

# Neutron downscatter from Be liners on MagLIF experiments on Z

**Kelly Hahn, Gordon Chandler, Carlos Ruiz,  
Pat Knapp, Gary Cooper, Brent Jones  
Sandia National Laboratories**



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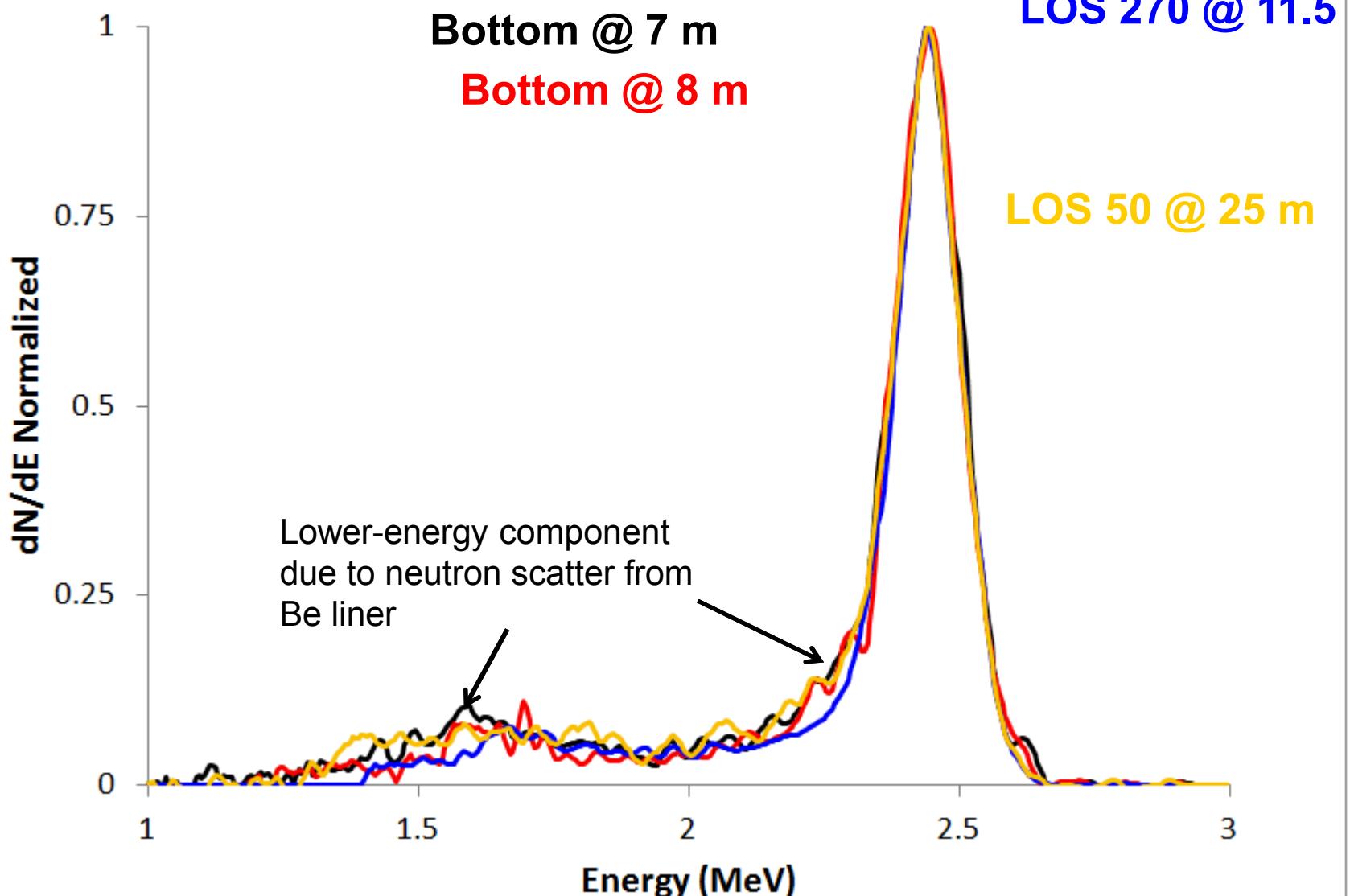
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All waveforms have been corrected for instrument response, LO, and atten/scat.

