Investigation of ^{11}Li soft excitation mode through proton inelastic scattering

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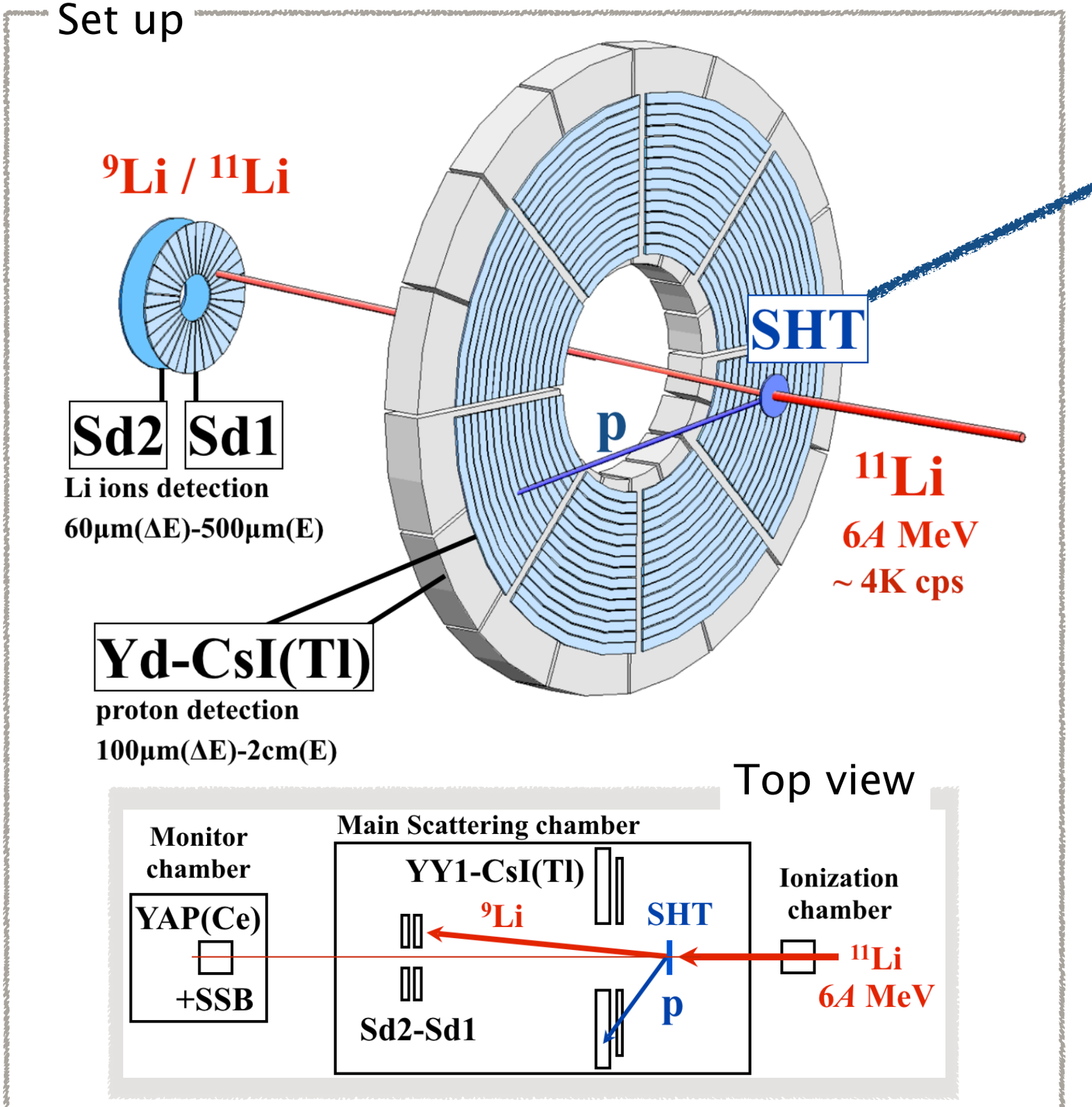
S. Ishimoto(KEK)

