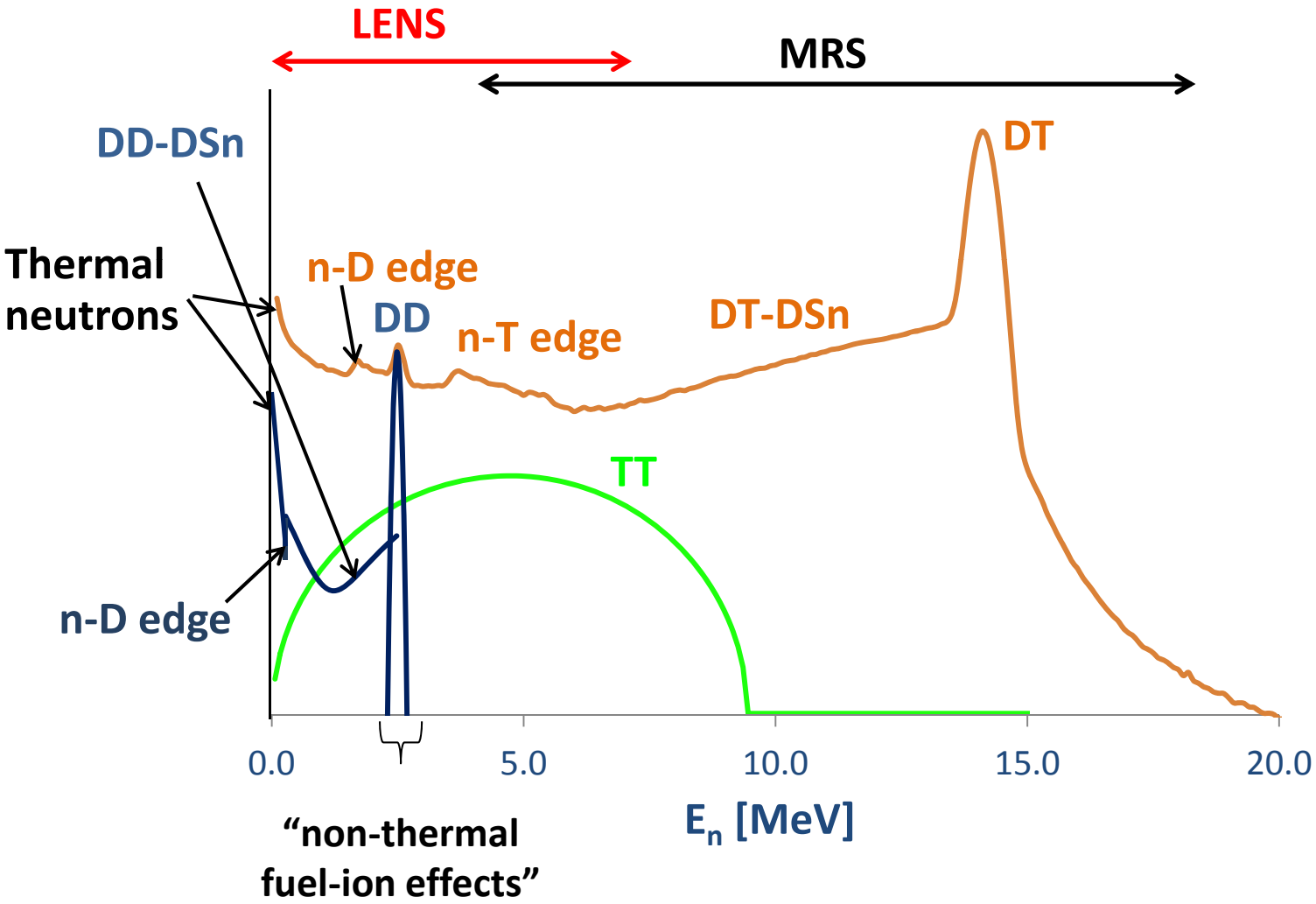
Review from last year:

