



Chloë Hebborn (IJCLab, Orsay, France)

Pan-American Few-body Physics Boot Camp

Who am I?



Born in Belgium
(the country of Belgian fries)

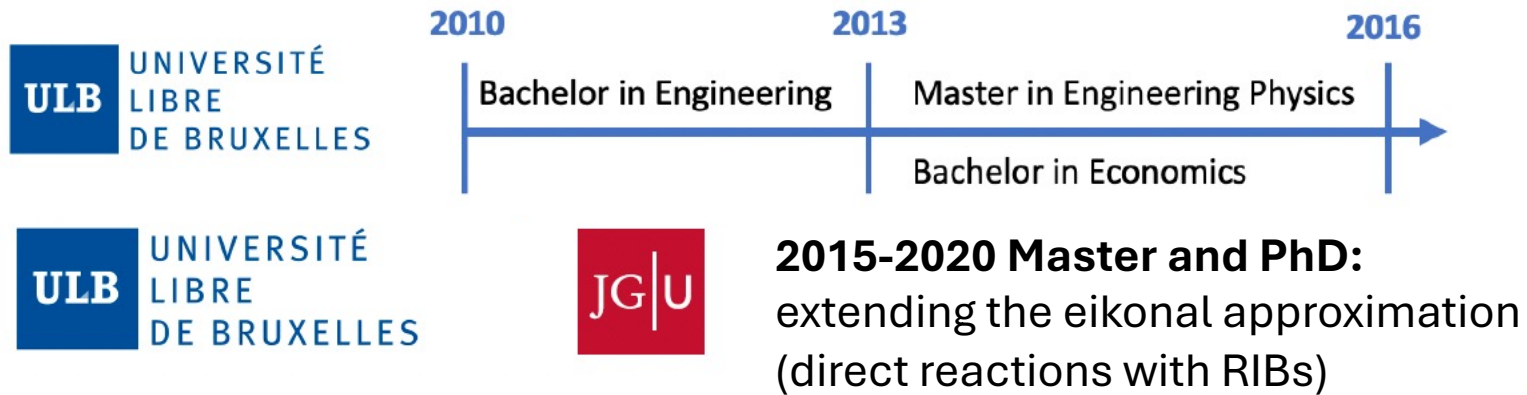


Hobbies: hiking, Travelling, cycling, being outdoors!

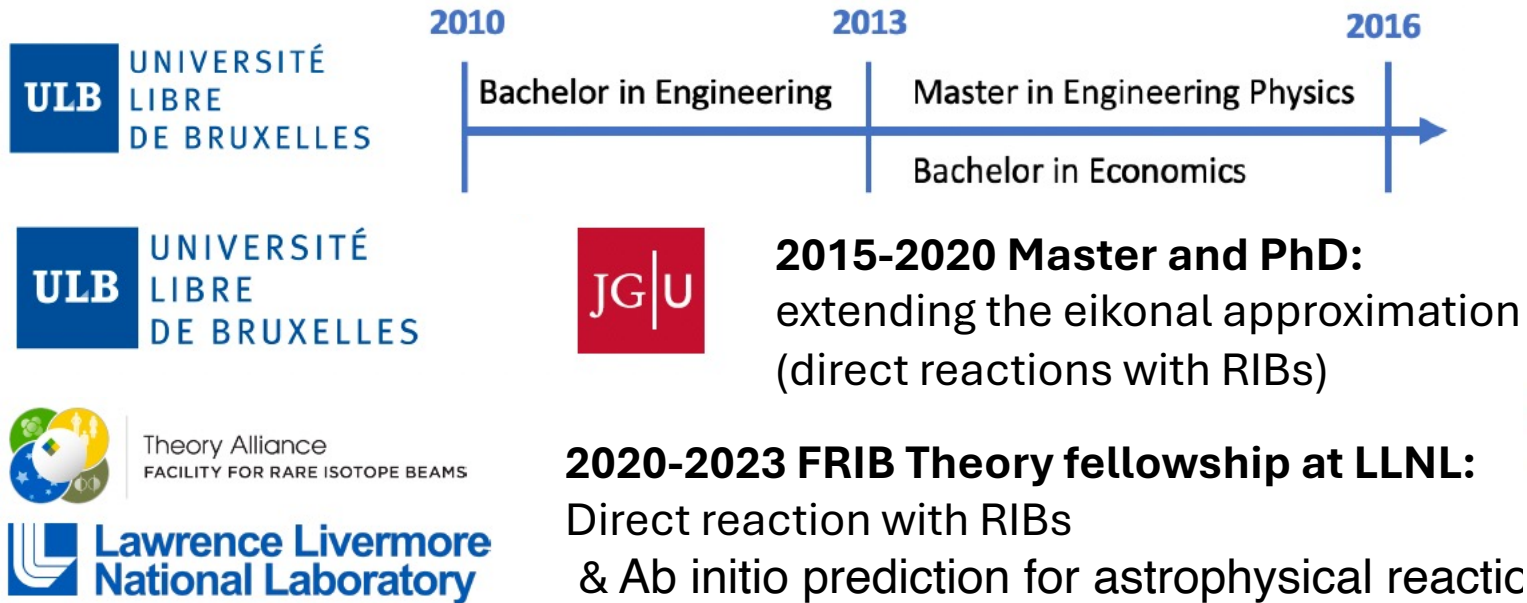
From Brussels to Mainz, to the US, back to France



