THE THEORY OF PTOLEMY

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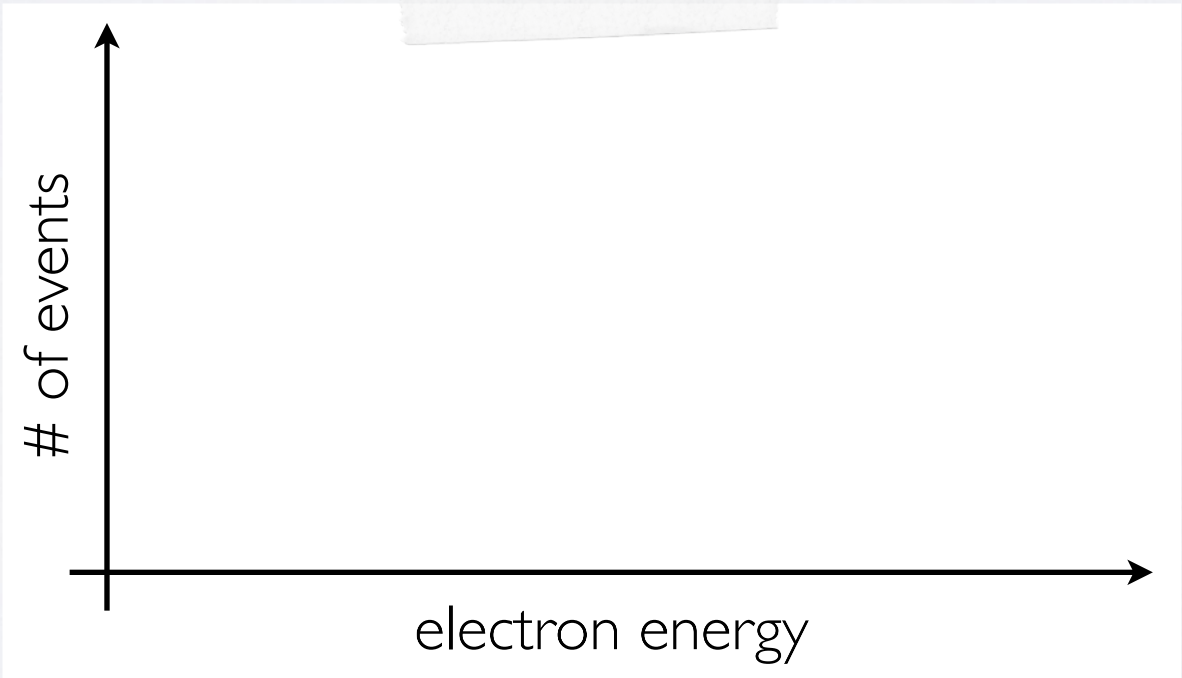

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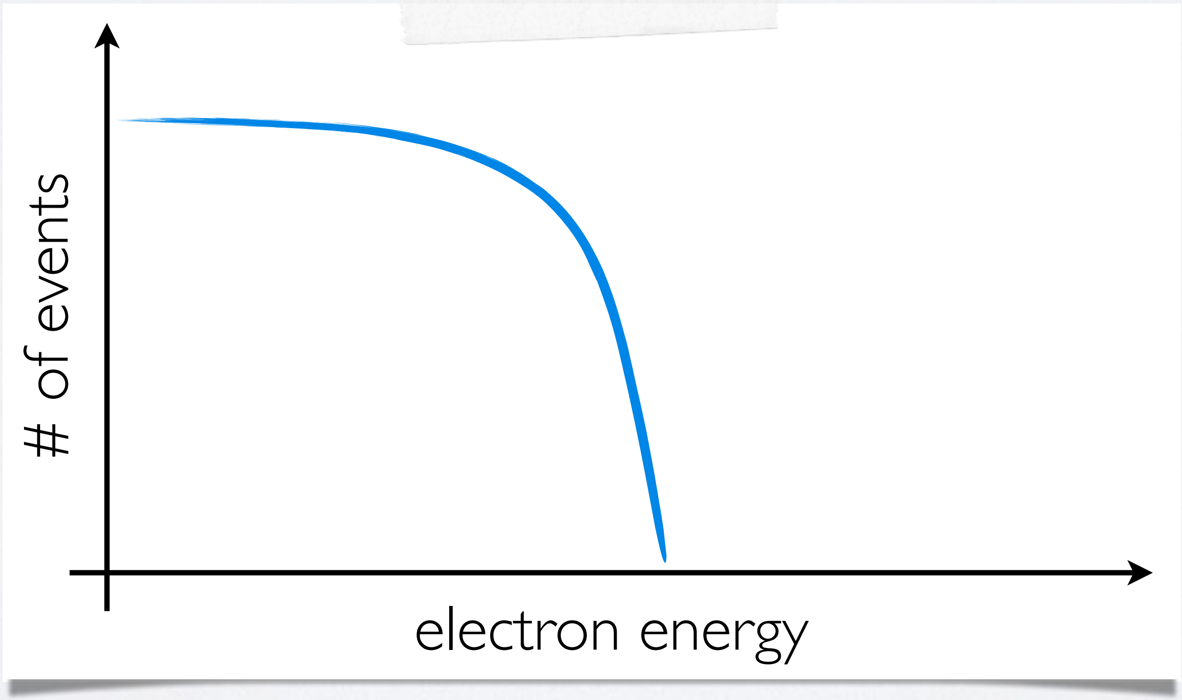

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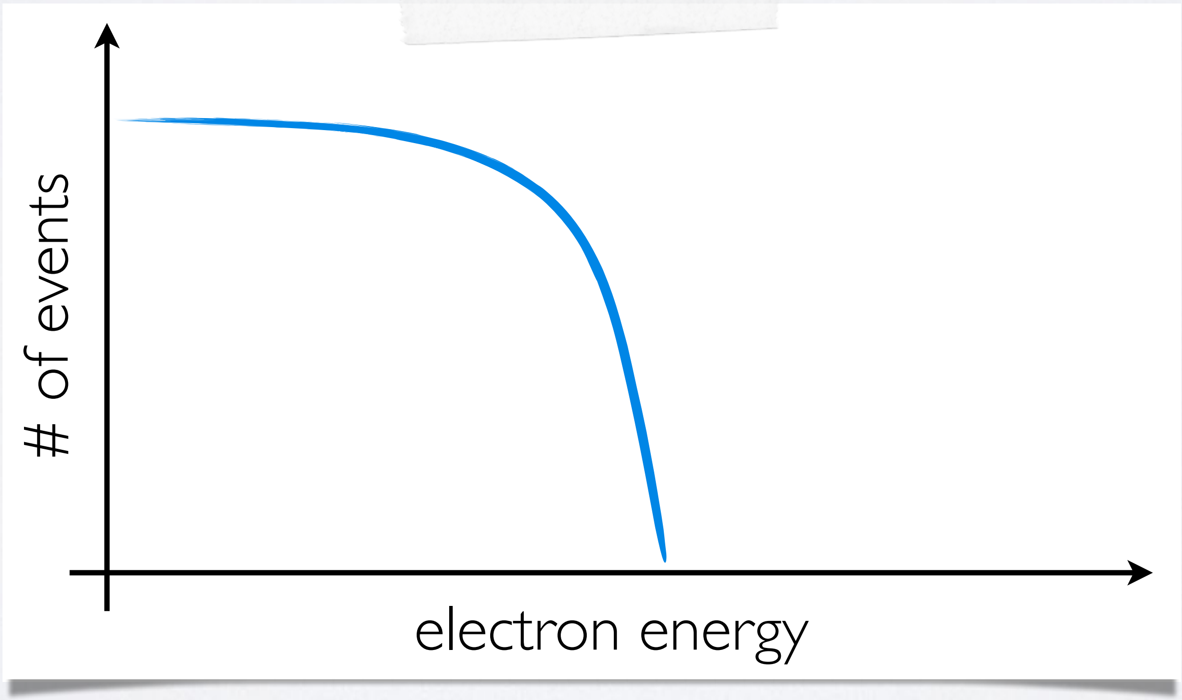

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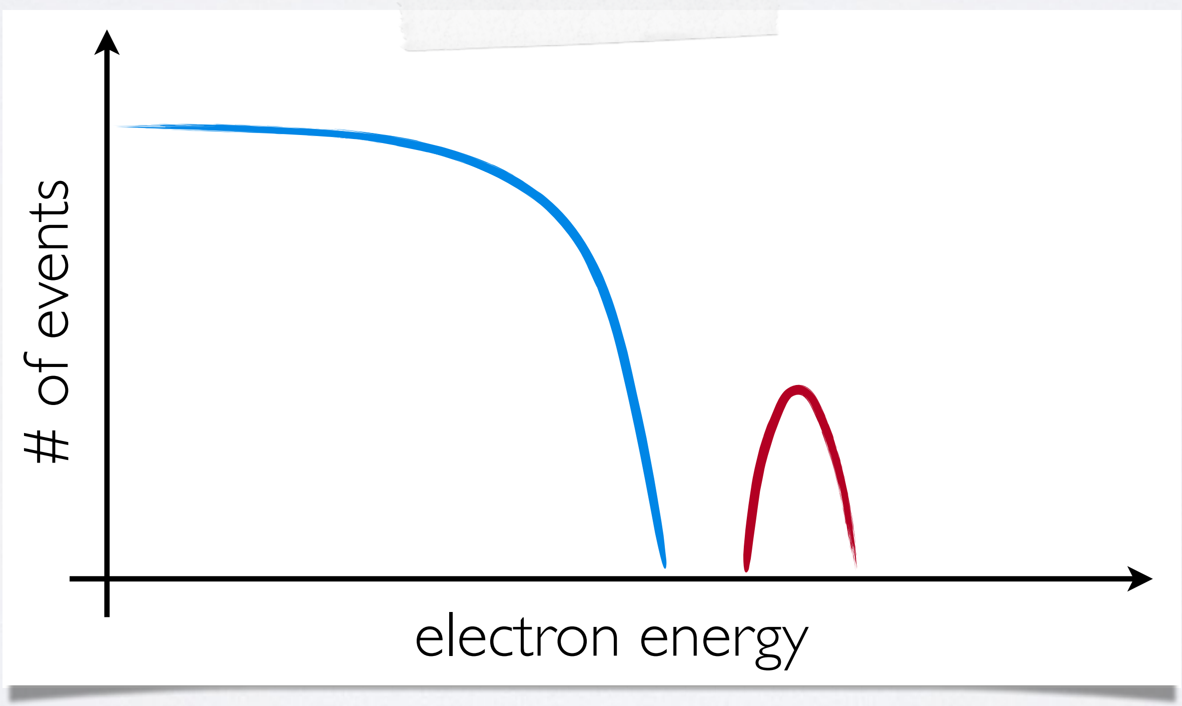