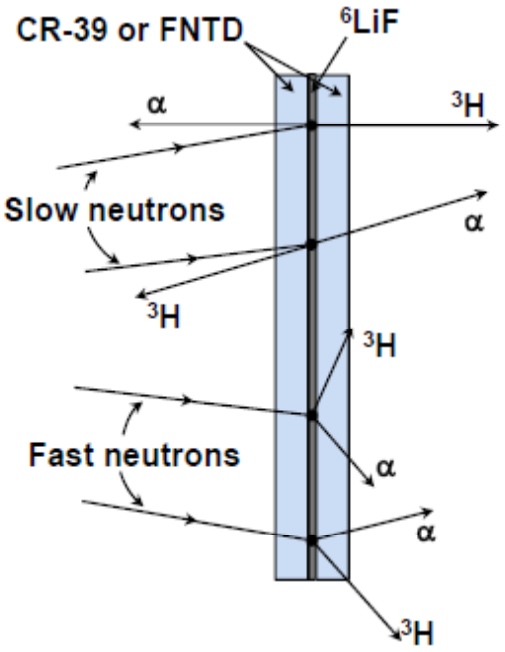
LENS applications include DD Yield, T_{ion} and ρR measurements, study of non-thermal effects and basic nuclear physics (e.g., T_2)



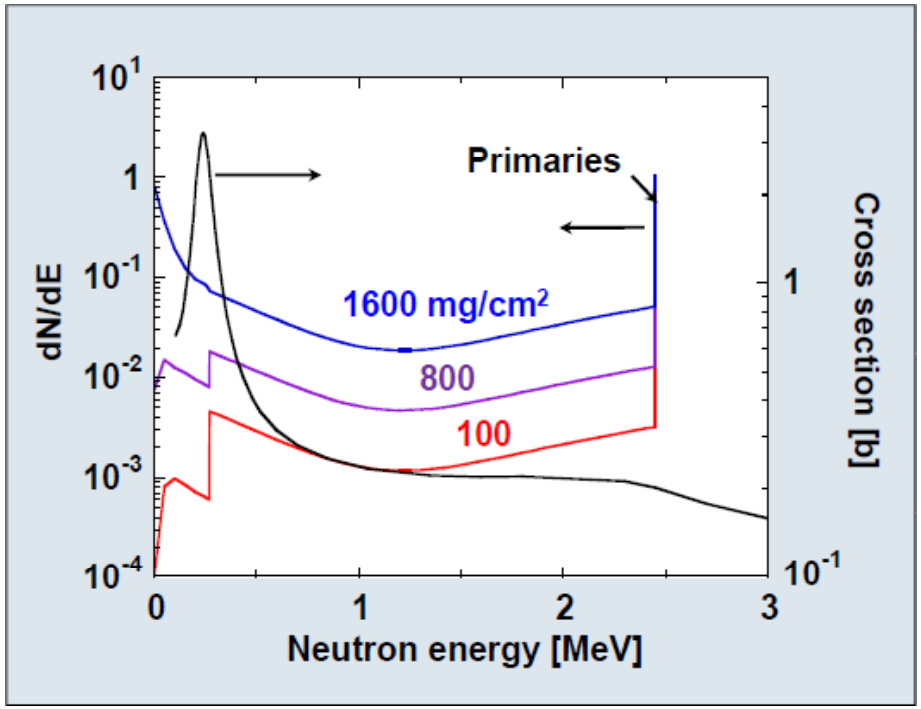
Design requirements are determined by the planned applications and facility specific constraints

- Energy range to be covered?
  - 0.1-8 MeV
- Resolution?
  - Of order thermal Doppler broadening for a few keV DD plasma (e.g., T_i=3 keV $\rightarrow$ ΔE=143 keV, ΔE/E=5.8% FWHM)
- Efficiency and compactness requirements are facility specific
  - OMEGA: High Y_{DD}~2e11 $\rightarrow$ need efficiency of ***at least*** order 1e-9
  - Should fit in TIM

