Uncertainties in Neutron Scattering Cross Sections

- Scattering cross sections account for **70% or more of the total**
- Uncertainties are large, incomplete, or nonexistent for light elements like $^6\text{Li}$
- The large actinide scattering uncertainties do not indicate how well we **really** know these cross sections
Path Forward with Neutron Scattering: Elpasolites

Scientific Goals:
- Accurately measure scattering cross sections and angular distributions
- *The need for these data is not limited to just a few nuclei*

Strategic Impact:
- Improve predictions of neutron transport and device performance

Why LANL, Why Now:
- WNR Facility
- Neutron source that we understand from experiments like Chi-Nu
- Dual $n$-$\gamma$ detectors have only recently become reliably produced and commercially available