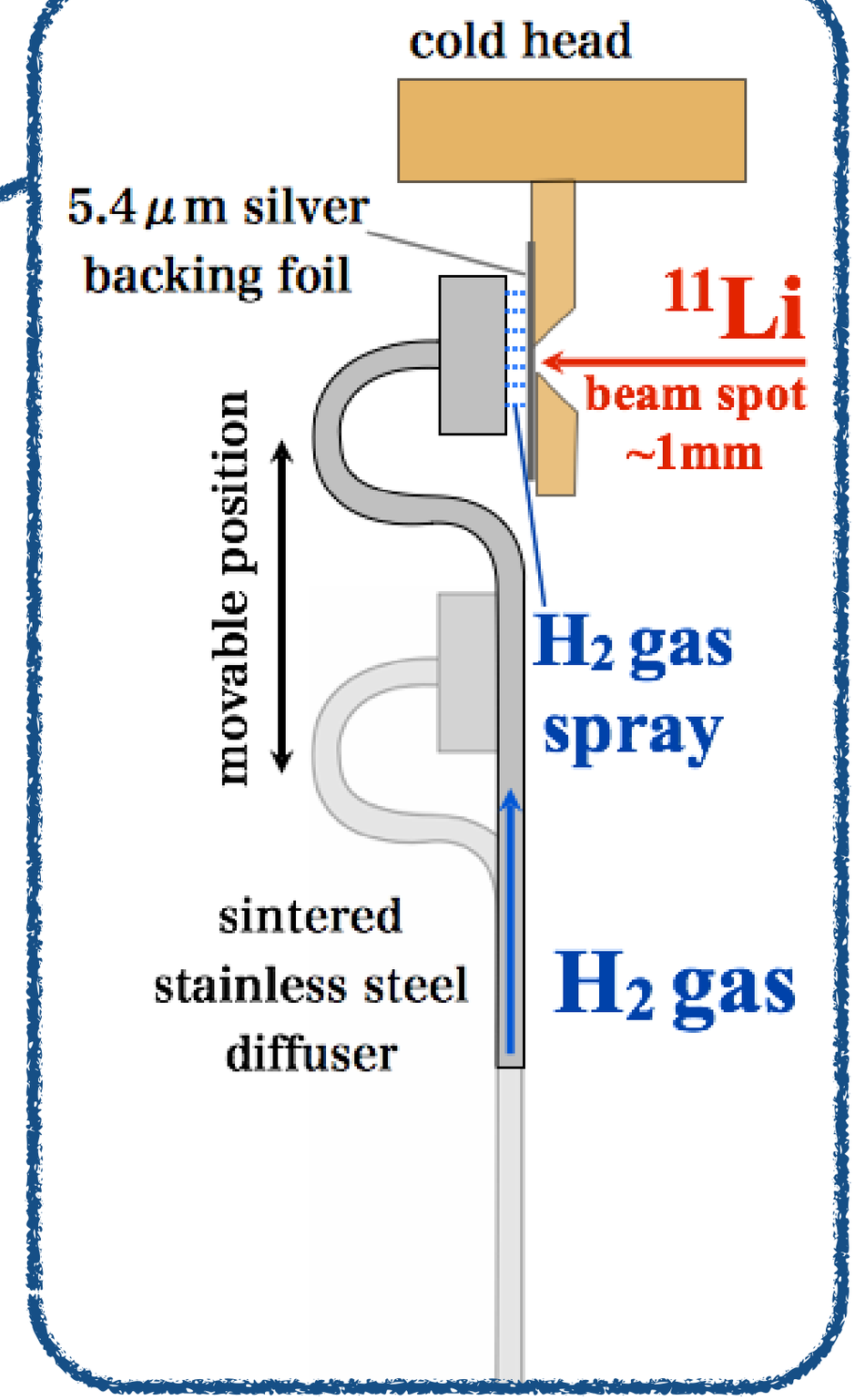
IRIS experiment

ISAC charged particle **R**eact**I**on **S**pectroscopy station

Set up



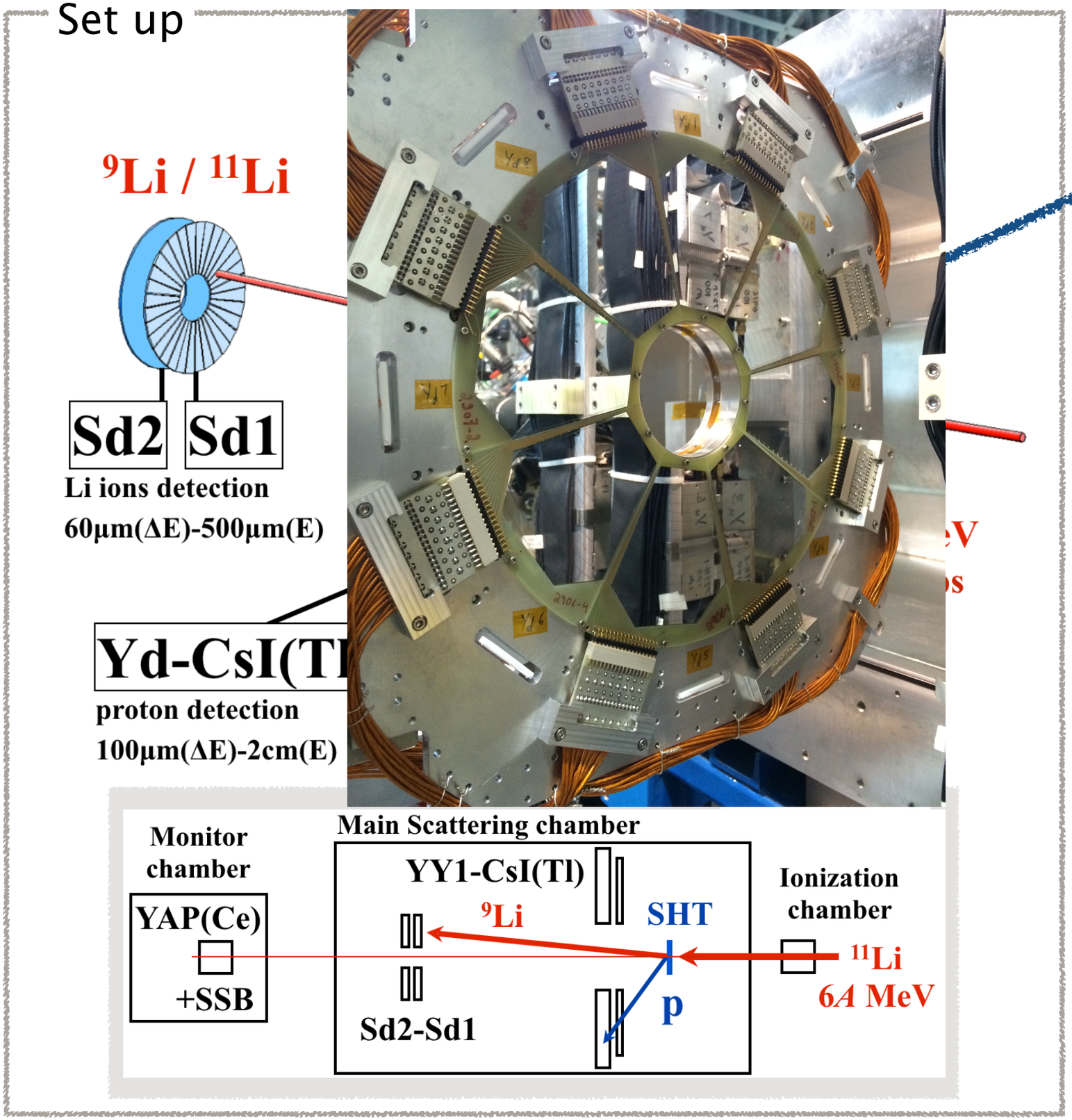