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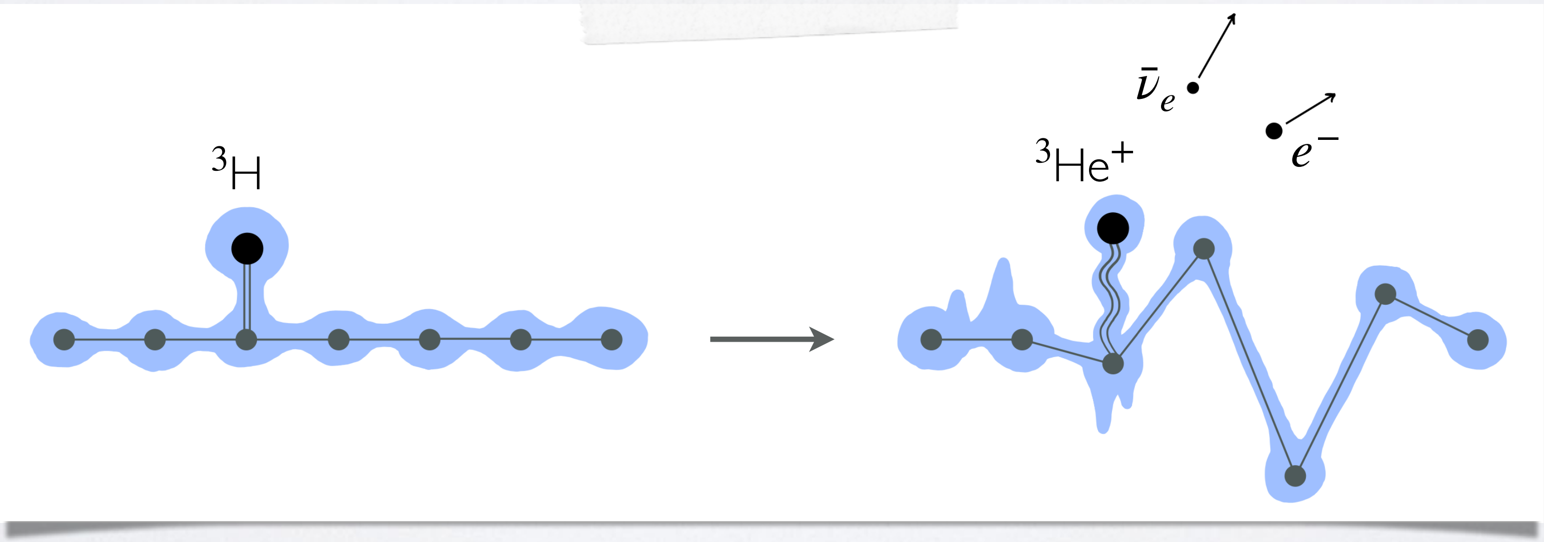

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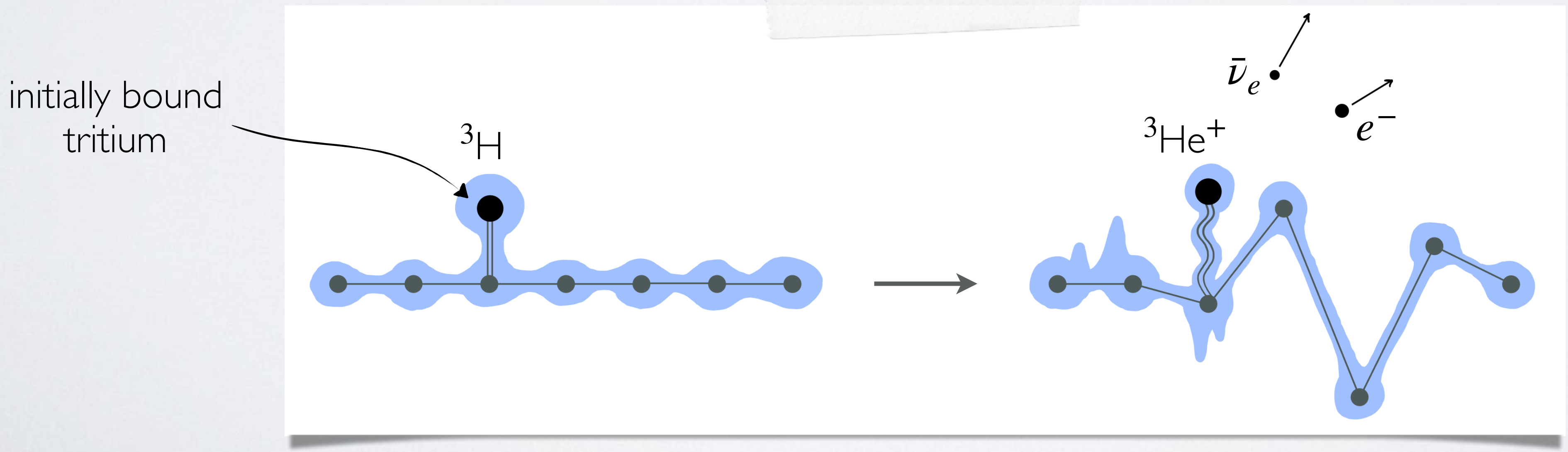

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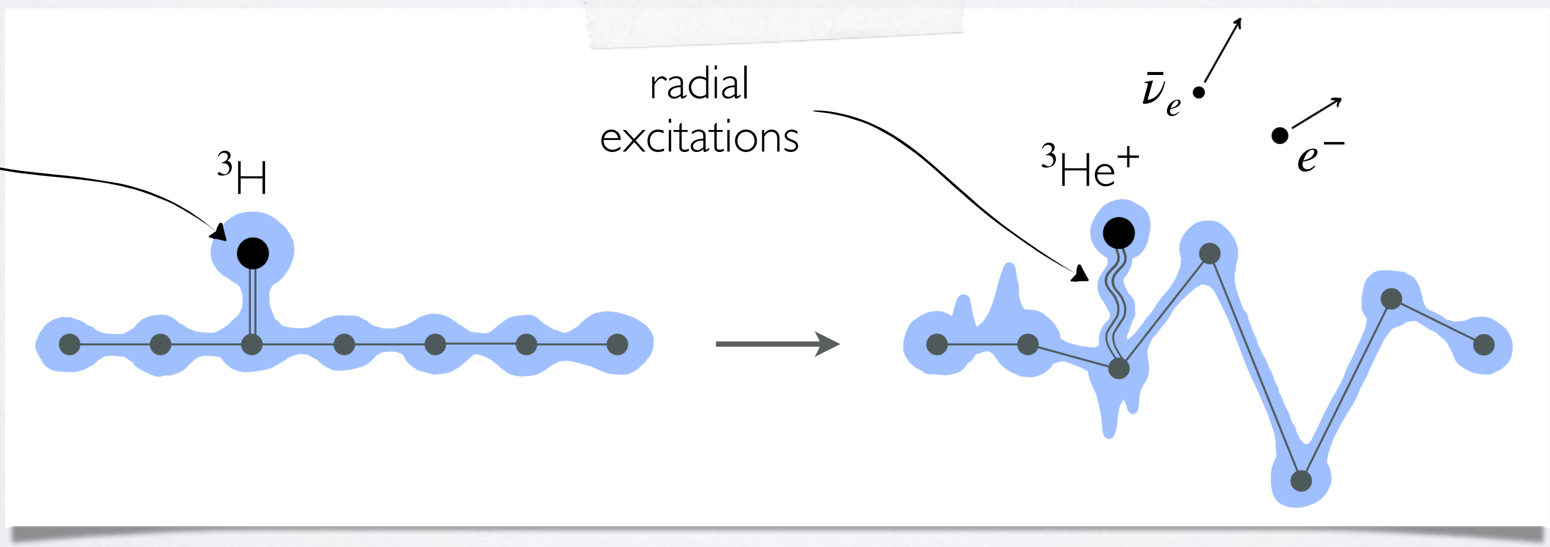

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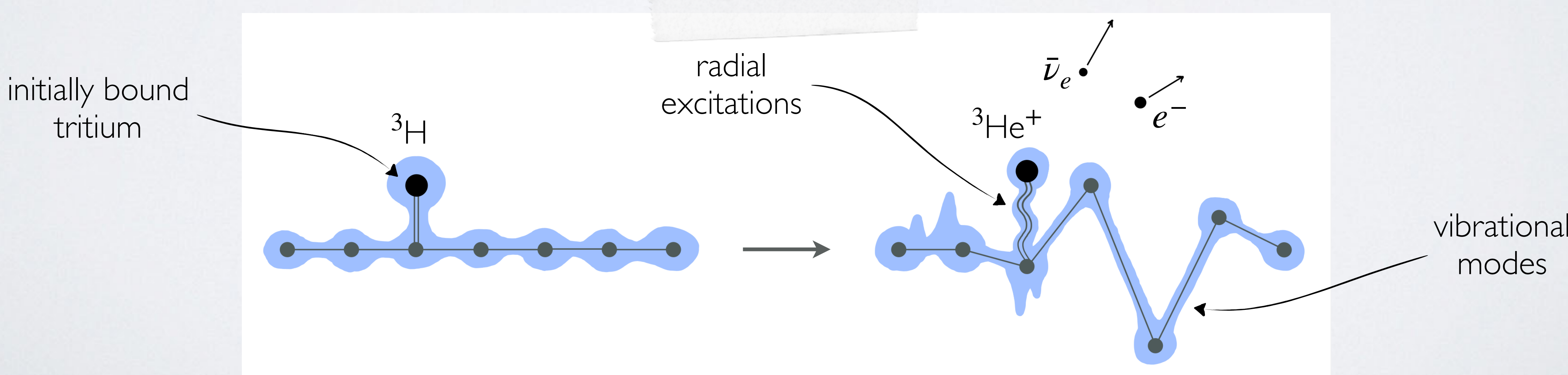