A ^{6}LiF sandwich spectrometer is under development at MIT

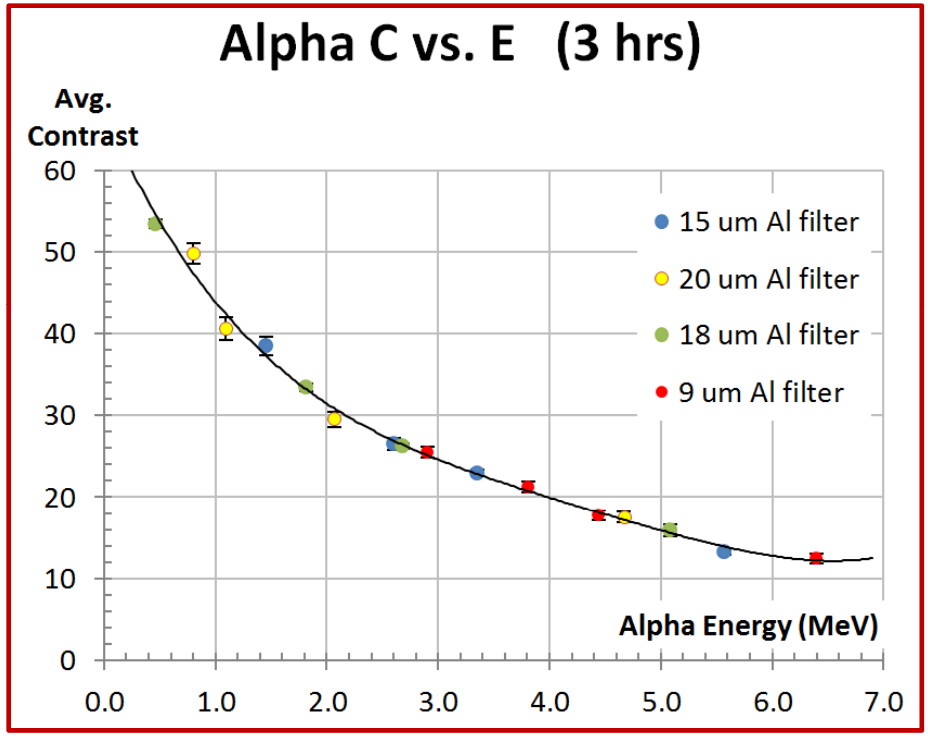


n+^{6}Li→α+t+4.785 MeV

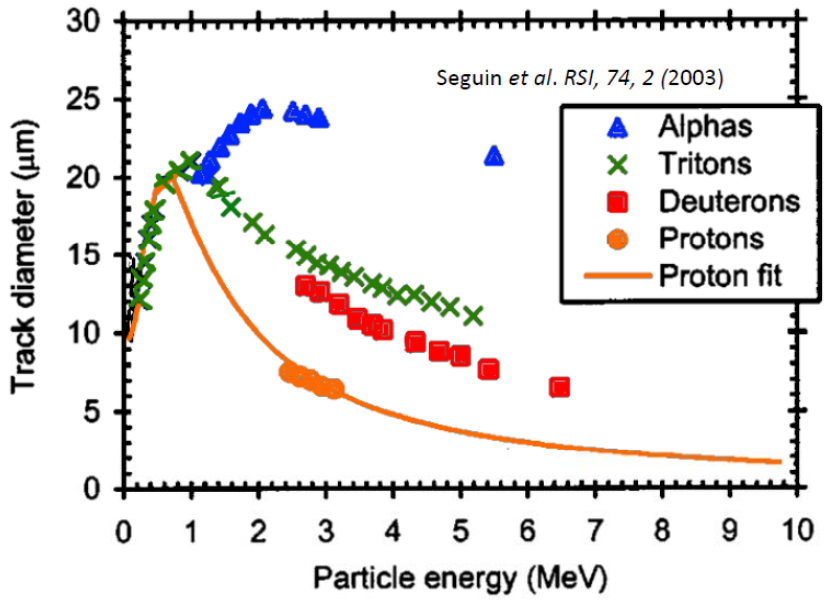


1 μm LiF foil with WRF-size area fielded 10.5 cm from TCC would have an efficiency ~2e-8
"Creative processing" would be required to improve S/B

Recent experiments show that alpha energy separation in CR-39 can be done based on track contrast