Thin windowless Solid Hydrogen Target



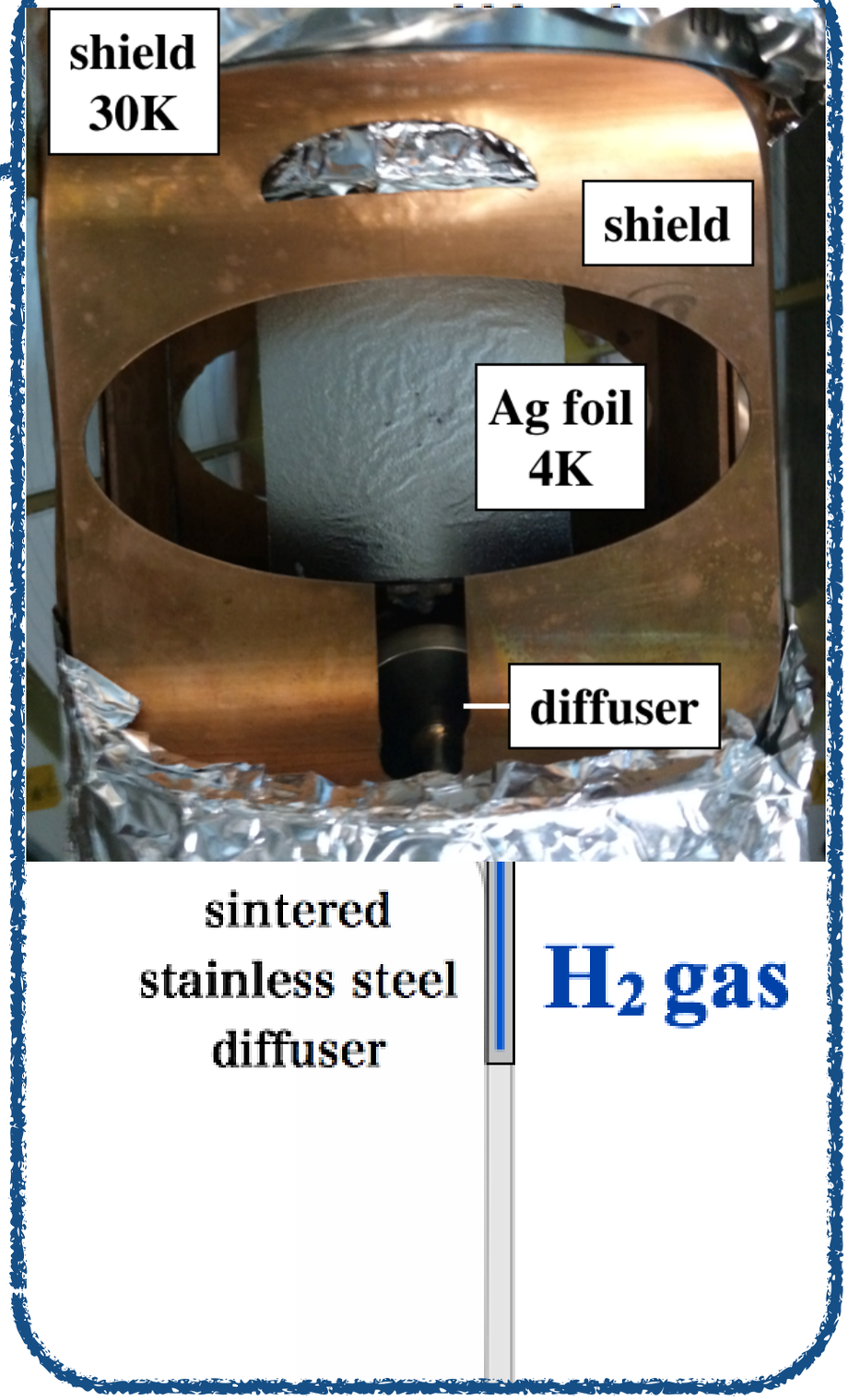
IRIS experiment

ISAC charged particle ReactIon Spectroscopy station

Set up



Thin windowless Solid Hydrogen Target