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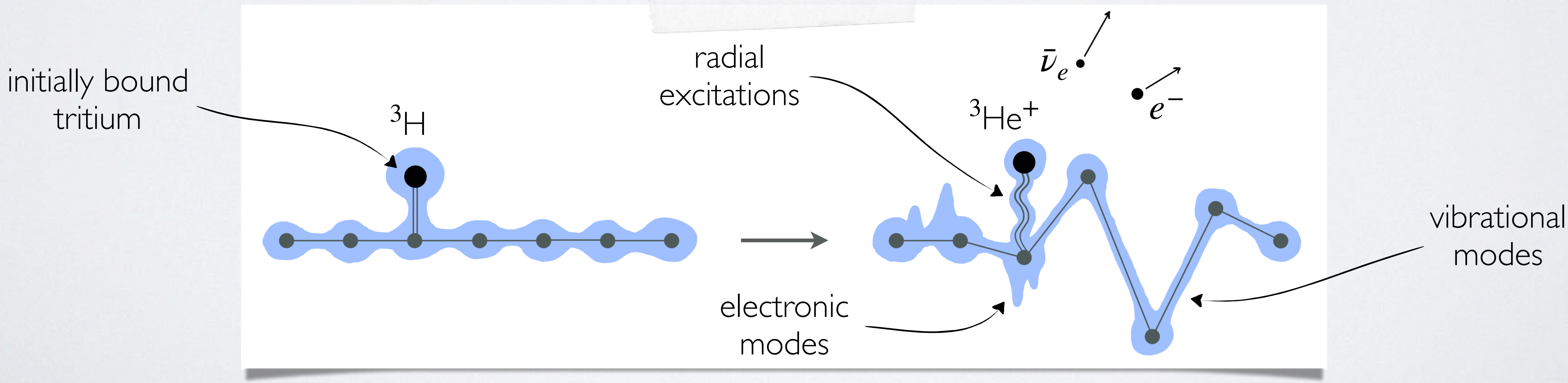

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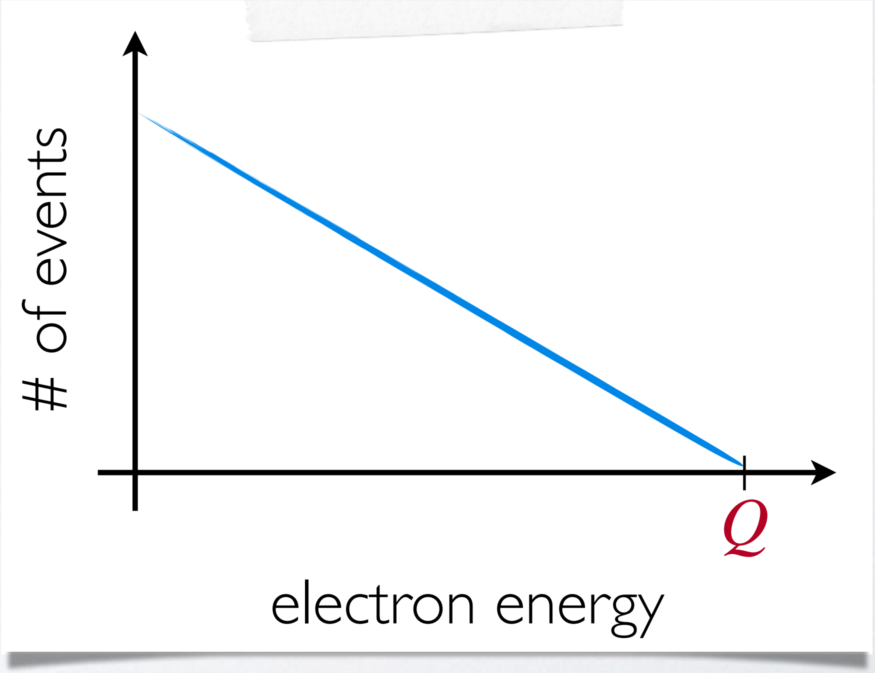

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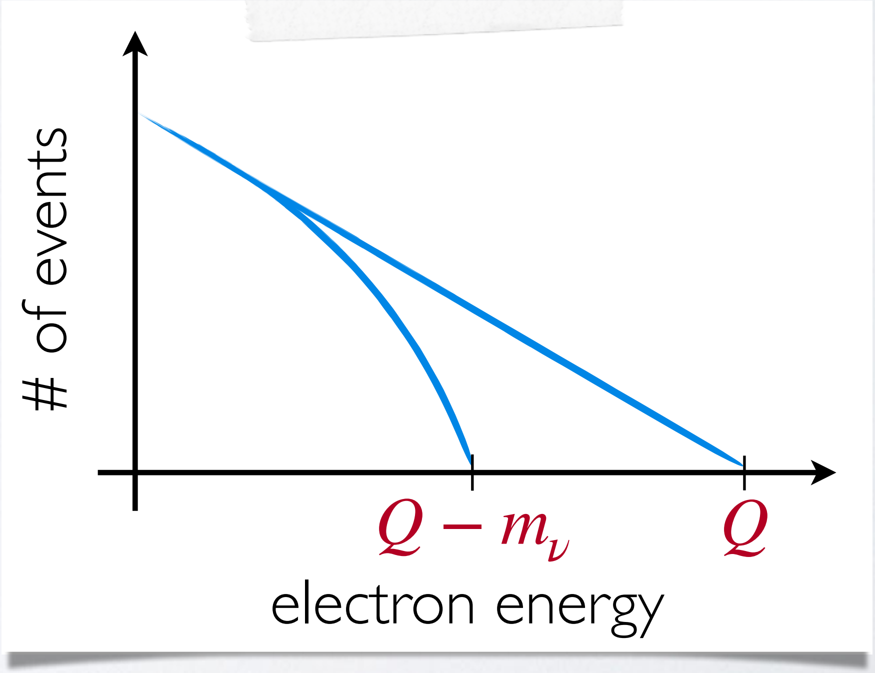

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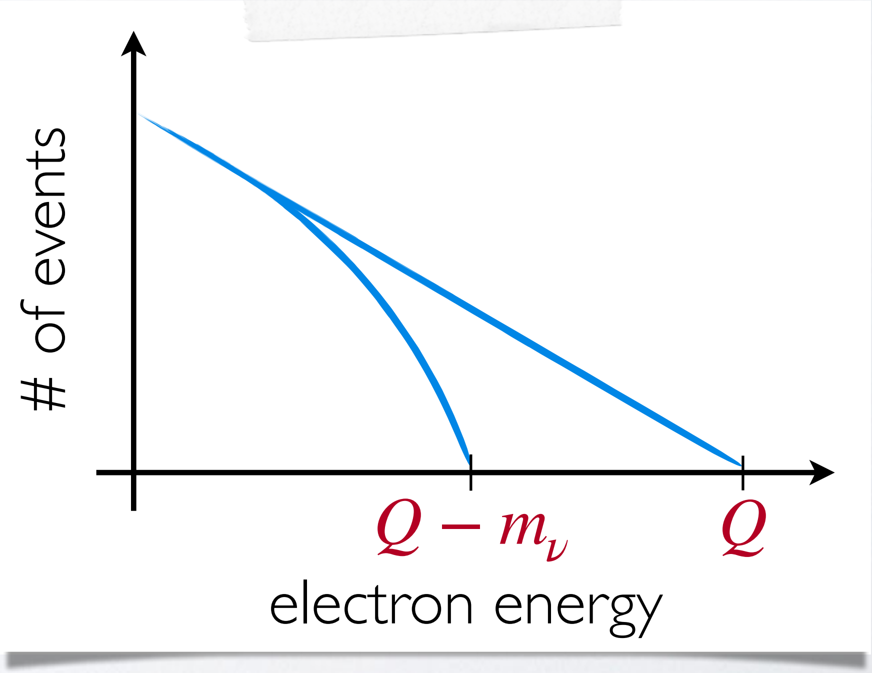
Measure the end-point region

↓

Extract m_ν



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How do we determine these initial and final states?

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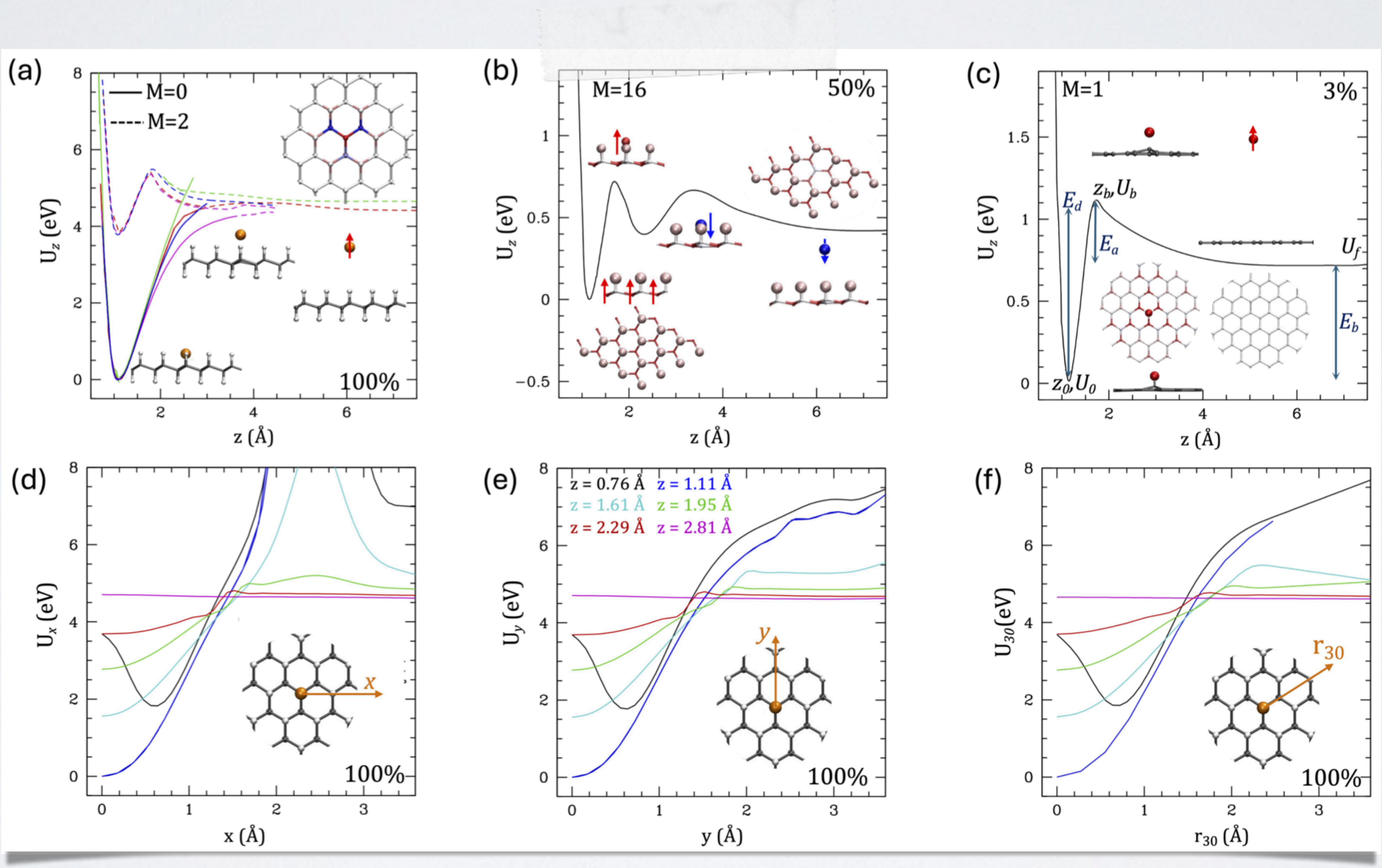

