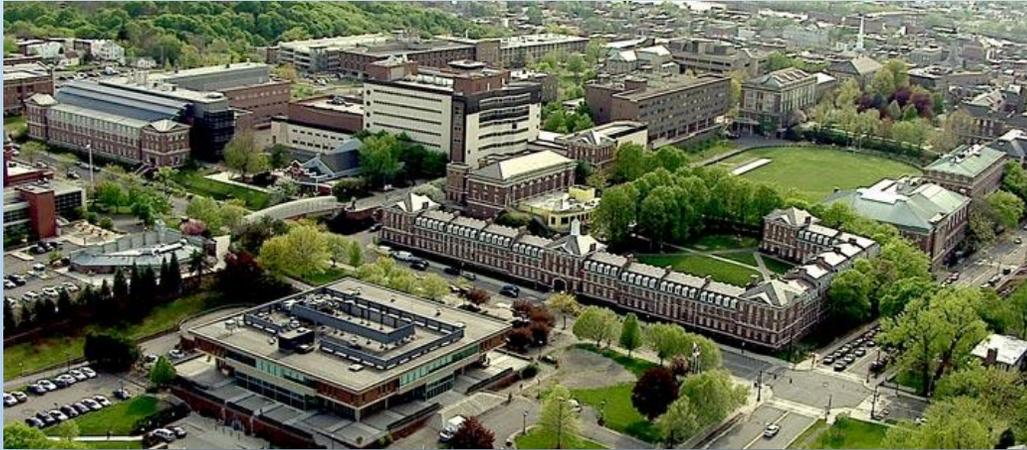


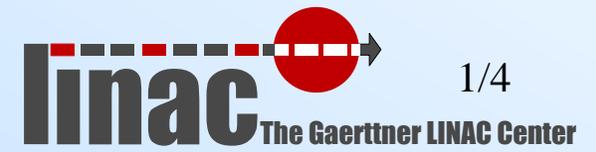
# Evaluation of Zr-90 and Zr-91 in the Unresolved Resonance Region

Alec Golas

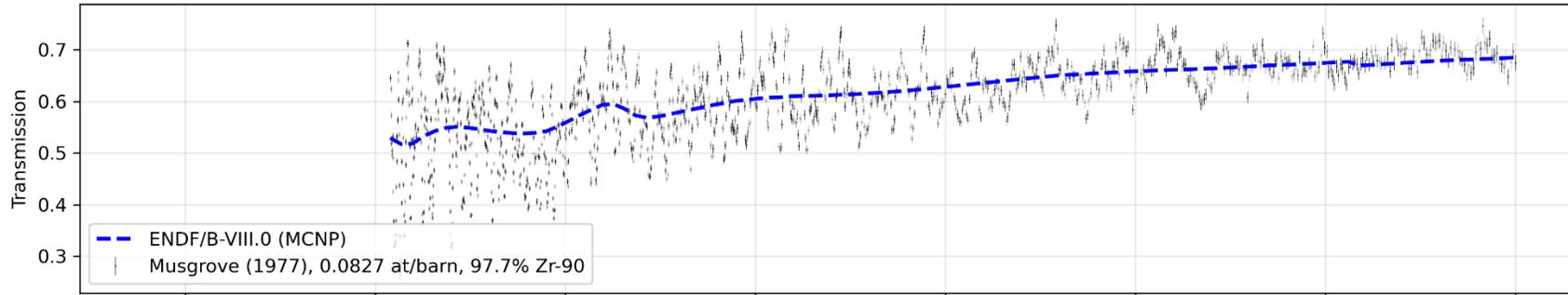
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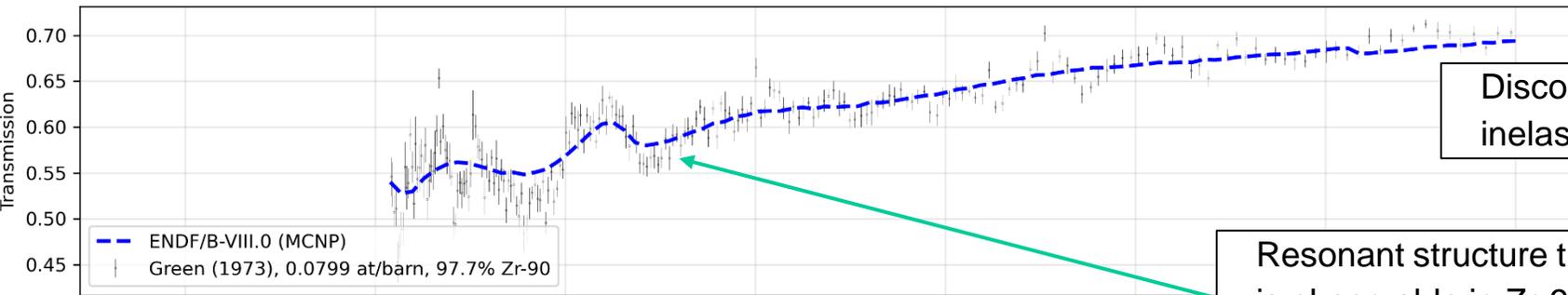
**Rensselaer**



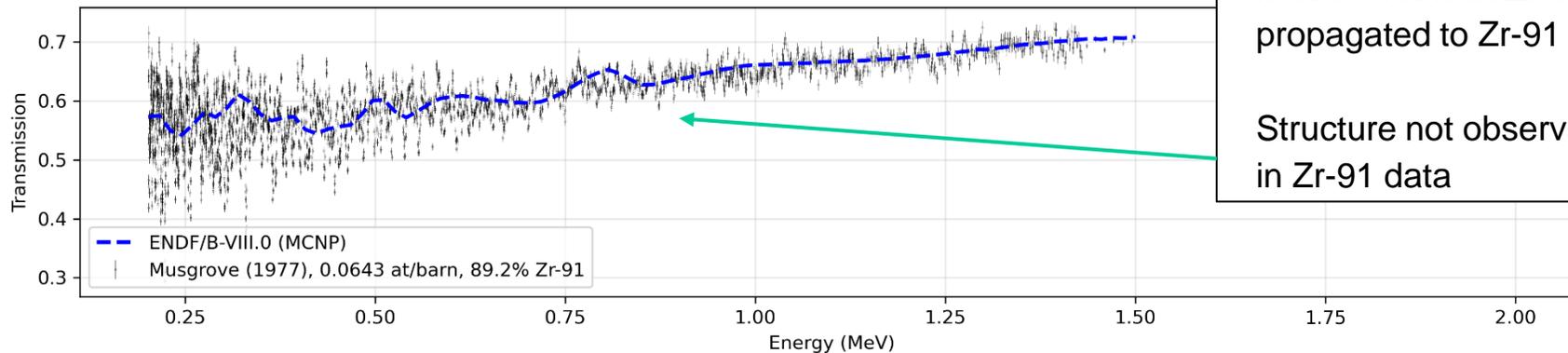
# