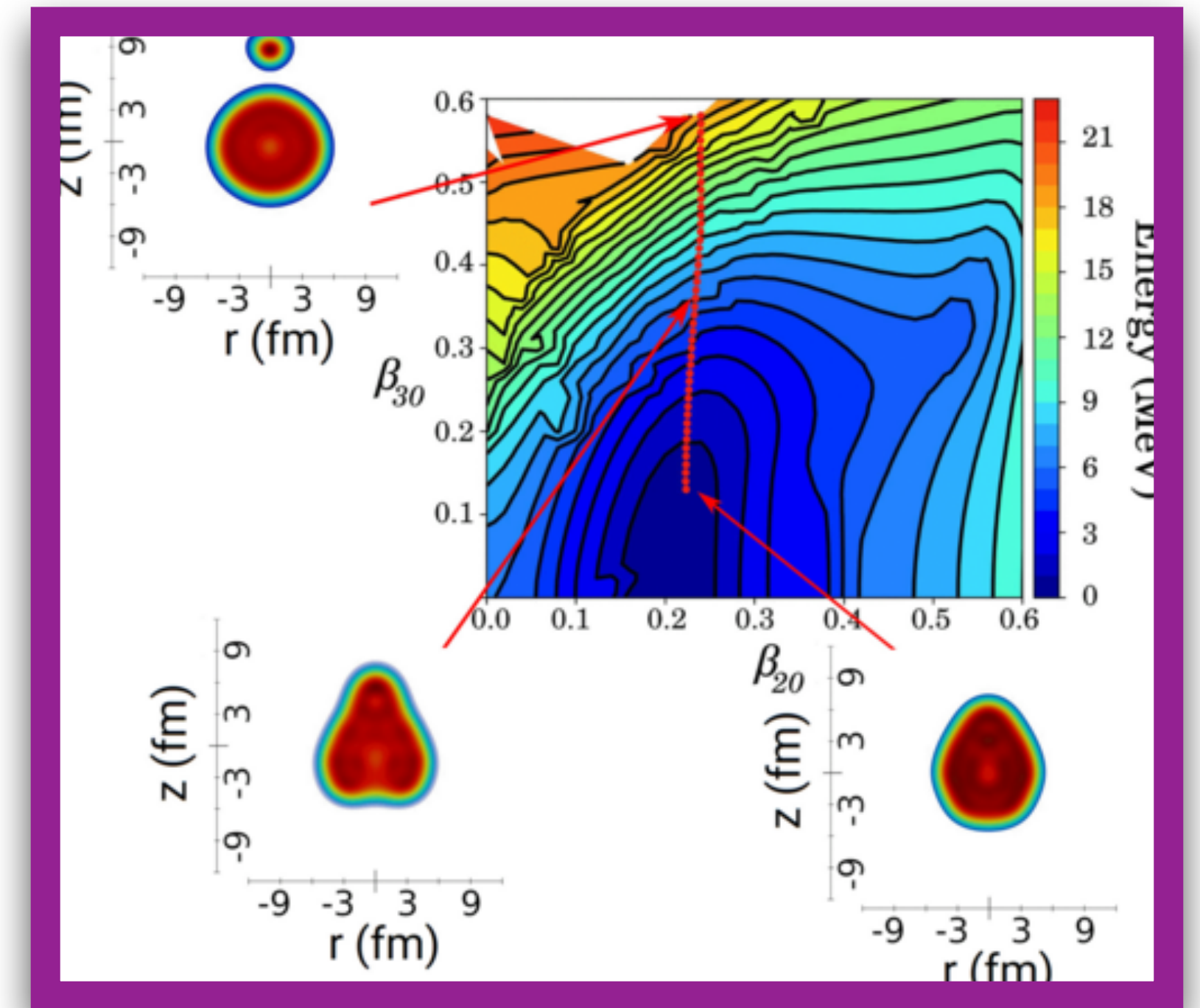


My work : **improve**
the computation of **collective**
inertial masses



Deformation energy surface of ^{224}Ra

Mercier et al. 2021



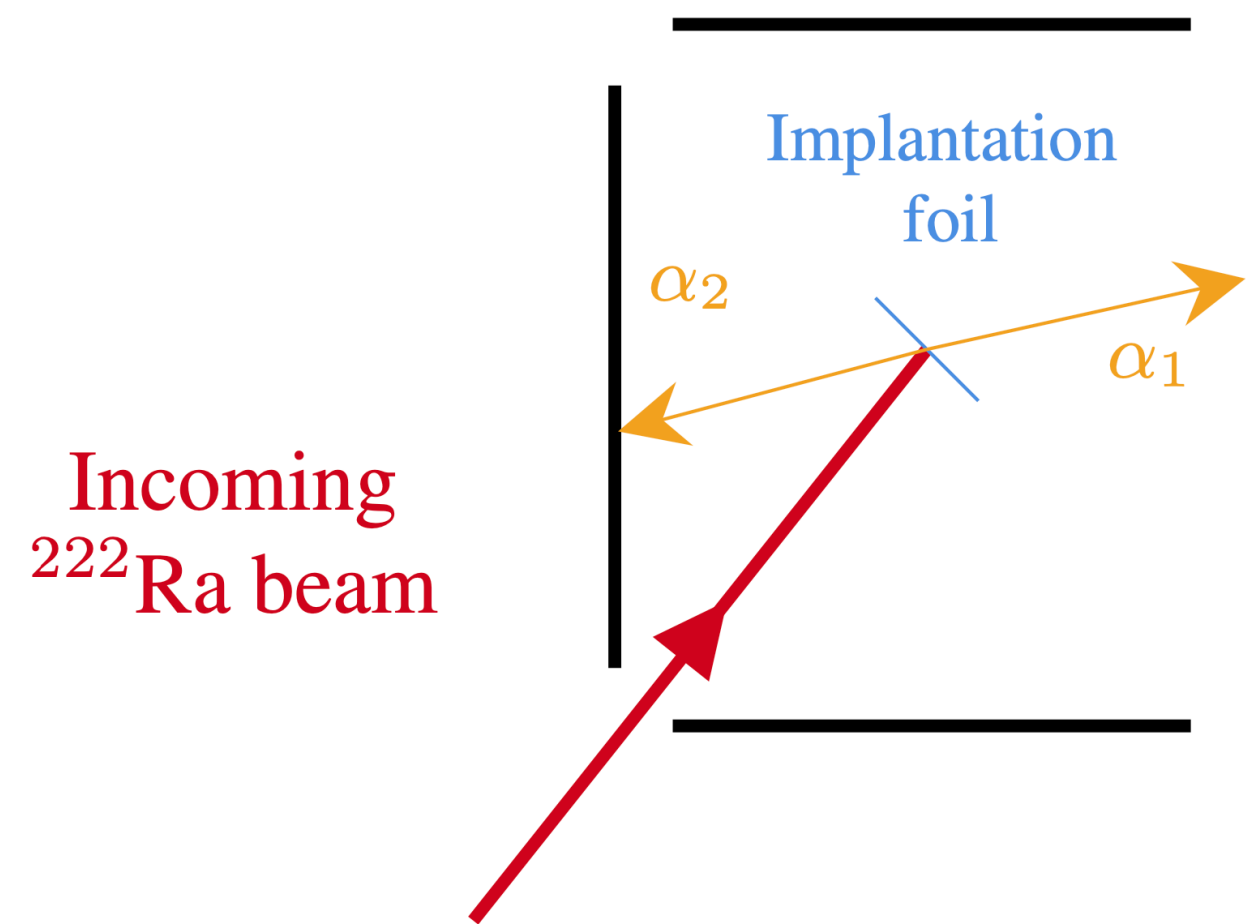
Deformation energy surface of ^{108}Xe

Mercier et al. 2020