[Casale, **AE**, Menichetti, Tozzi 2504.13259]

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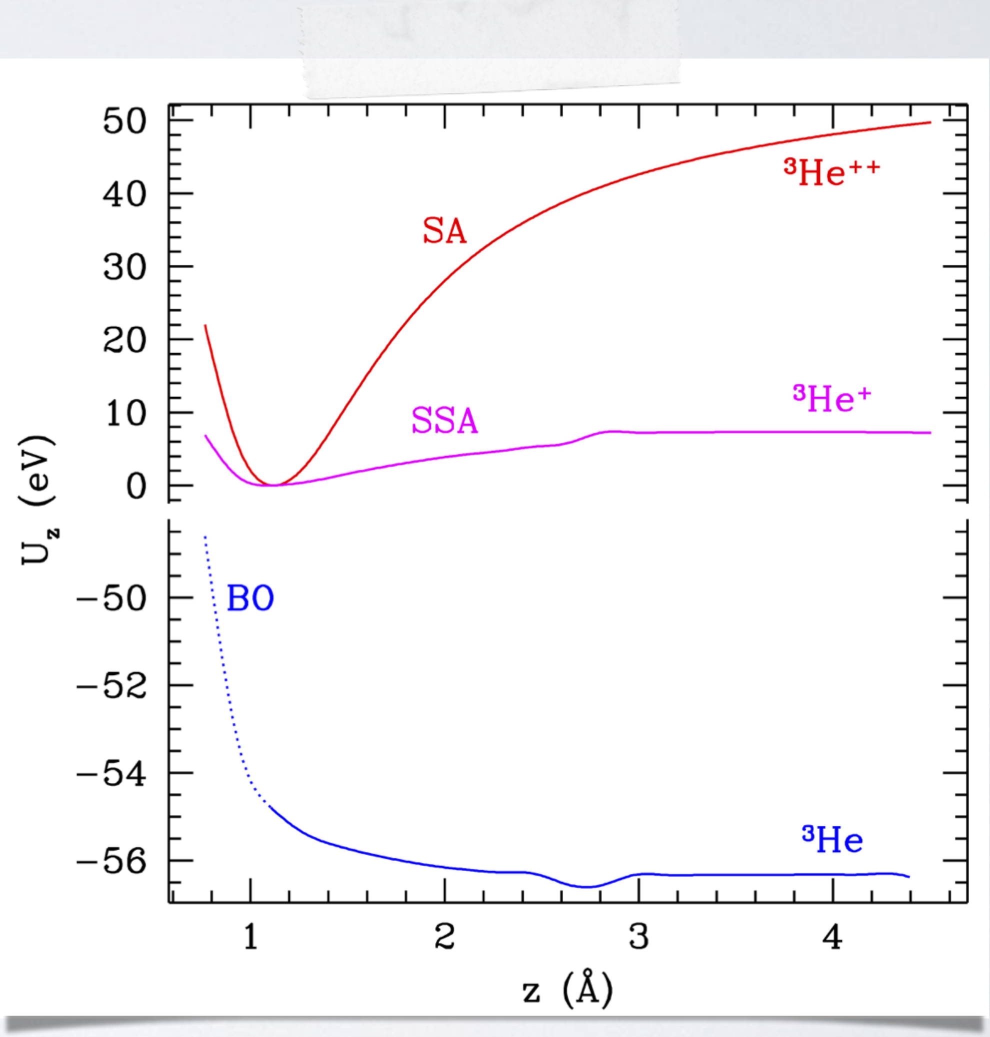

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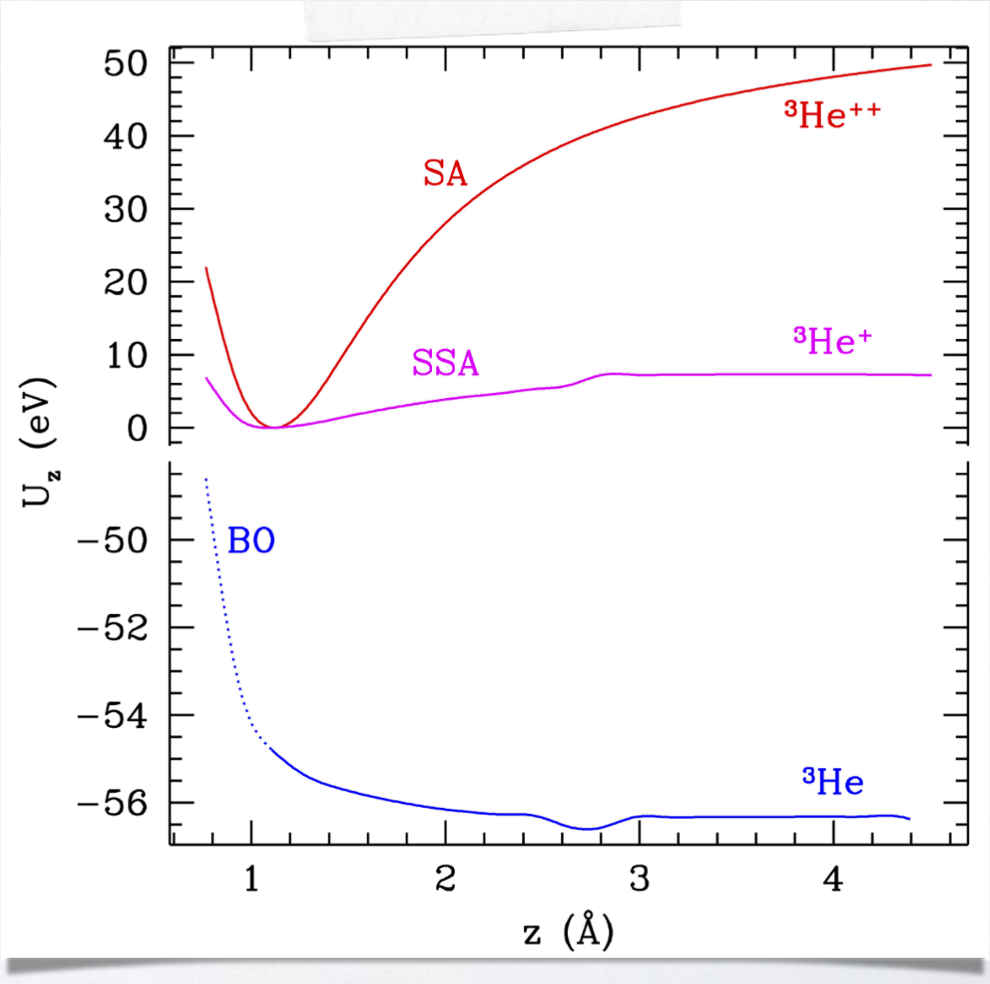

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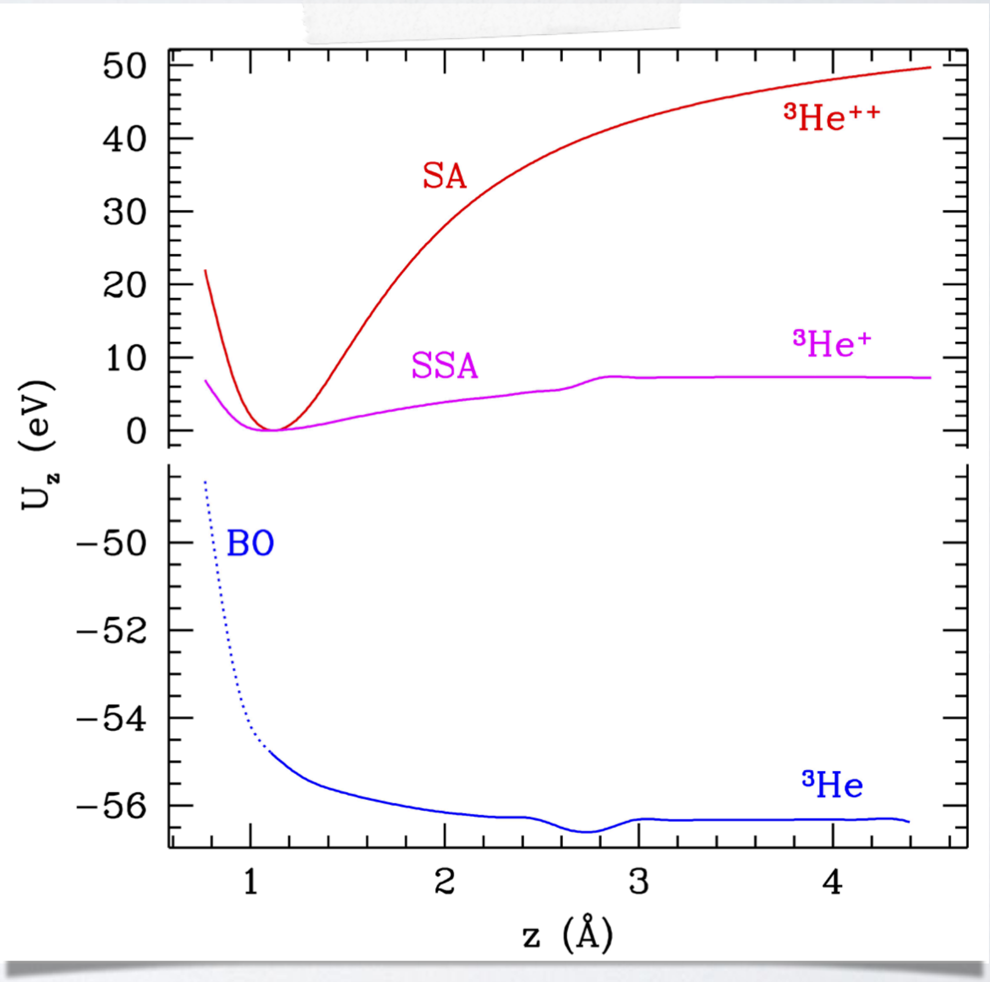
For now, this is our dominant theory systematics