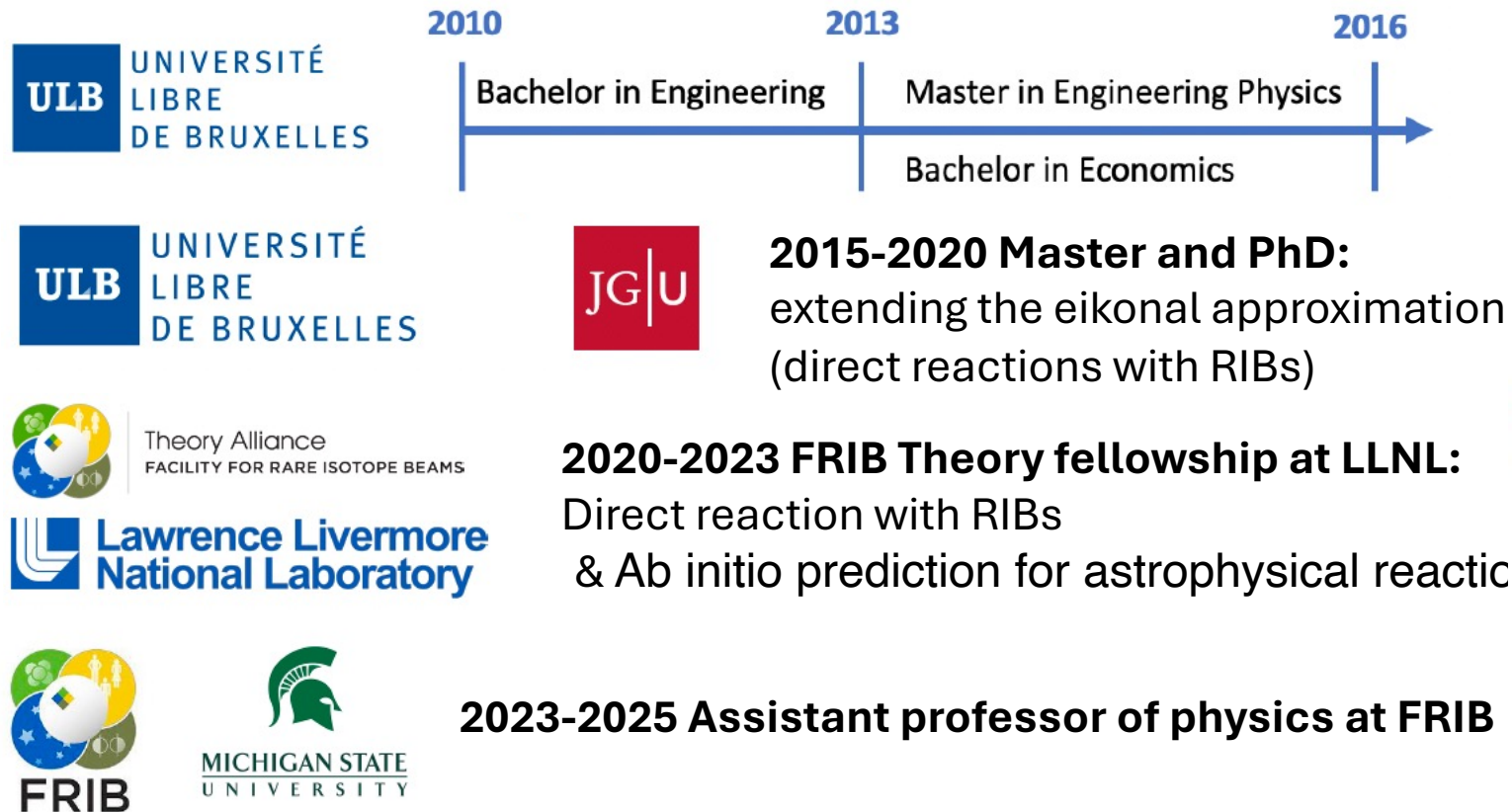
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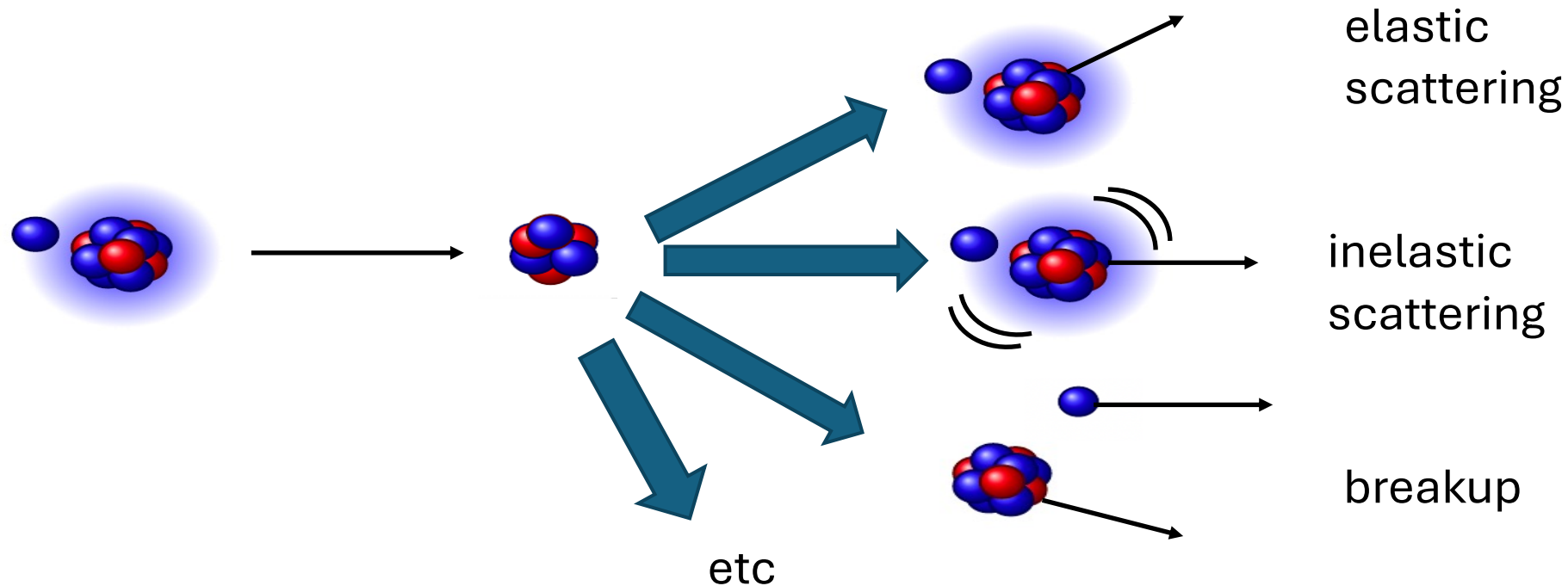