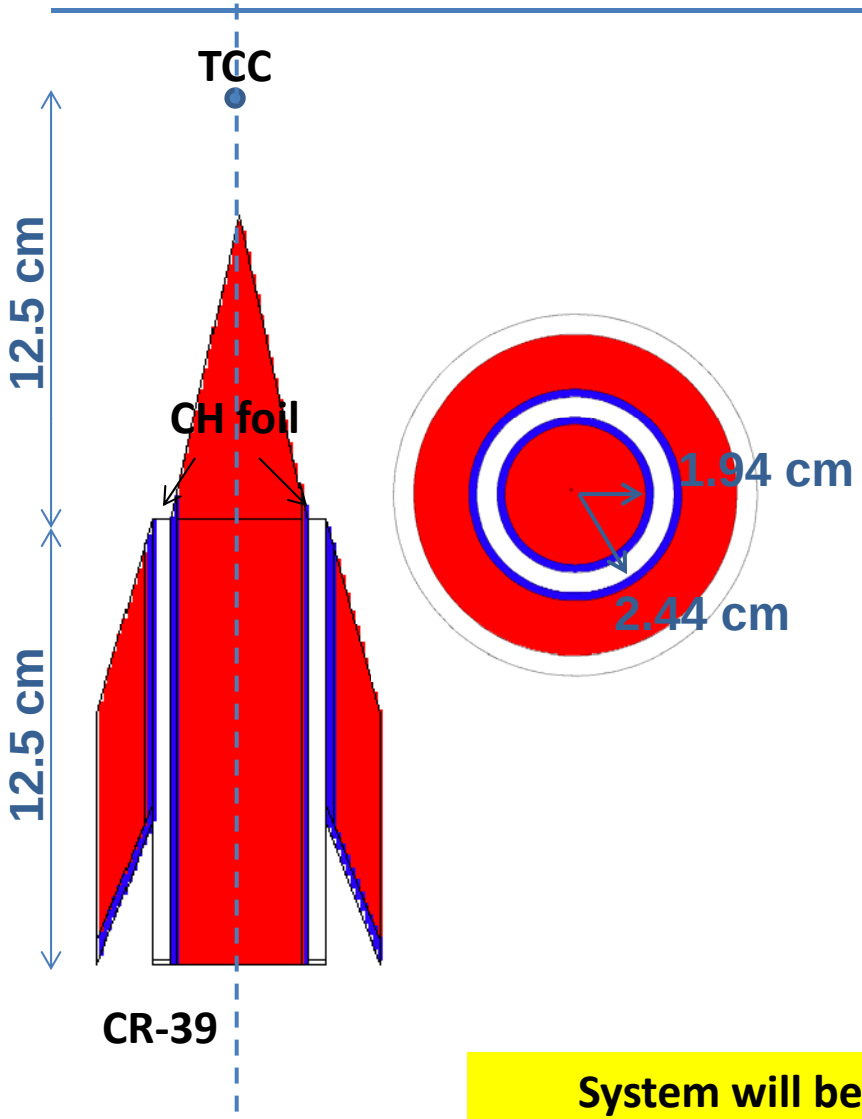
Alpha energies are well-separated in contrast space



New triton data was taken on OMEGA 4/10 Diag. Dev. shots

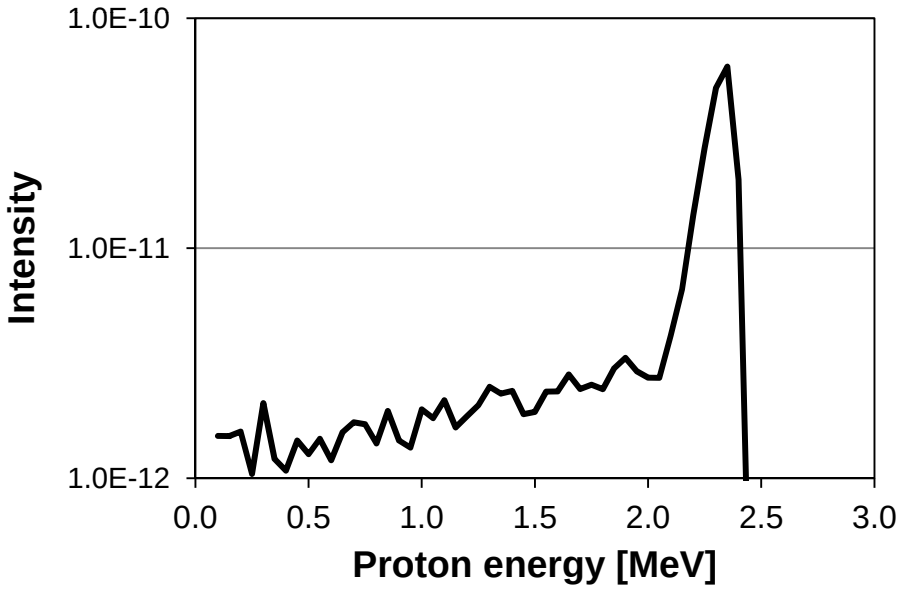
MIT accelerator will be used for full-scale proof-of-principle experiments