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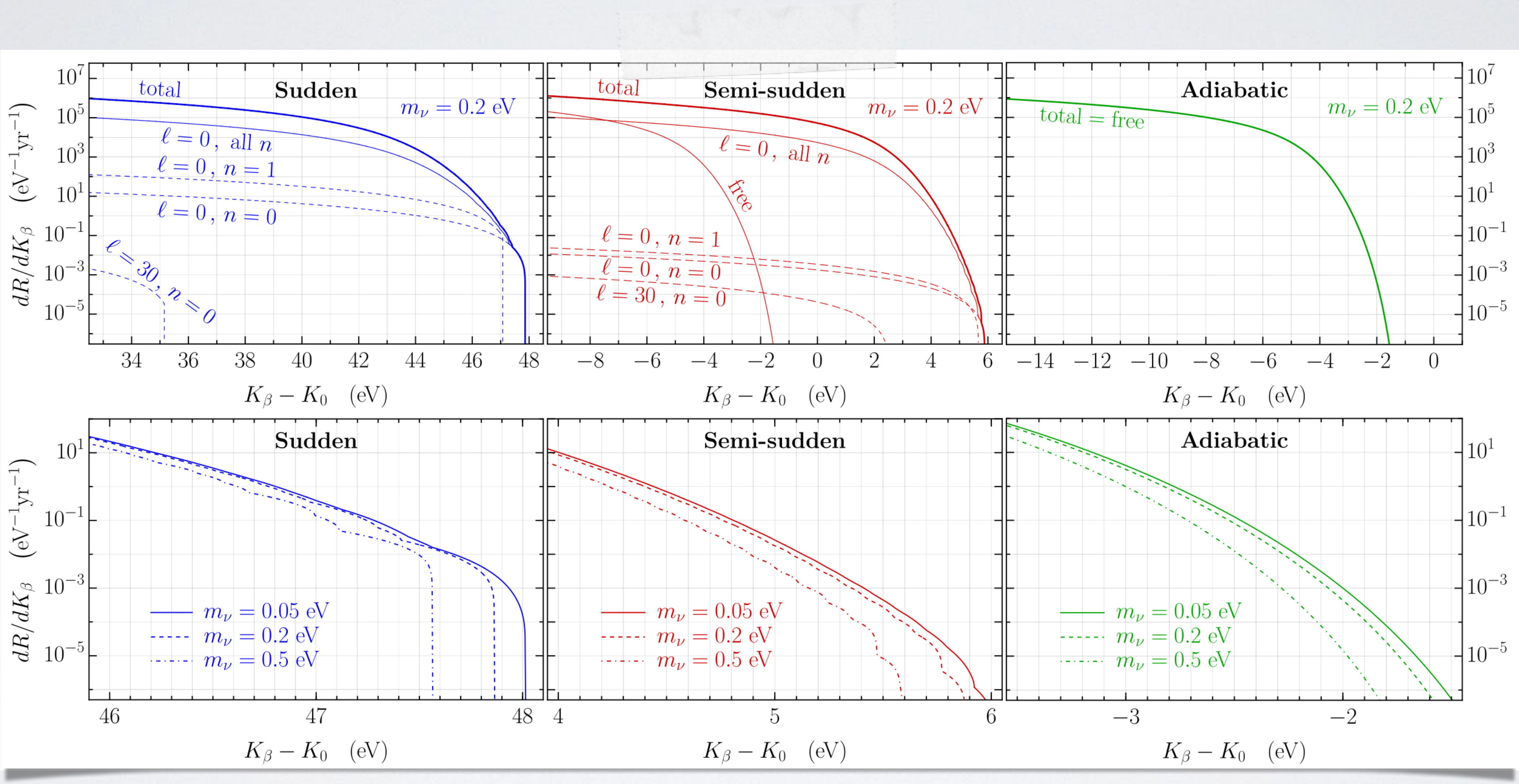

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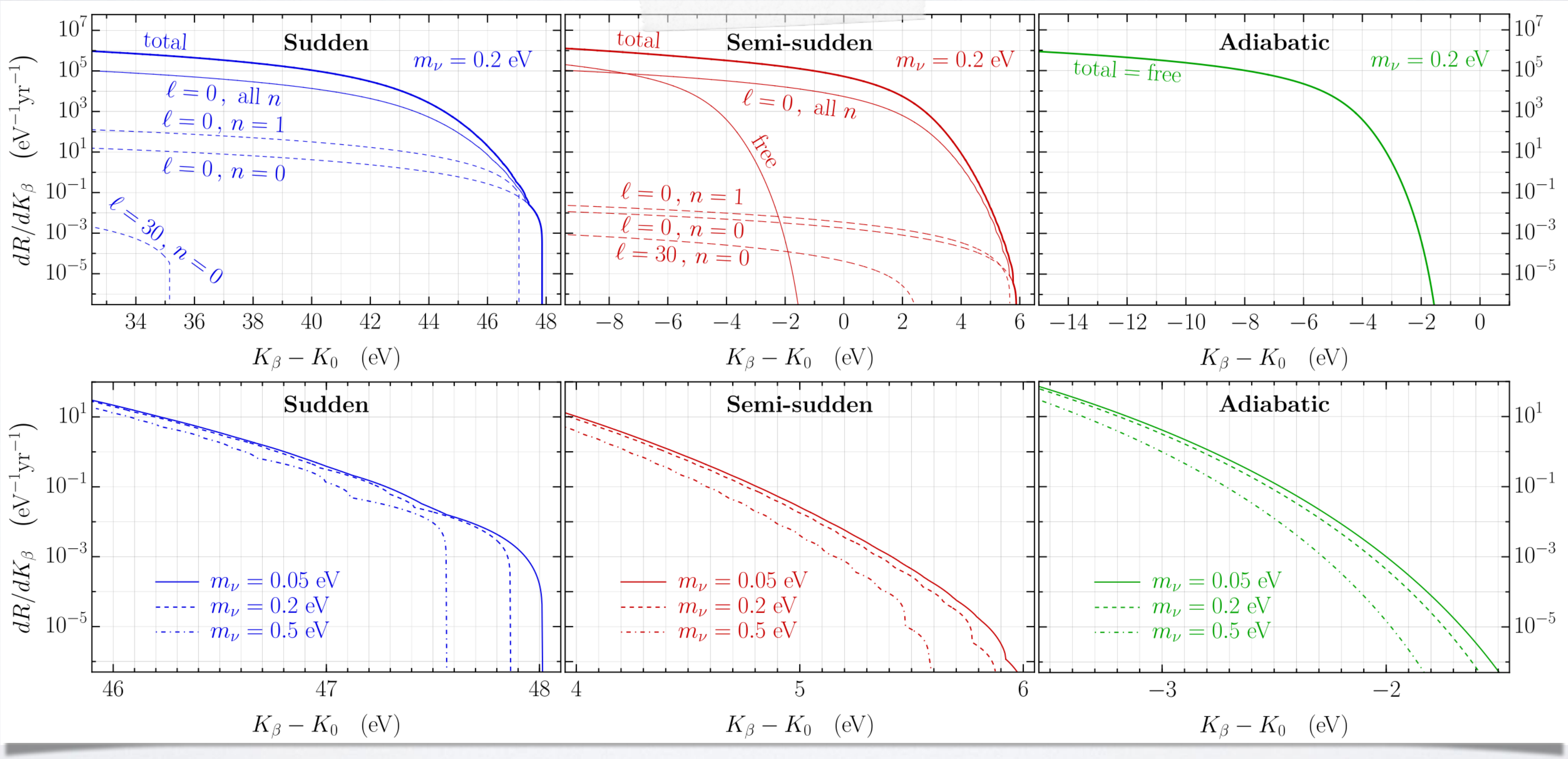

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All of them have features due to condensed matter effects

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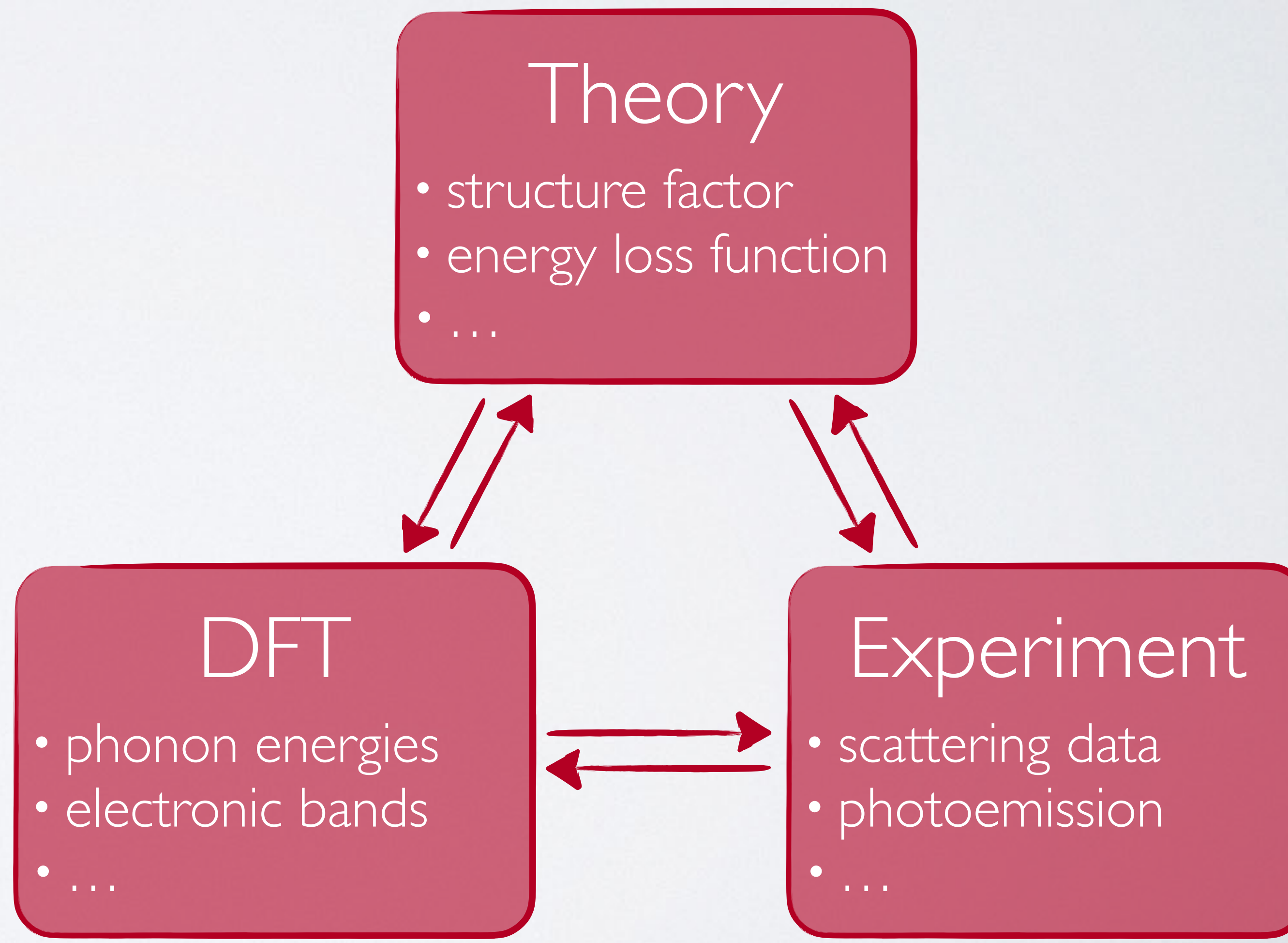