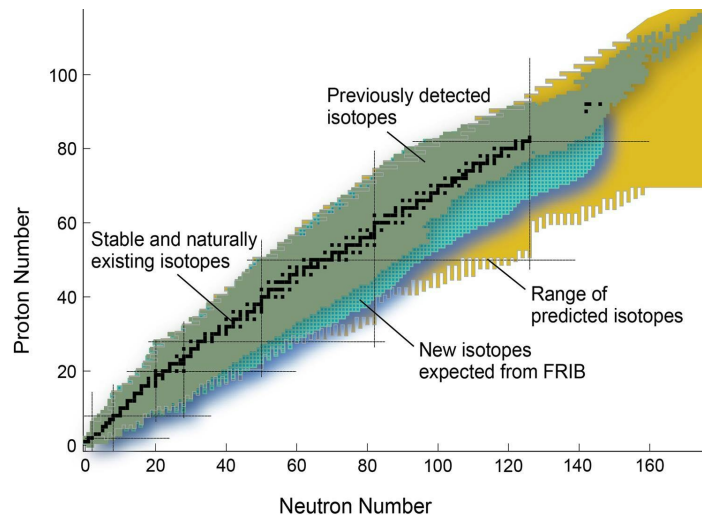
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My research interests nuclear reactions

Nuclear reactions are processes in which two nuclear species collide, allowing them to interact, exchanging matter, energy or momentum

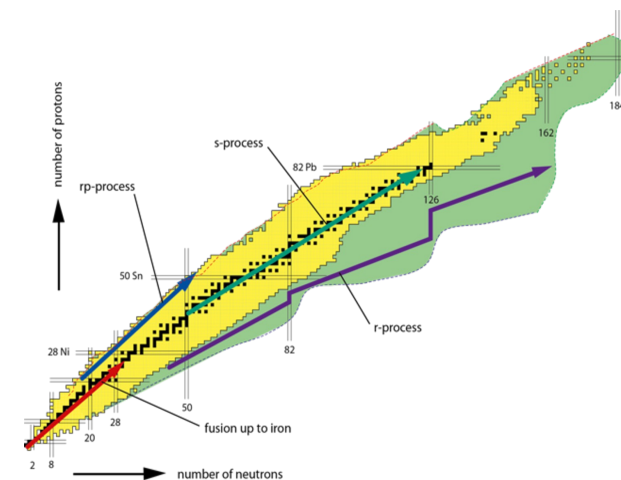




Studying properties of unstable nuclei

(Source: FRIB)

Why do I care about nuclear reactions?

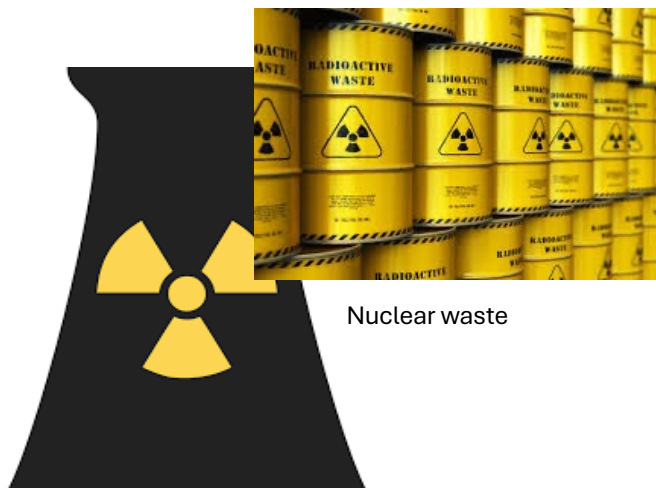


Nuclear astrophysics

(source GSI)



Stockpile stewardship (Source: DOE)

