**Objectives**

- Develop a fast method for computing beta-decay with energy density functionals.
- Compute beta-decay rates of all even-even nuclei, especially exotic, deformed nuclei that are unreachable in experimental facilities.

**Impact**

- Crucial input for \( r \)-process simulations.
- Use of beta-decay and Gamow-Teller resonance data to determine nuclear energy density functionals.

**Accomplishments**

- We developed the *proton-neutron finite amplitude method* (pnFAM), a version of the charge-changing QRPA that scales far better than the usual approach, allowing beta-decay surveys across the nuclear chart.
- We started to improve energy density functionals, adding new terms so that they better predict beta decay. Initial results are very promising.

Using the pnFAM, we can compute strength functions (a) and decay rates (b) by examining the linear response in the complex-energy plane of the nuclear mean field to a perturbing force that turns neutrons into protons (or vice versa).

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