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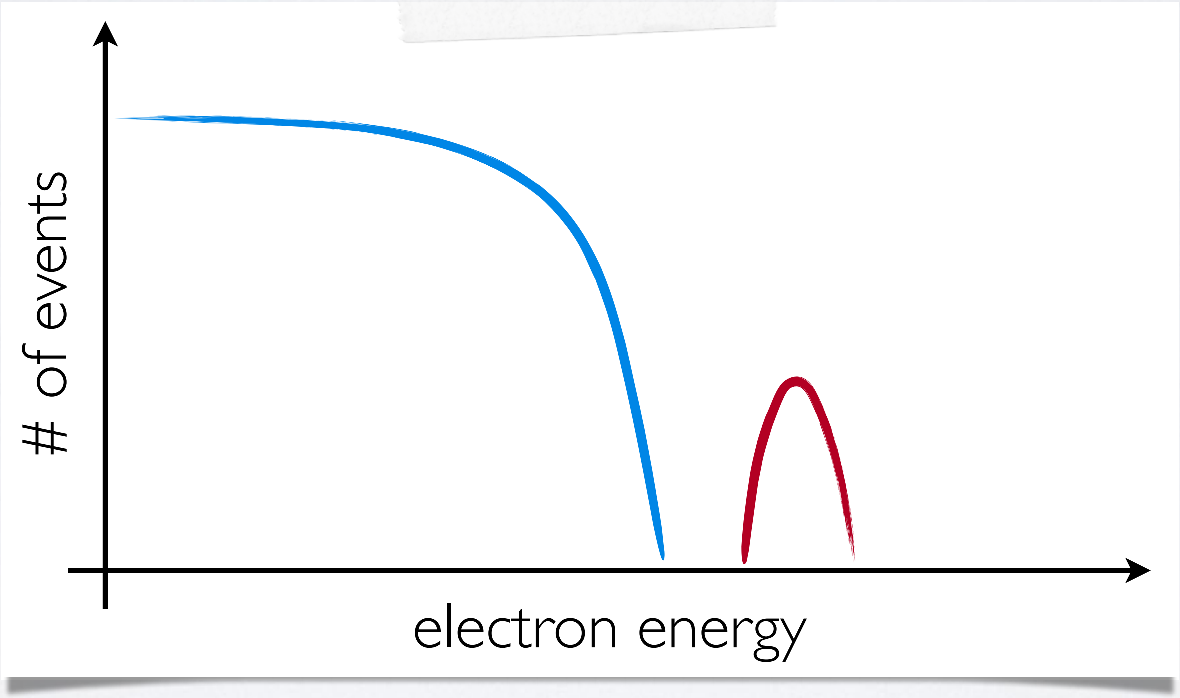

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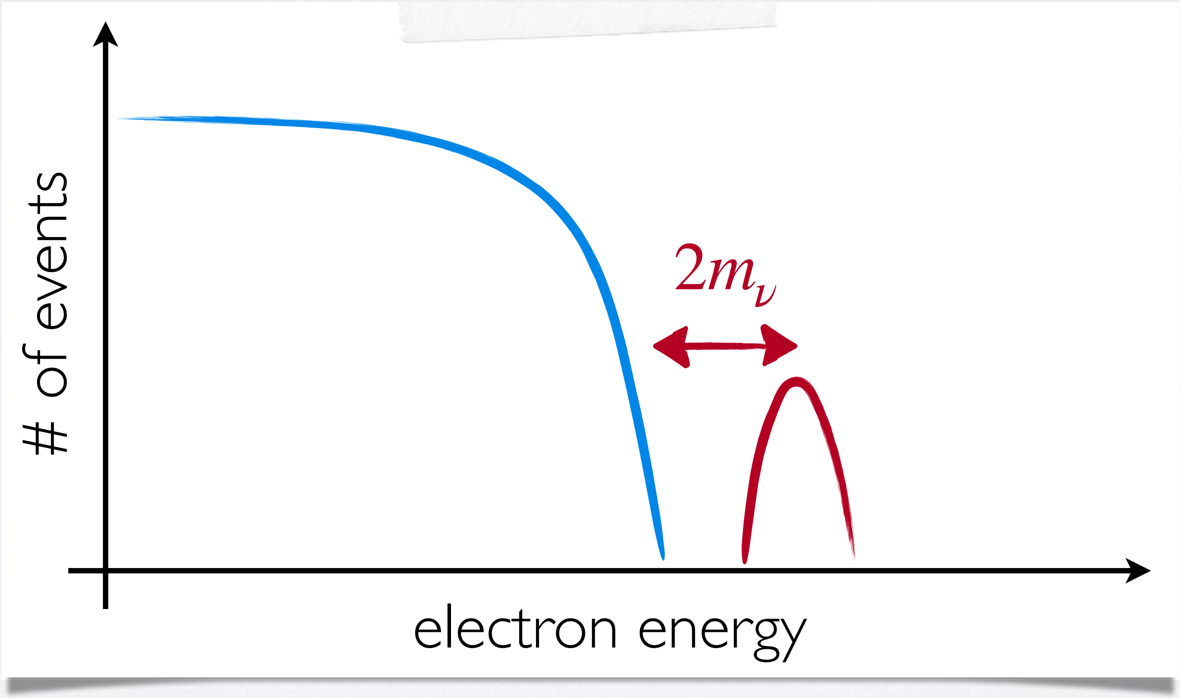

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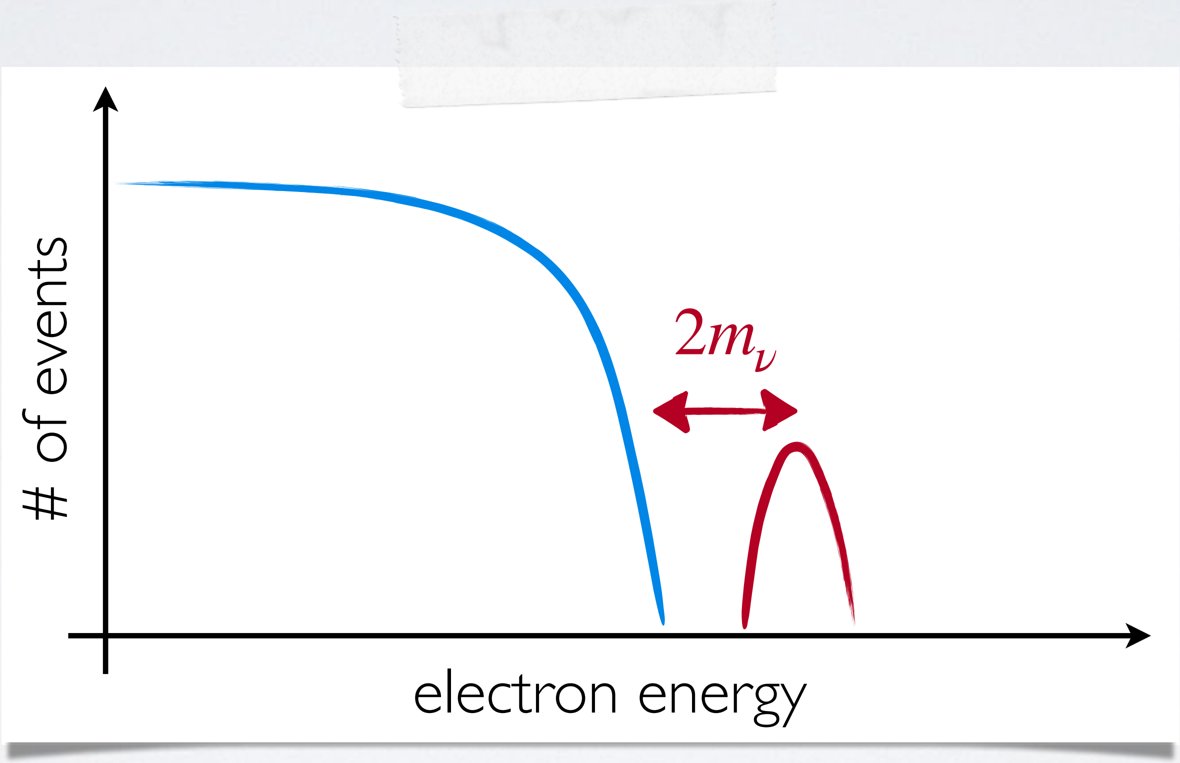

It crucial to be able to distinguish the peak from the "background" coming from the β-decay part of the spectrum

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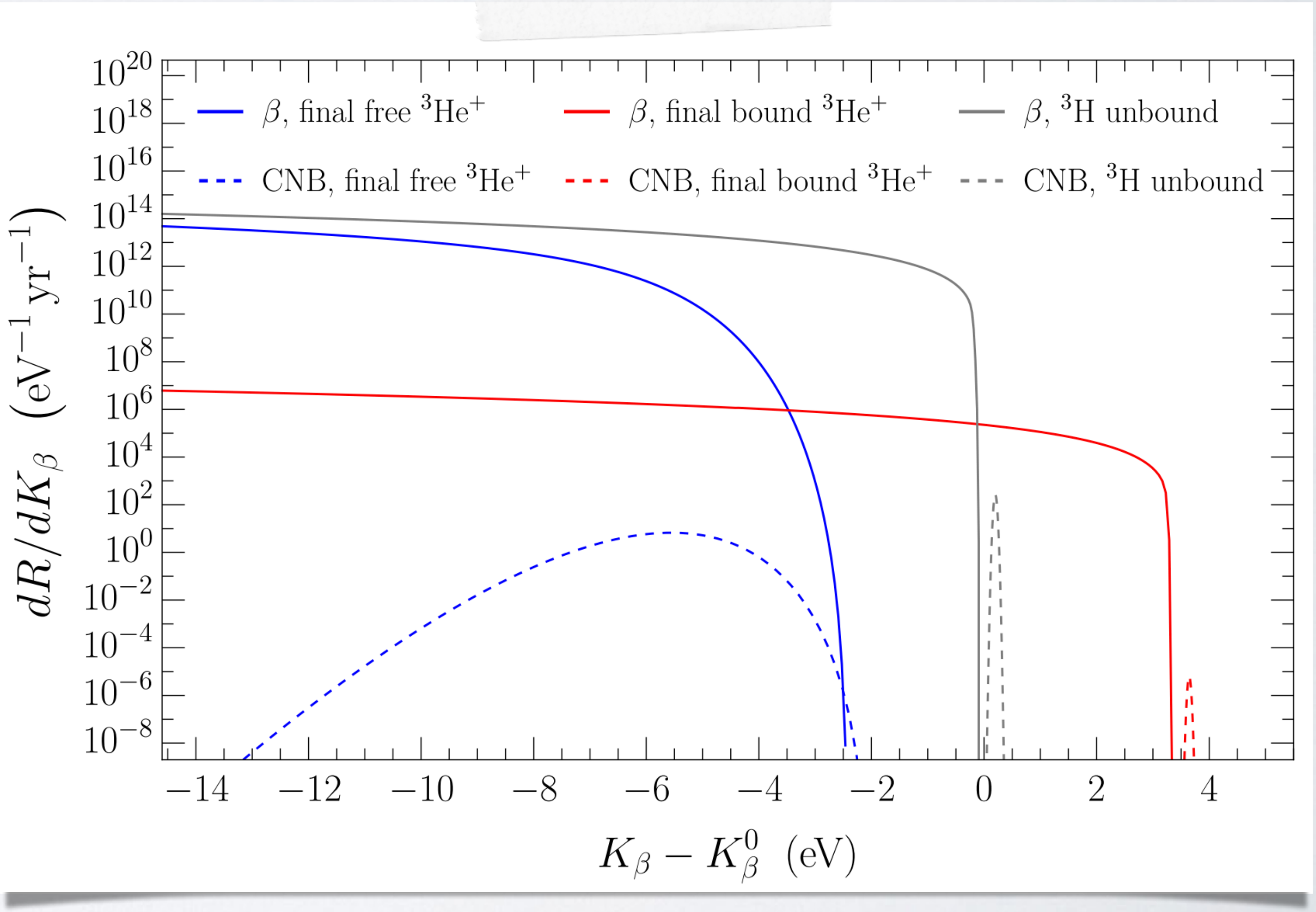