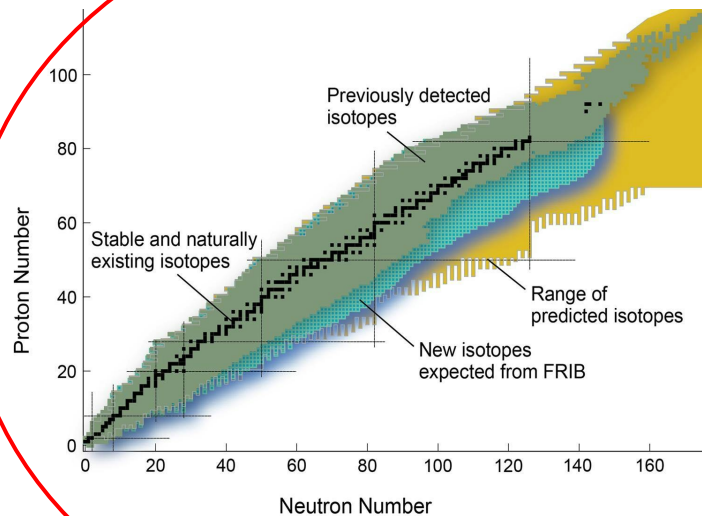


Nuclear waste

Nuclear energy



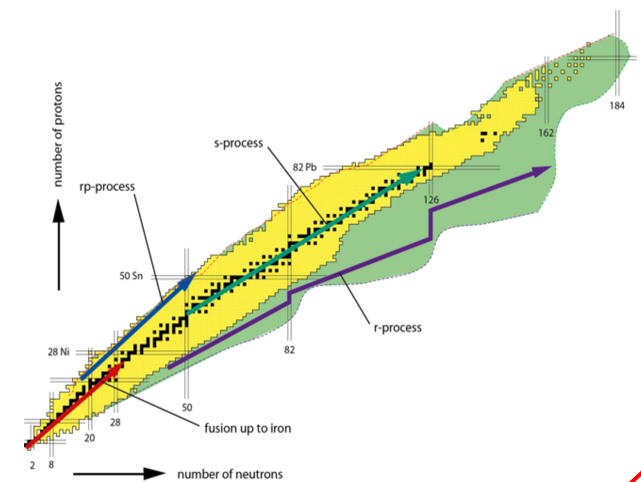
Nuclear medicine



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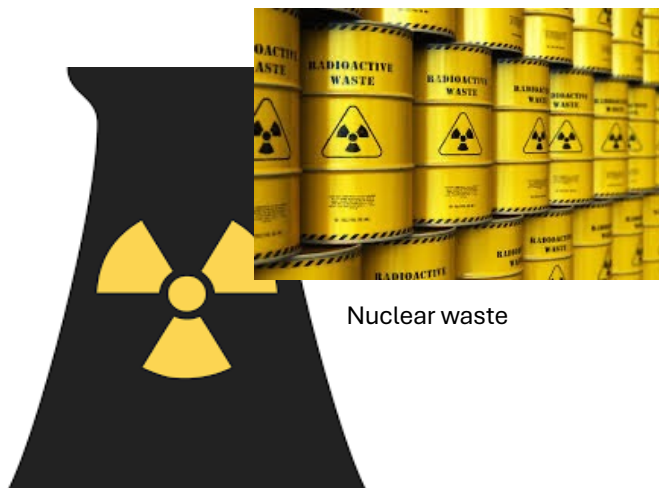