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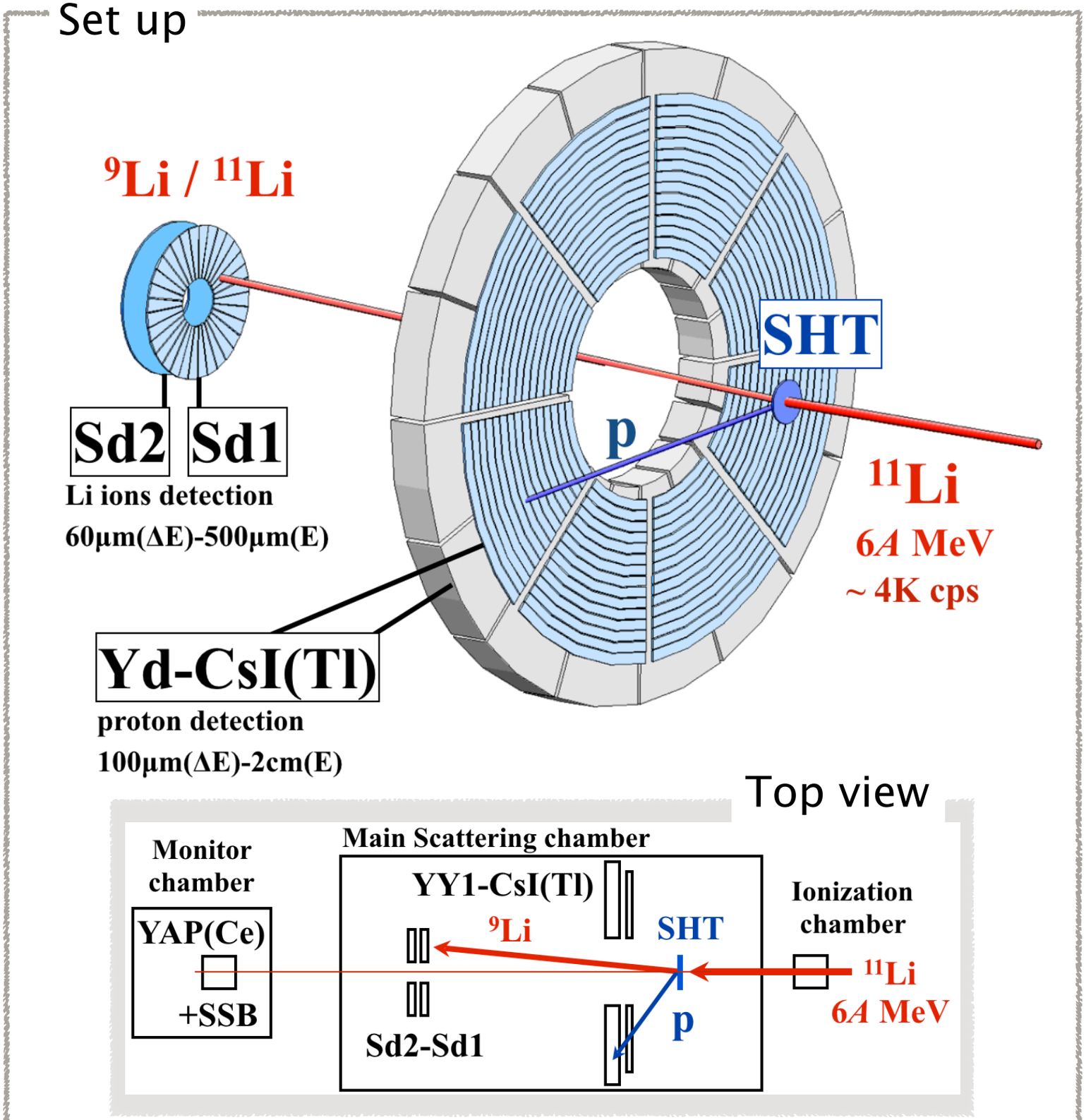
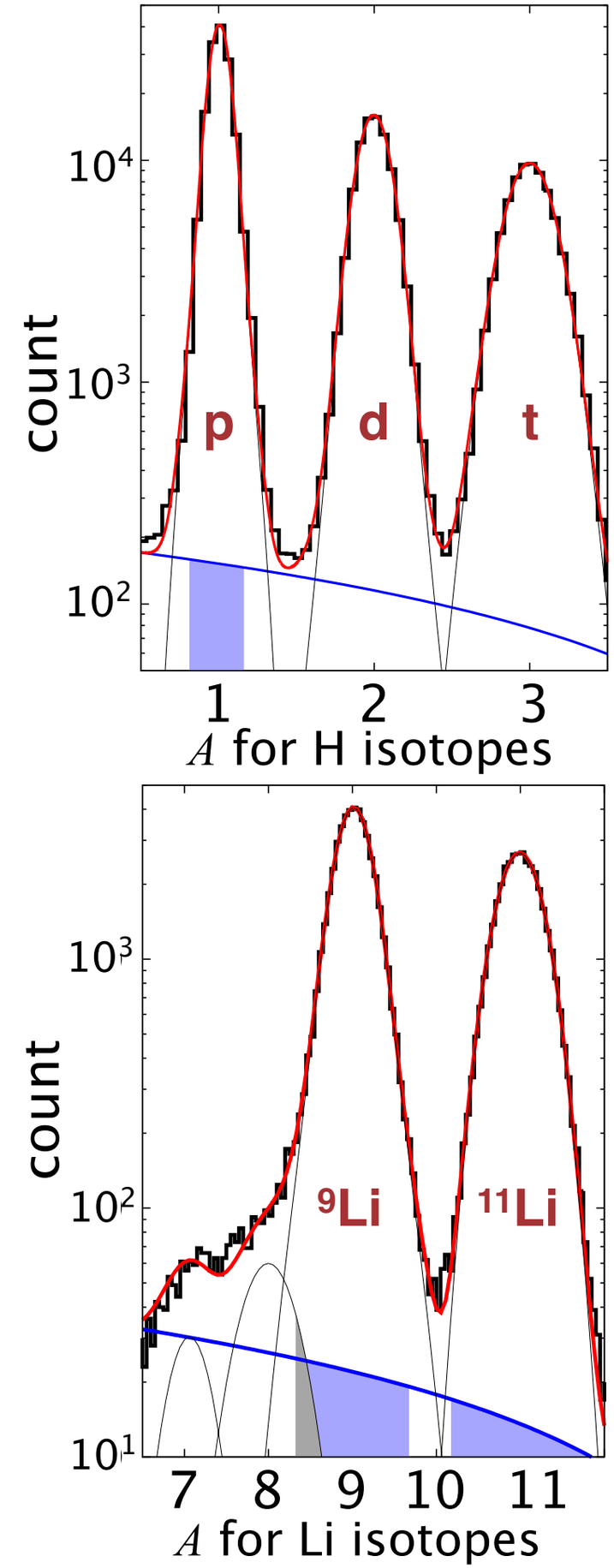
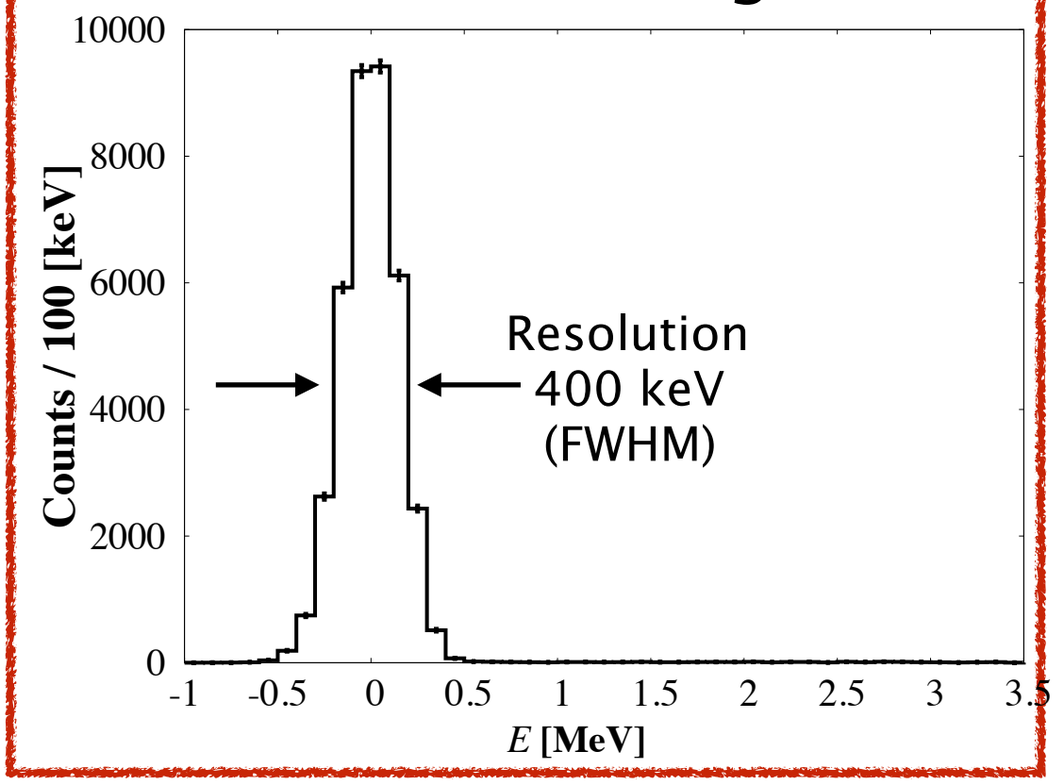


