Main features of ANASEN
Array for Nuclear Astrophysics Studies with Exotic Nuclei
Resonance scattering \((p,p), (p,p')\) 
\((\alpha, \alpha), (\alpha, \alpha')\) with r/a beams

Excitation function for \(^6\text{Li}+p\) elastic scattering

The peak is a known \(5/2^-\) state at 7.2 MeV in \(^7\text{Be}\)

Direct measurements of \((\alpha,p)\) excitation functions with r/a beams

\(^{17}\text{O}(p,\alpha)\)

J.C. Sens, et al., PRC 76 (1978)

\(^{14}\text{N}(\alpha,p)\) excitation function
Nucleon transfer reactions

$^{20}\text{O}$ states populated in $^{19}\text{O}(d,p)$ reaction

ANASEN can be used for nucleon transfer reaction in active target mode with pure deuterium or hydrogen gas:

- reduced background
- measurements with low intensity (very exotic) beams are possible due to thick target