Nuclear astrophysics

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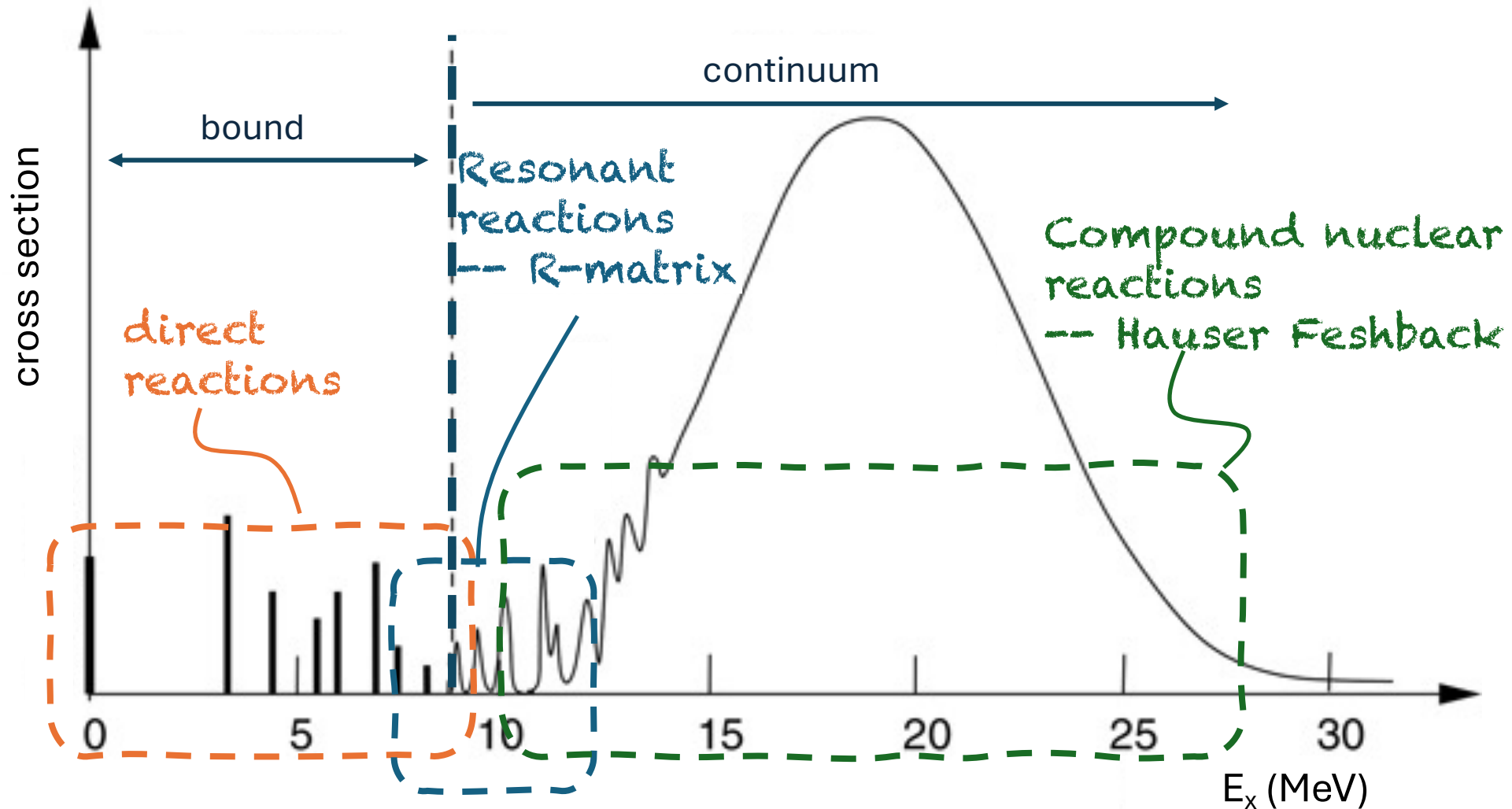
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