Particle Identifications

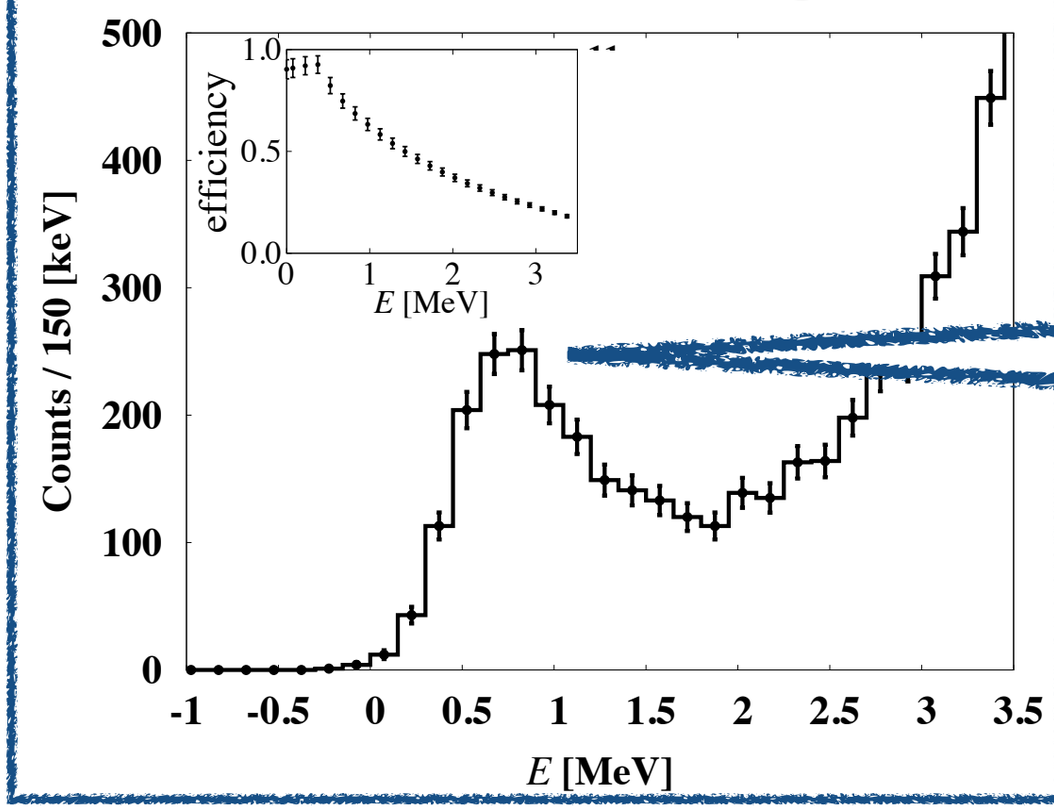


Spectrum

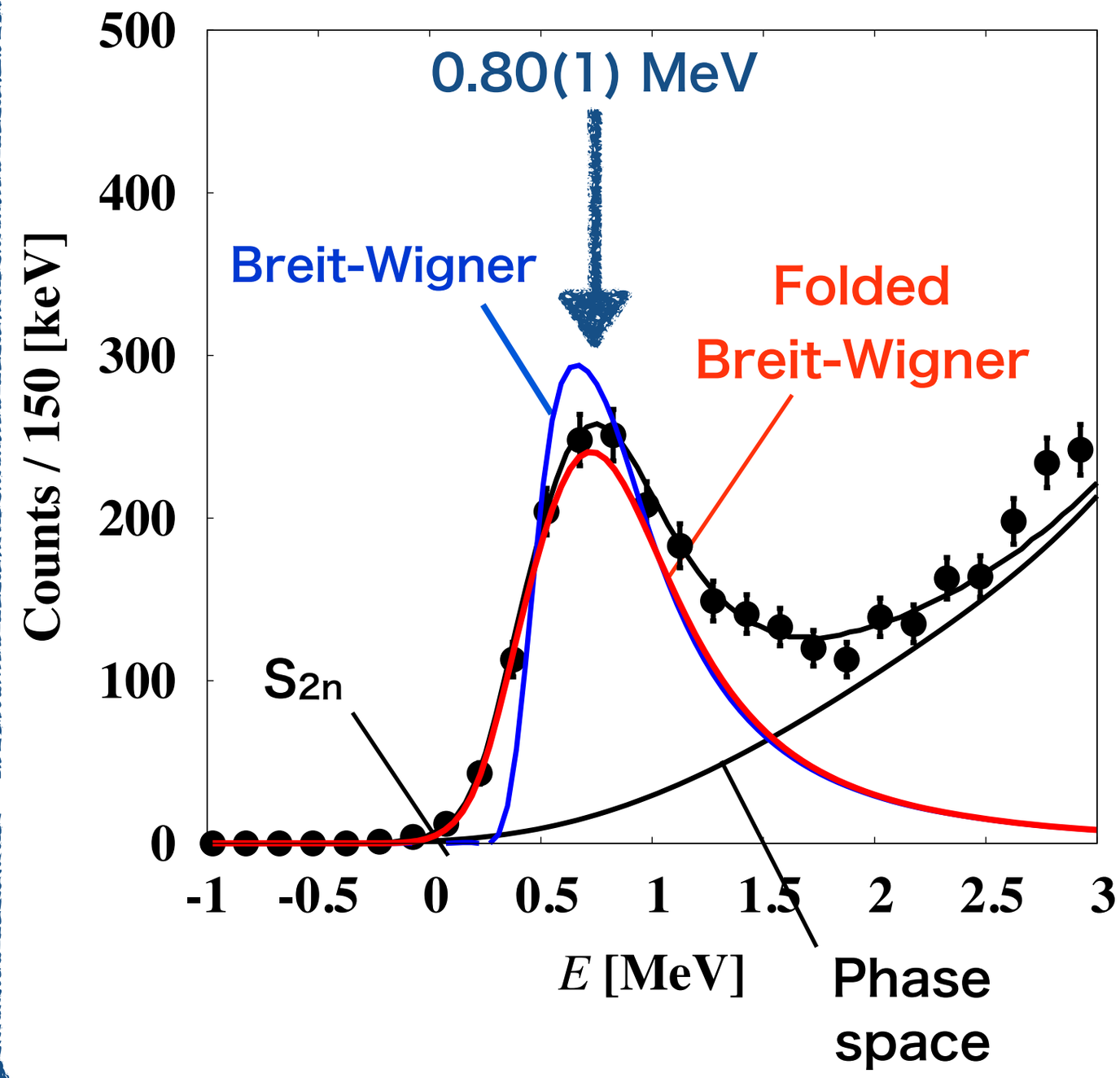
Elastic scattering



Inelastic scattering



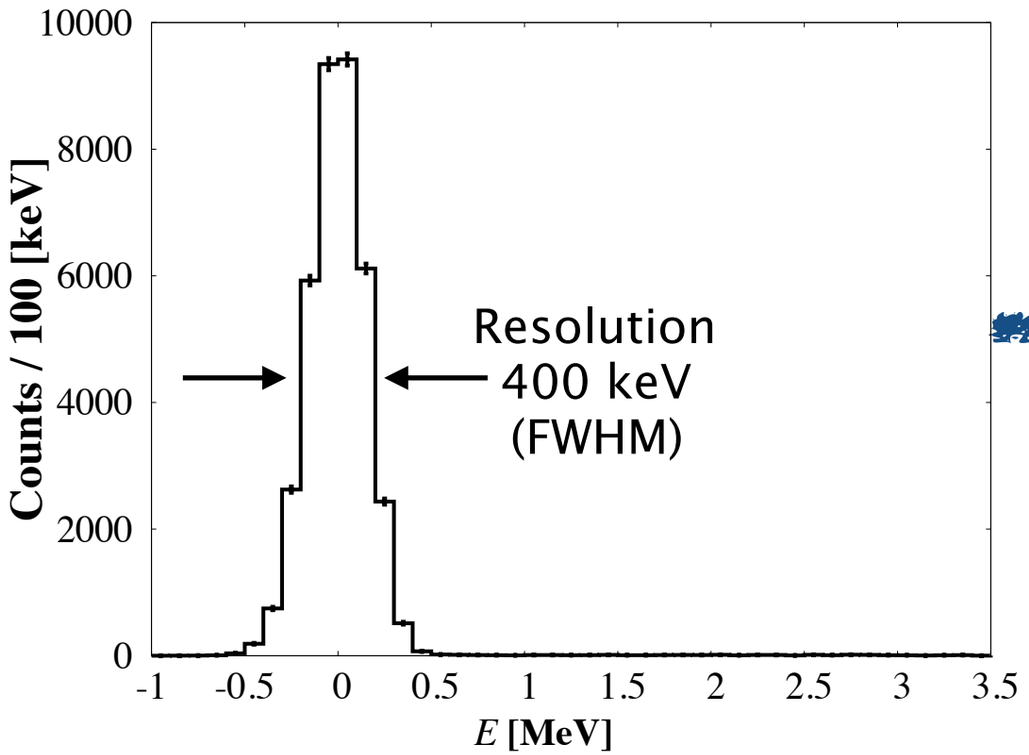
Peak Fitting

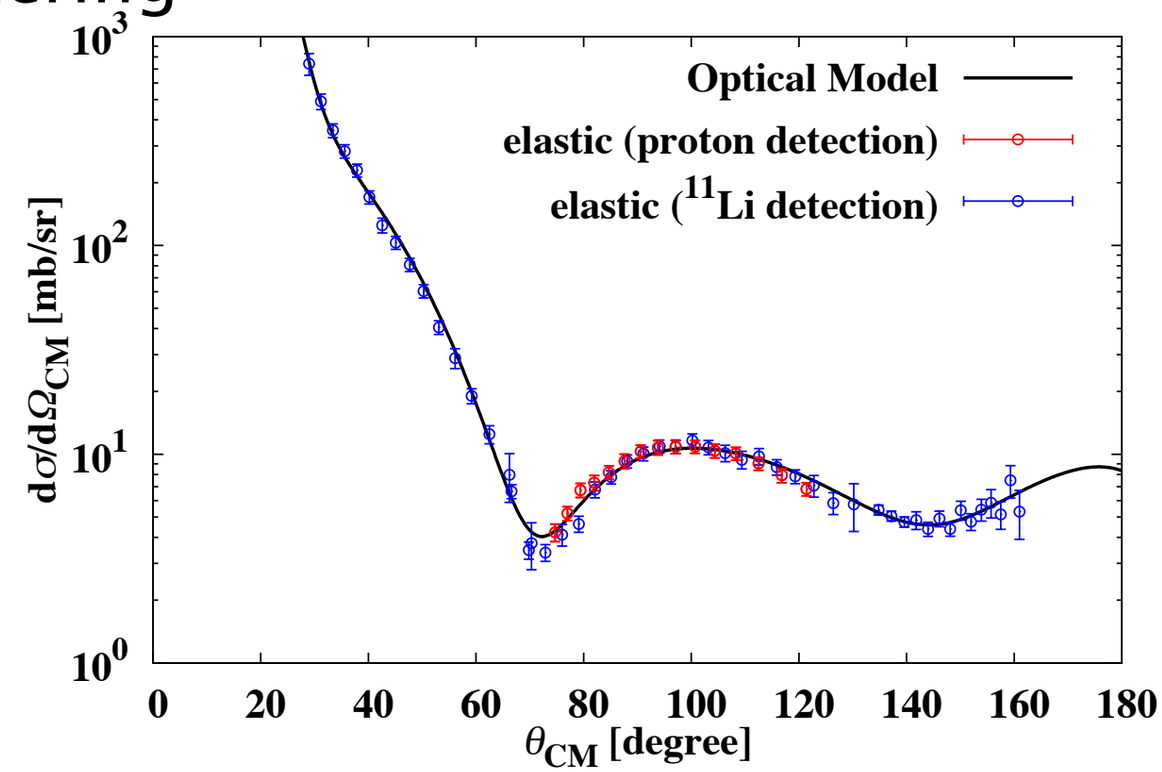


Spectrum

