

# Why Exotic Nuclei ?

- There are so many!

- in nature:            270    stable isotopes  
                              50    radioactive isotopes  
                              320   in total
- synthesized: 2500  
    → systematics!

- Understanding of nuclear forces

- systematic variation of N and Z (2-dimensional!)
- improvement of nuclear models

- Astrophysics

understanding of nucleosynthesis and elemental abundances

- decay modes, half-lives, branching ratios
- Q-values → nuclear masses!

- New phenomena and new elements

- particle stability, heaviest elements
- nuclear shells and magicity far-off stability
- g.s. proton emission, 2p-decay, superdeformation
- skin- and halo-nuclei