A proton recoil spectrometer concept is also being studied



Efficiency: ~2e-9
Resolution: ~5%

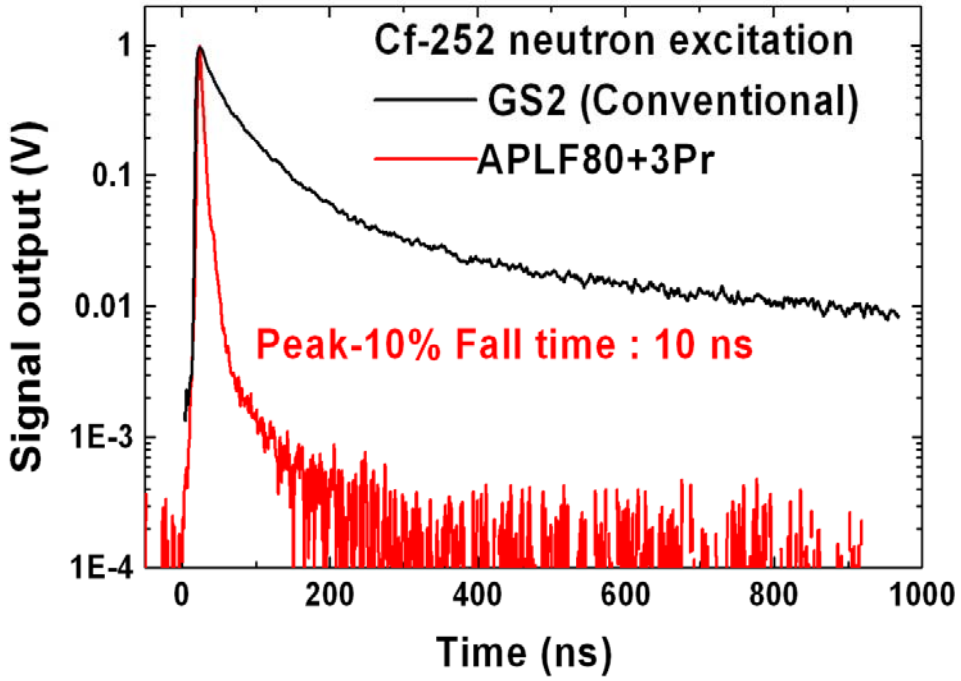
Energy separation based on track size in CR-39

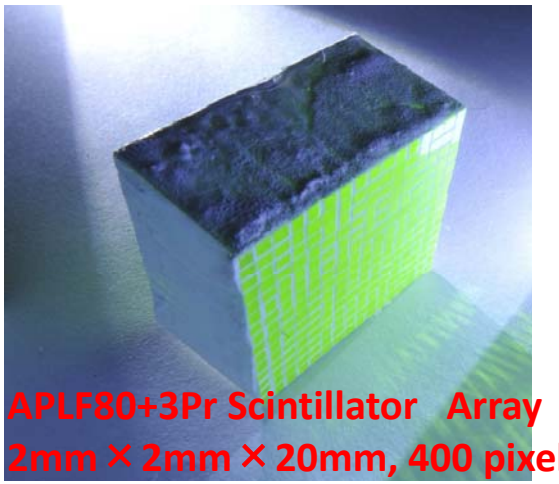


System will be designed to fit in a TIM

ILE in Japan is working on an Li scintillator based time-of-flight detector system

Neutron source experiment





Purpose: DD DS-n detector

OMEGA/ILE:
Multichannel counting mode

NIF:
Current mode, gating out primary neutron flash