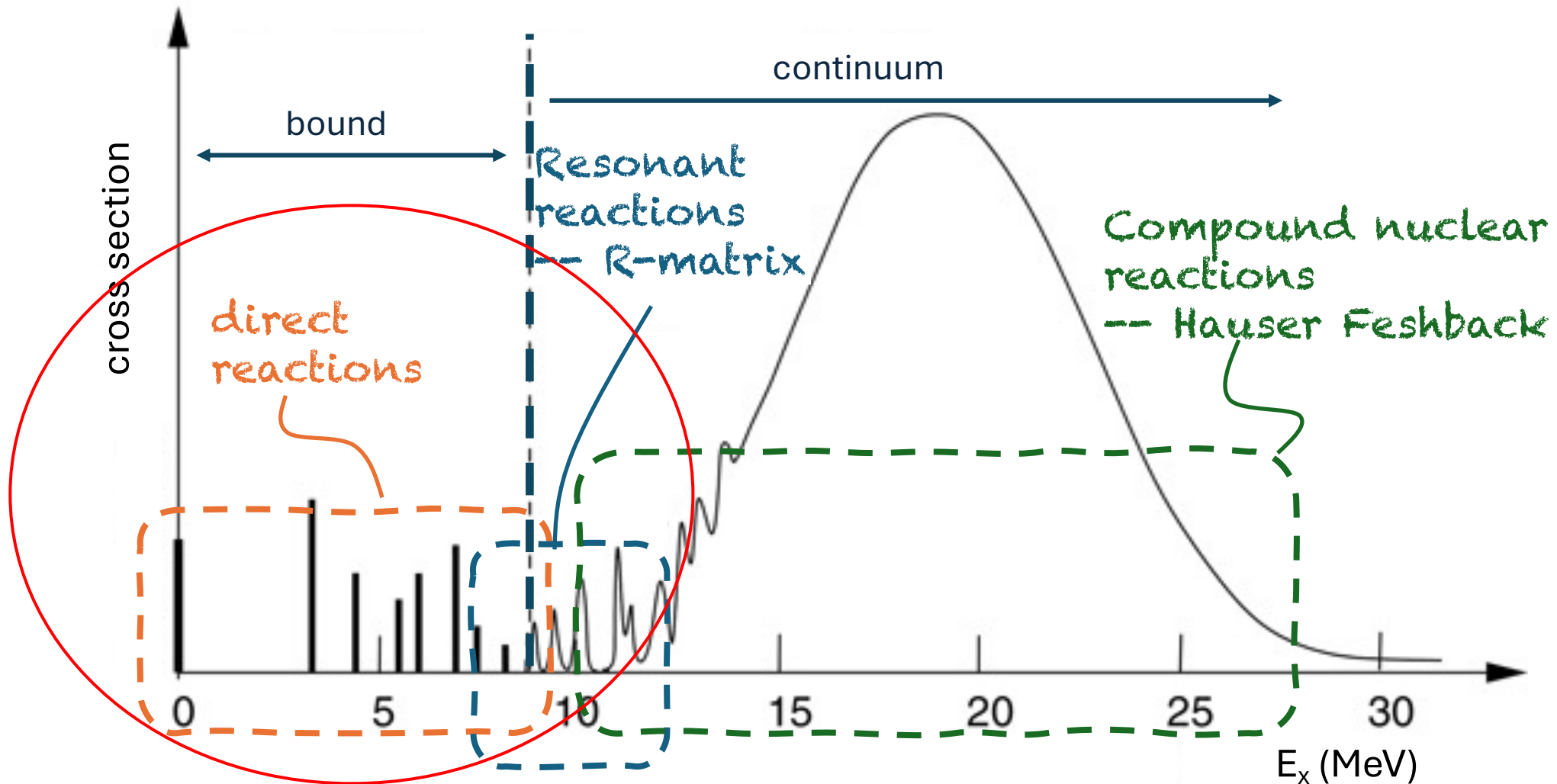
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Which reaction theories and where?