Other interests : pseudospin symmetry,
functional renormalisation group

Double alpha decay

Experimental confirmation ... ?

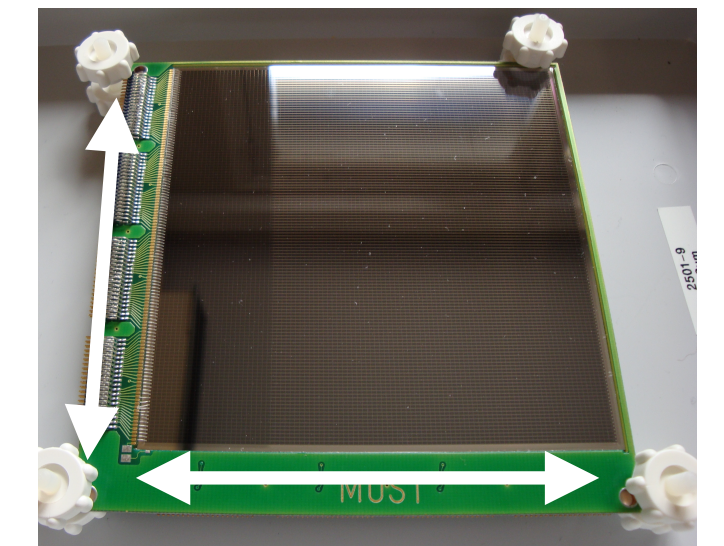


Si detectors

- 2 alpha particles emitted back-to-back
- 4 stripped Silicon 2D detectors
- Branching ratio with alpha decay $\sim 10^{-8}$