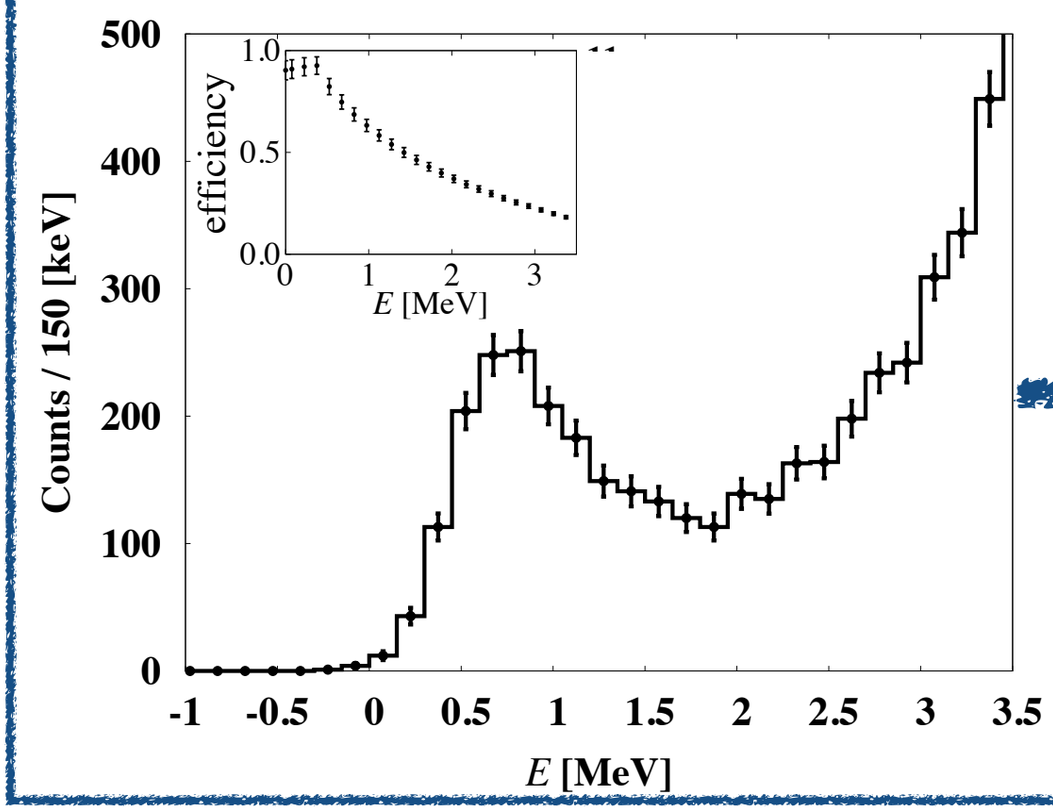
Differential Cross Section

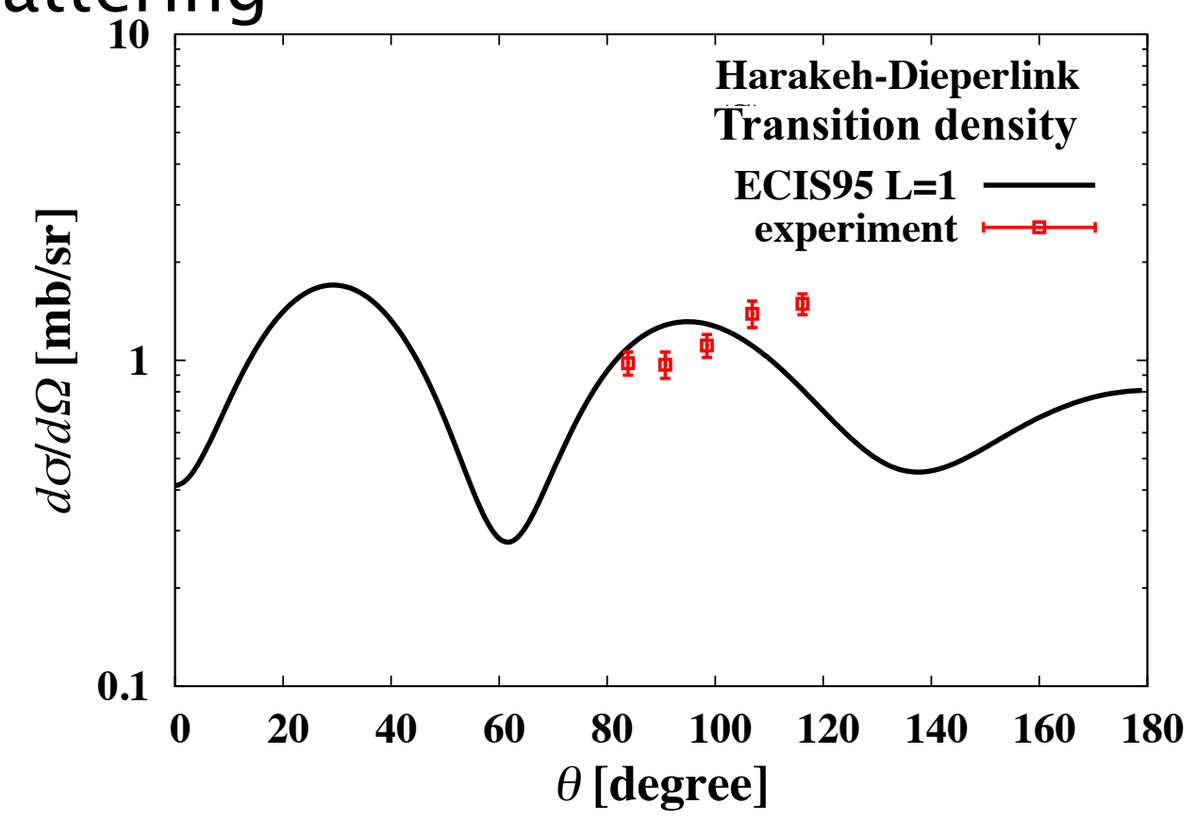
Elastic scattering



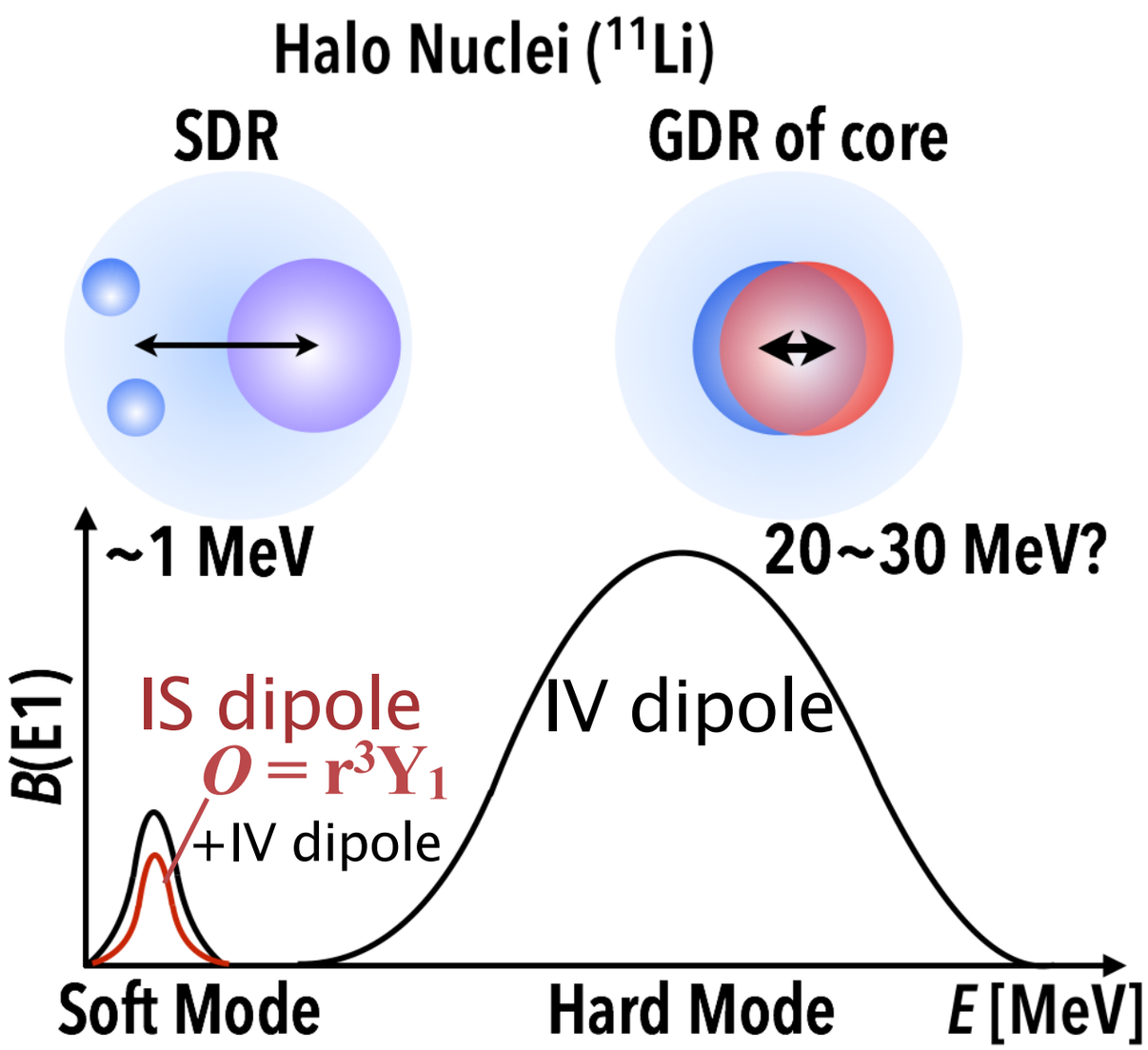


Inelastic scattering





Soft dipole Resonance

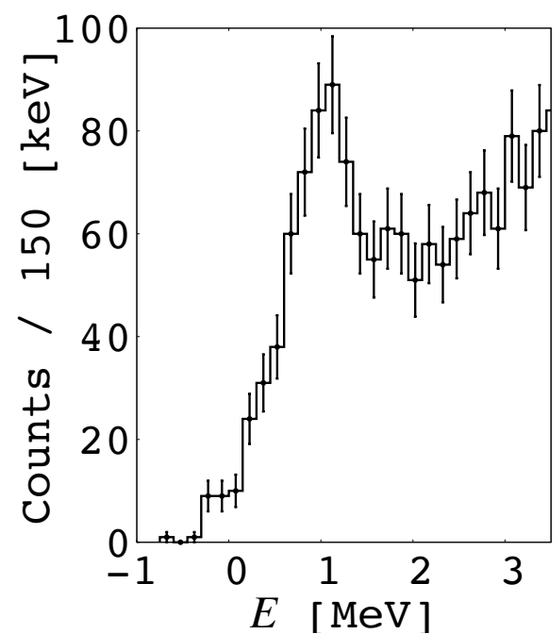


Specifications of Soft dipole