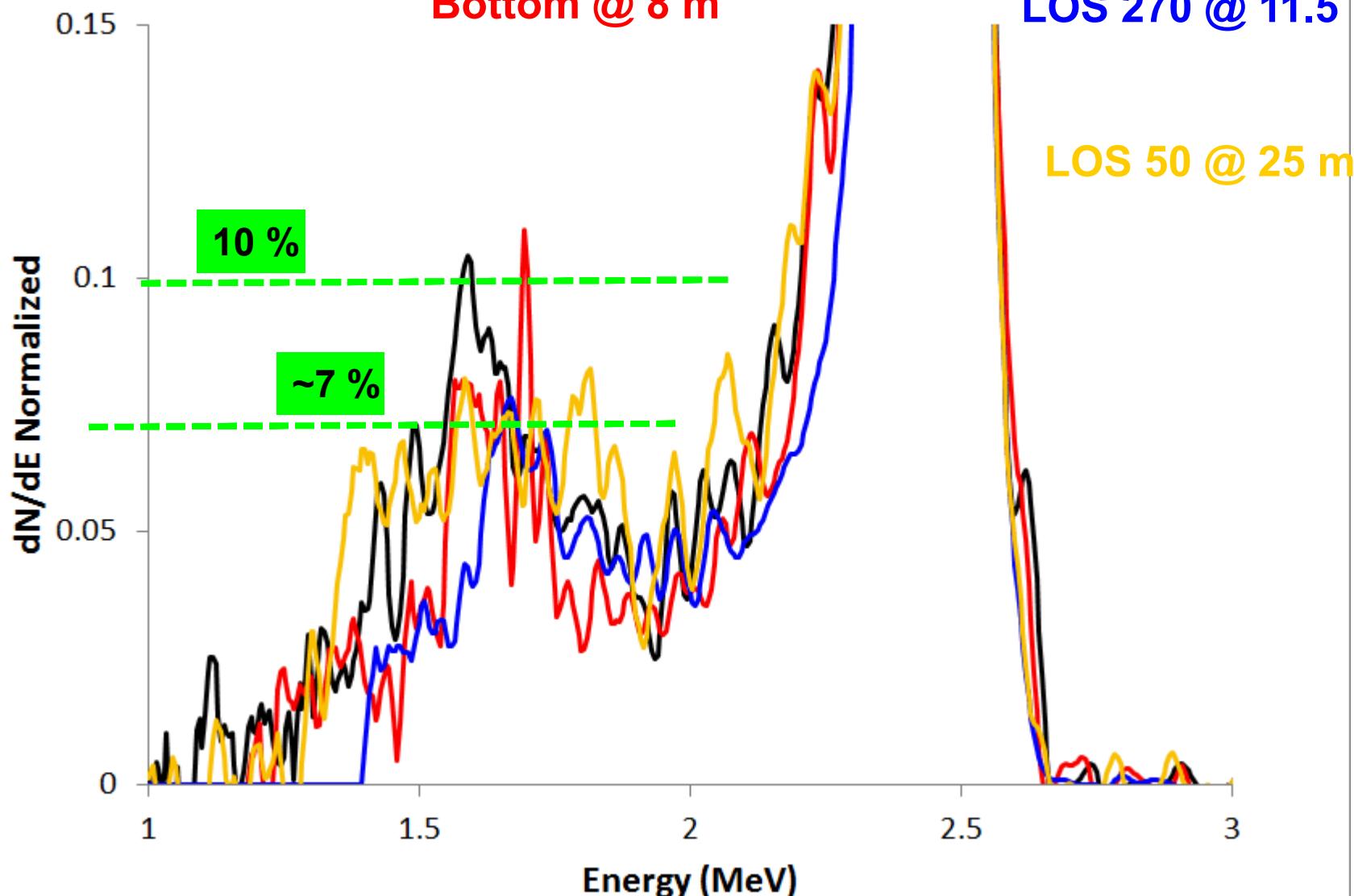
All waveforms were boxcar smoothed.