Slide courtesy of Gregory Potel

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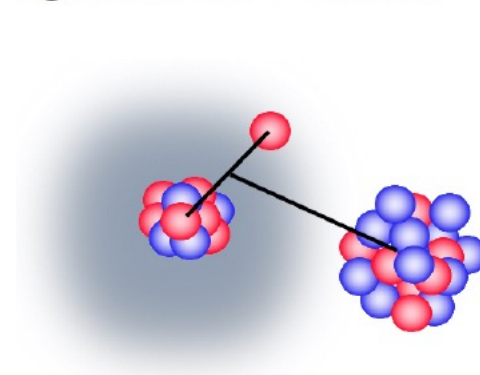
Few-body models of reactions

To make accurate reaction predictions

1) Use an accurate model

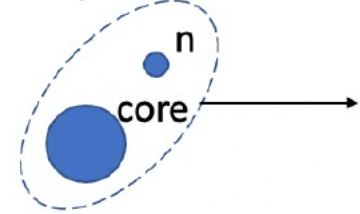
Ab initio vs **few-body**

light nuclei & low E



heavier nuclei & higher E

Projectile



Target

2) Nuclear interactions grounded in the underlying theory

3) Quantify uncertainties of the model & its inputs

My research focus models of reactions

- **Develop an accurate model**

Improvements of few-body models: corrections to the eikonal approximation + extension to 4-body reaction (McGlynn)

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- **Collaborations with experimentalists**

Some useful materials...

Some lectures &
notebook



Useful website for those who do
reaction calculations