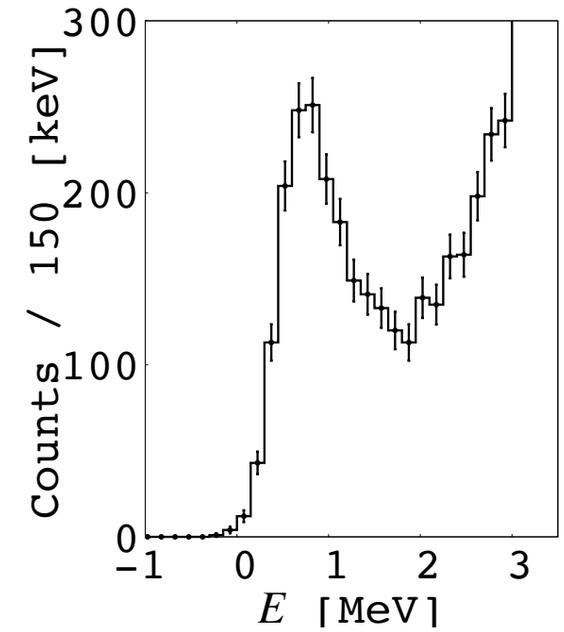
- ☑ low excitation energy 0.6 ~ 0.8 MeV
- ☑ large amplitude/collectivity
- ☐ Isoscalar & Isovector component

☑ low excitation energy 0.6 ~ 0.8 MeV

(d,d') experiment (p,p') experiment



R. Kanungo et. al.
PRL 114 (2015) 192502



present work

☑ large amplitude/collectivity

- Fraction of Energy-weighted sum rule ~20 %
- Collectivity B(E1(IS)) > 5Bw(E1(IS))
- ※ Peak integration up to 3 MeV

(Preliminary)

☐ Isoscalar & Isovector component

→future perspective

1. The effect of Isovector
2. amplitude from (d,d') experiment for pure Isoscalar strength