Bottom @ 7 m

Bottom @ 8 m

LOS 270 @ 11.5 m

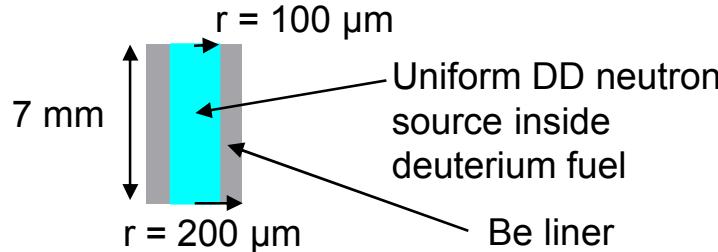
LOS 50 @ 25 m



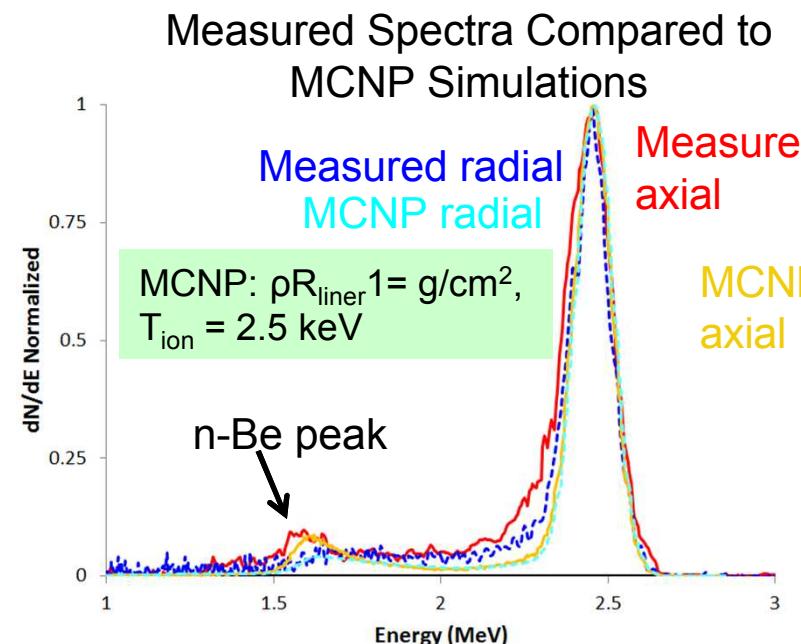
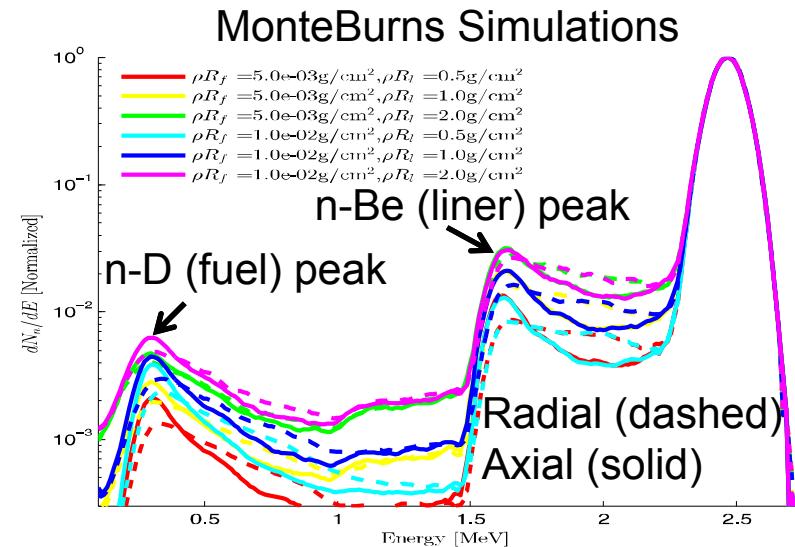
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# Down-scattered neutrons from Be liner reveal information about *liner* areal density.

- **Neutron down-scattering simulations (MCNP, MonteBurns) show how fuel and liner areal densities affect neutron spectra.**



- **Measured  $\sim 1.6$  MeV peaks associated with n-Be down-scatter from liner suggest  $\rho R_{\text{liner}} \sim 1 \text{ g/cm}^2$ .**
  - Differences between measured and simulated scattering tails are likely due to additional scattering in surrounding hardware.
  - Agrees with x-ray spectroscopy measurements<sup>17</sup> and simulations.



MCNP:  
 $\rho R_{\text{liner}} = 1$   
 $\text{g/cm}^2$ ,  $T_{\text{ion}} =$   
2.5 keV

Measured radial  
MCNP radial

Measured  
axial  
MCNP  
axial

n-Be peak

1.5

Energy (MeV)