Detection chain

10 cm x 10 cm



Beam production at Isolde (CERN)

- 1 week measurement
- $\sim 2 \cdot 10^4$ pps beam \rightarrow ~ 85 expected events



About me

L'Écume des jours
- Le Lucernaire, Paris

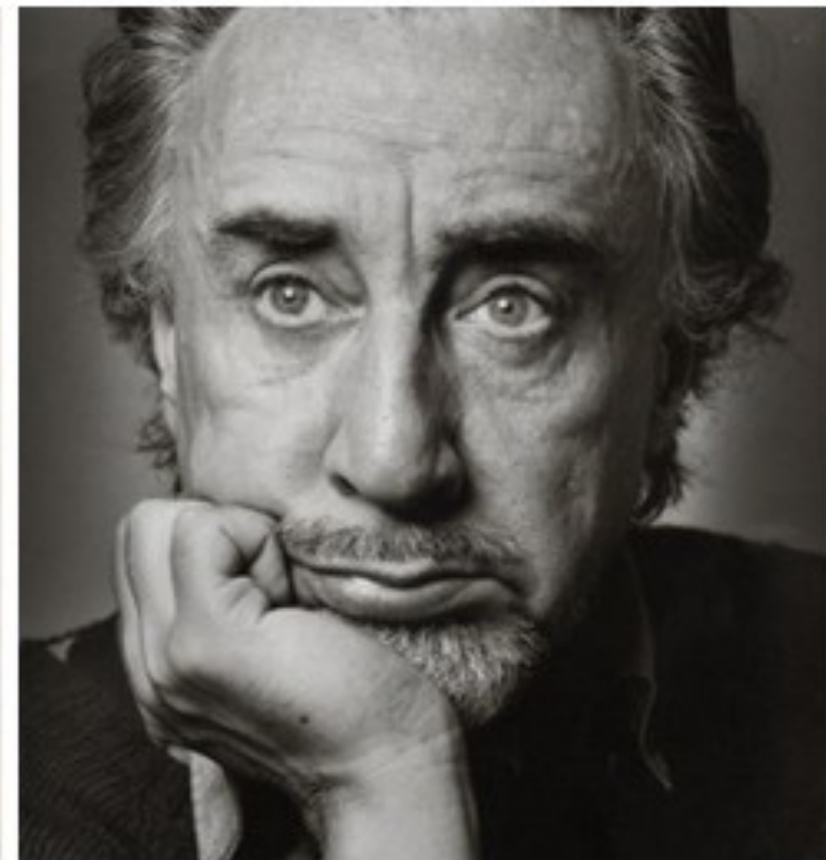
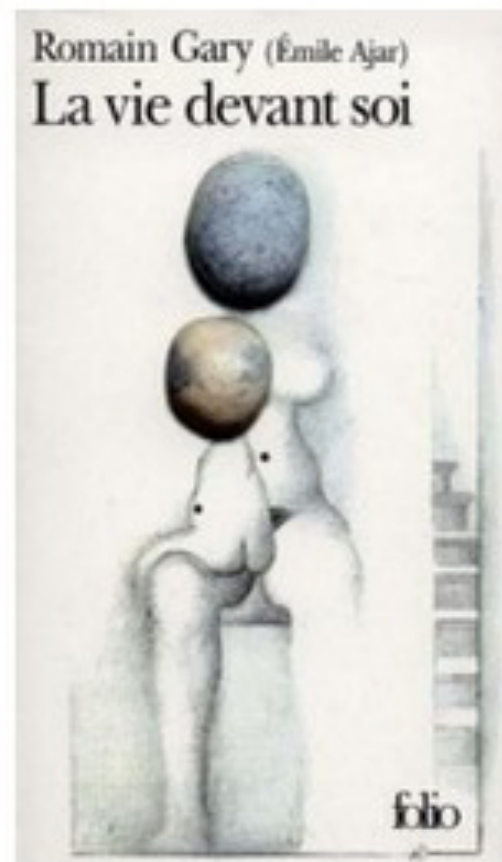
Theatre



French boxing - « Savate »



Movies



Reading



- Graduated from ENS Paris-Saclay
- M2 ICFP Theoretical Physics