[PTOLEMY – PRD 2022]

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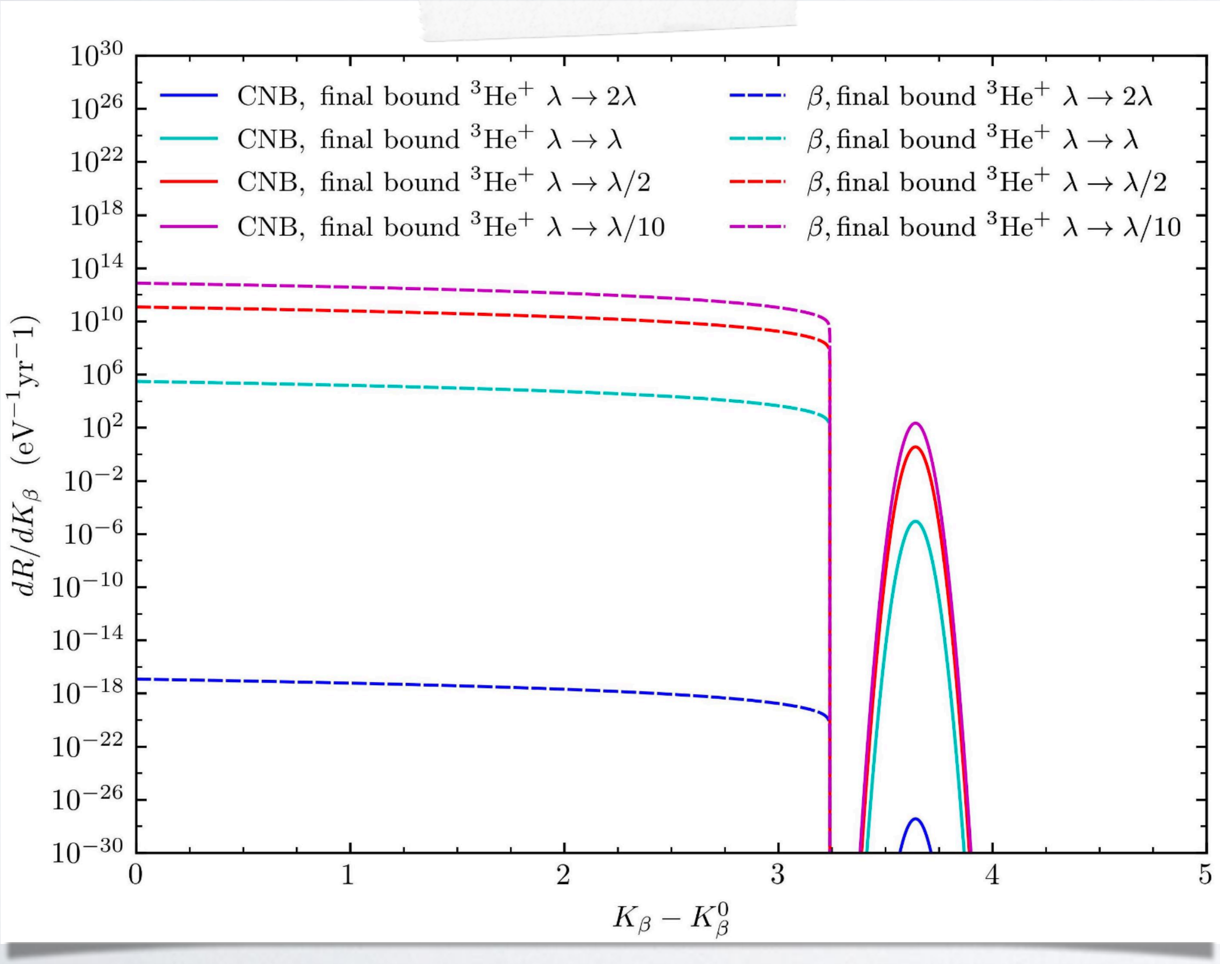
Localize tritium more

right-most peak gets enhanced



[Andrea Casale's Master's thesis]

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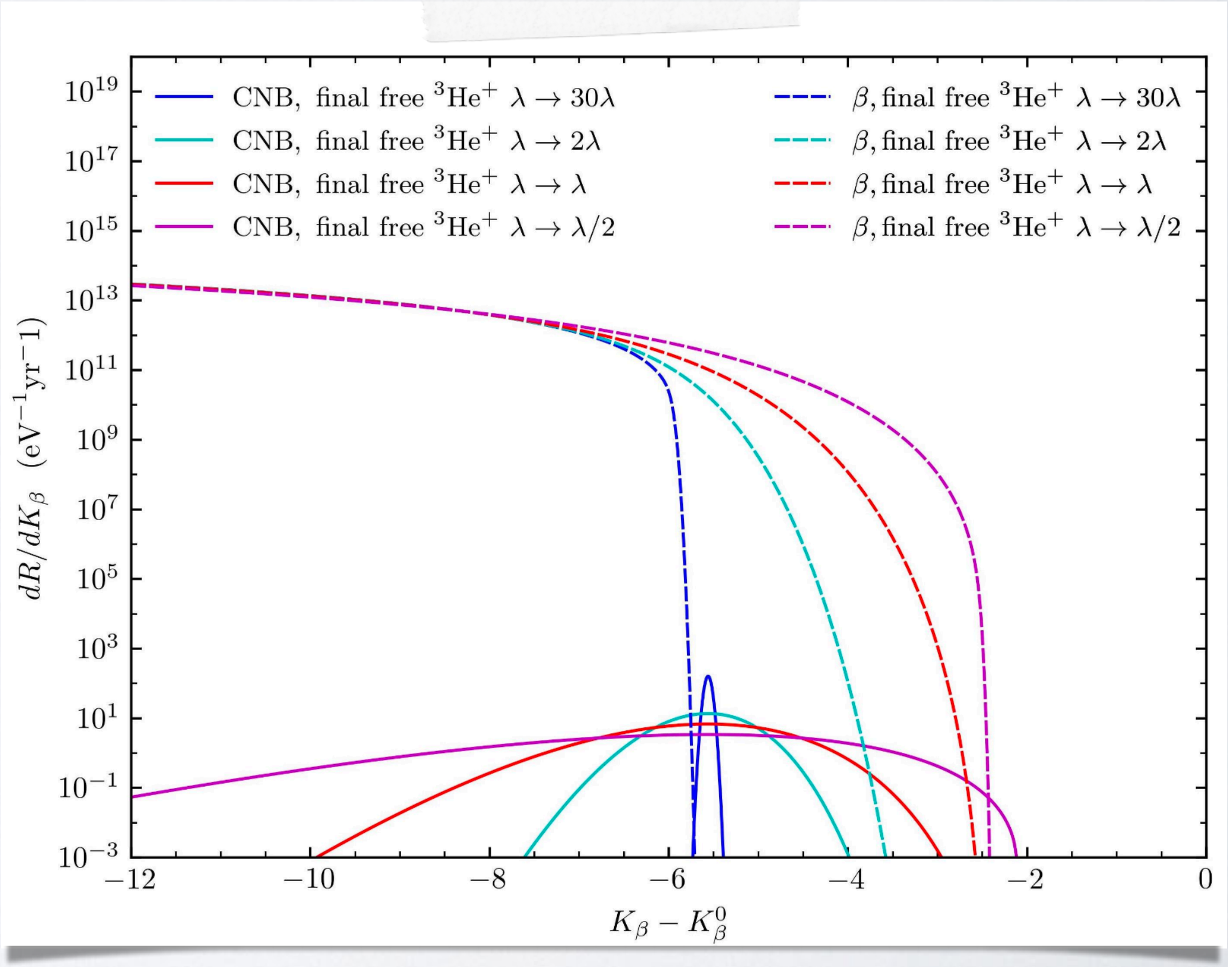

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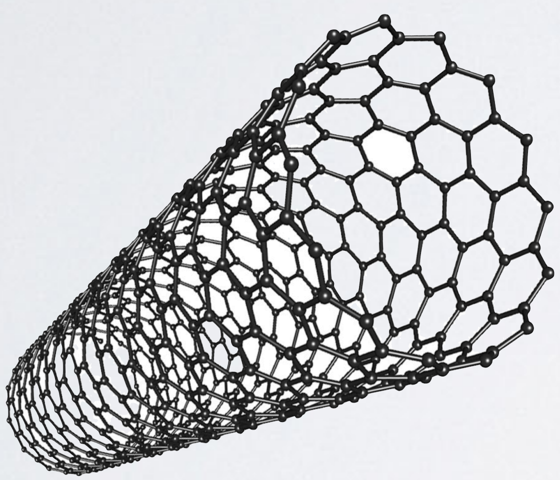

