

Physics opportunities GRETA

- Resolving power: 10^7 vs. 10^4
 - Cross sections down to ~ 1 nb
 - Most exotic nuclei
 - Heavy elements (e.g. $^{253}, ^{254}\text{No}$)
 - Drip-line physics
 - High level densities (e.g. chaos)
- Efficiency (high energy)
(5% vs. 0.5% at $E_\gamma = 10$ MeV)
 - Shape of GDR
 - Studies of hypernuclei
- Efficiency (slow beams)
(43% vs. 8% at $E_\gamma = 1.3$ MeV)
 - Fusion evaporation reactions
- Efficiency (fast beams)
(43% vs. 0.5% at $E_\gamma = 1.3$ MeV)
 - Fast-beam spectroscopy with low rates \rightarrow RIA
- Angular resolution (0.2° vs. 8°)
 - N-rich exotic beams
 - Coulomb excitation
 - Fragmentation-beam spectroscopy
 - Halos
 - Evolution of shell structure
 - Transfer reactions
- Count rate per crystal
(100 kHz vs. 10 kHz)
 - More efficient use of available beam intensity
- Linear polarization
- Background rejection by direction