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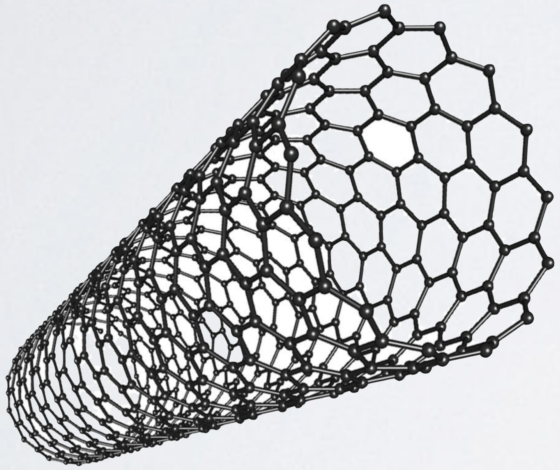

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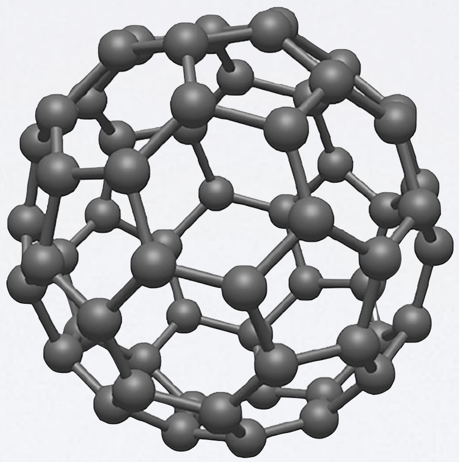

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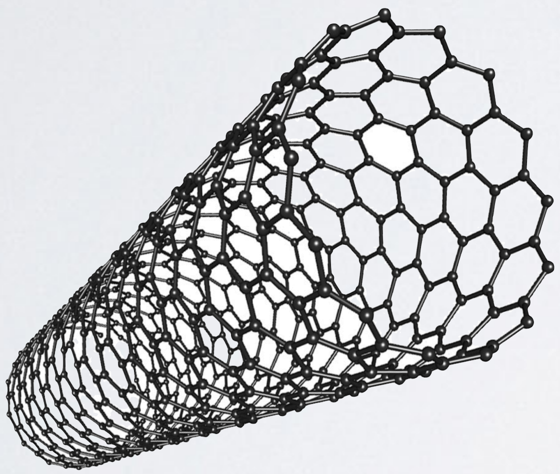

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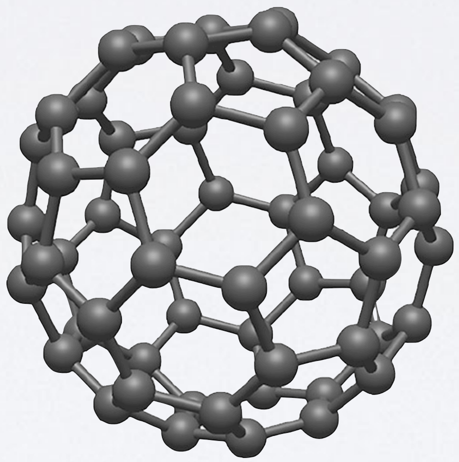

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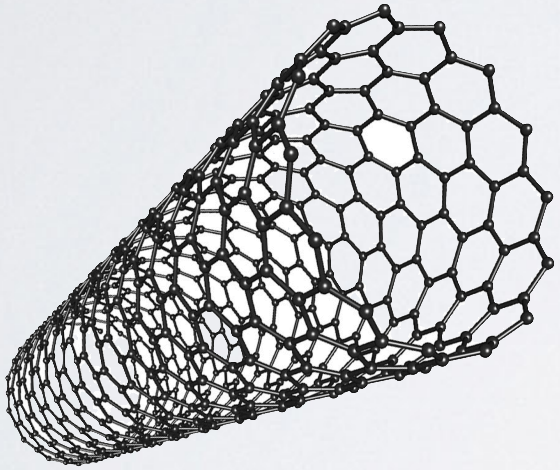
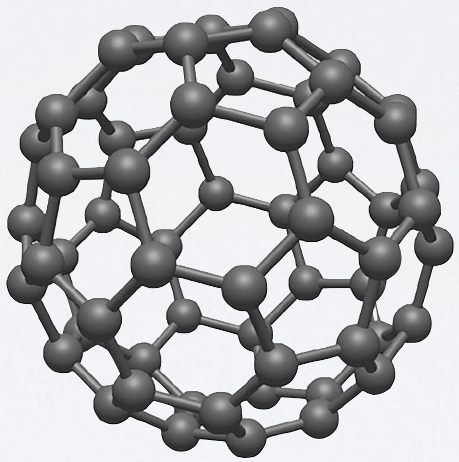
$$\Delta K_e \sim 100 \text{ meV} \quad \Longrightarrow \quad \Delta x_T \sim 1 \text{ Å}$$

Can we find a substrate that does this job?



nanotubes?



fullerenes?

…what else?

We need to be creative and get to work!

OUTLOOK

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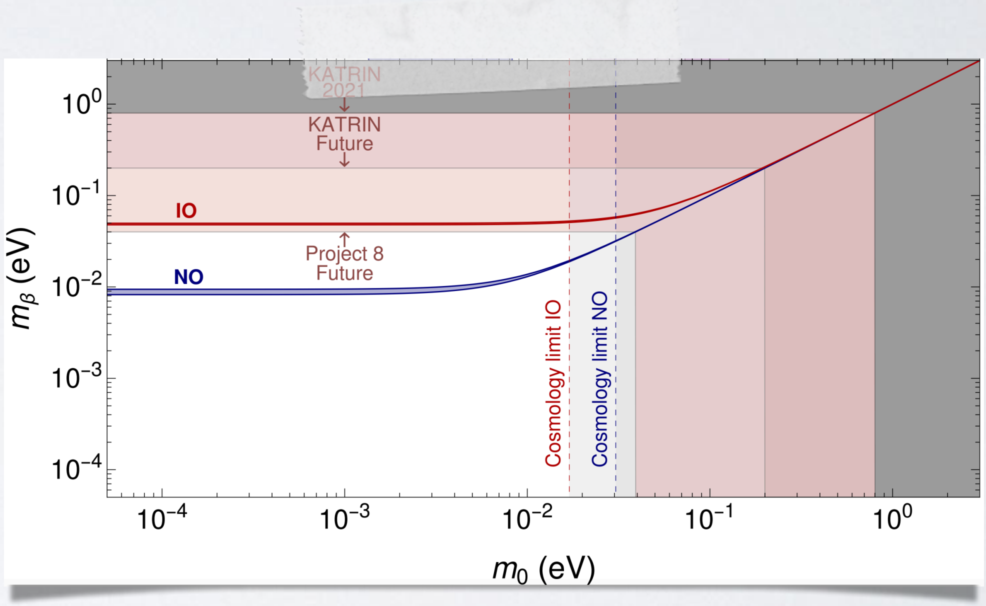

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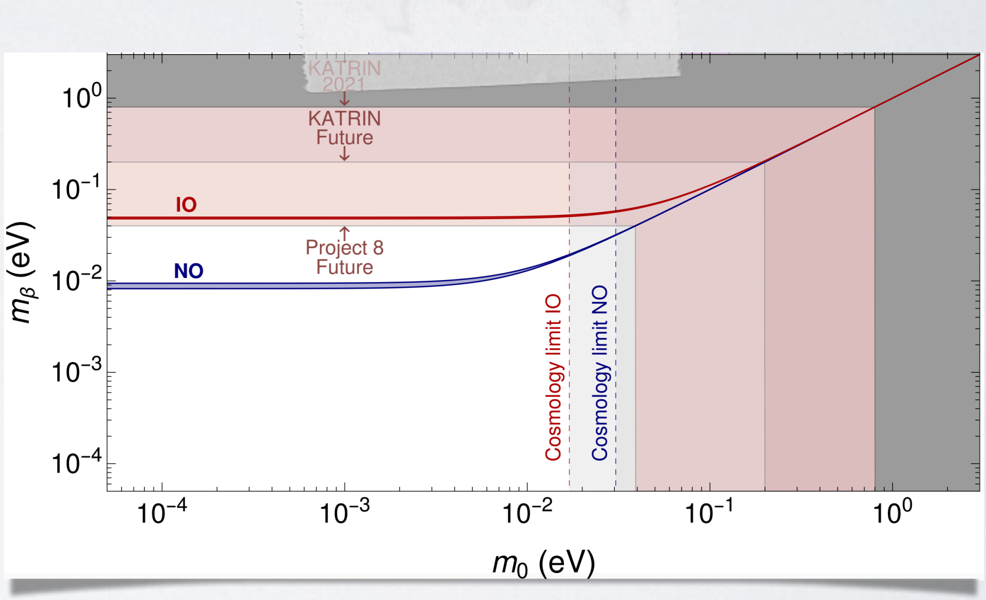

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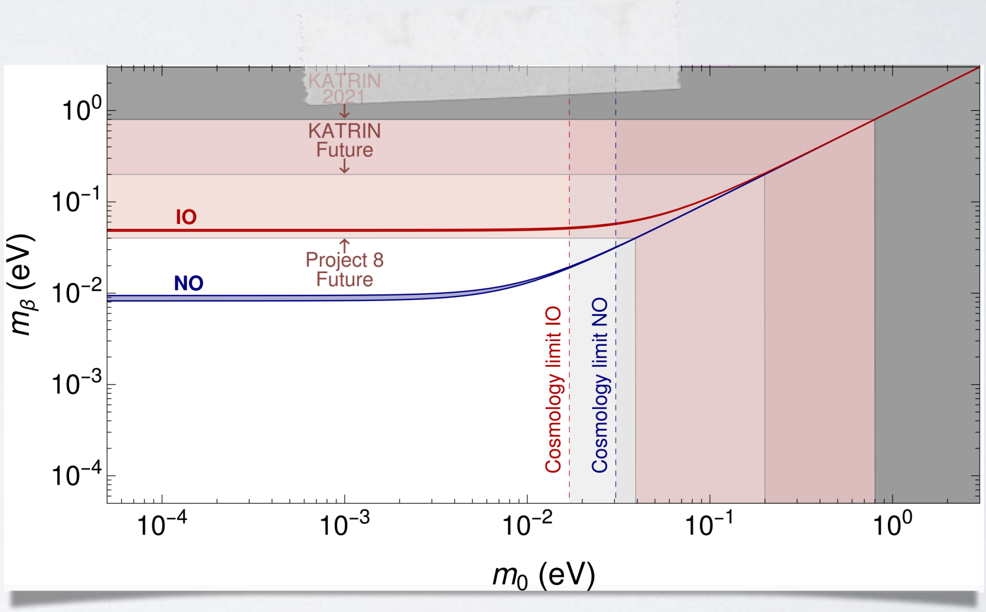

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Thanks for your attention!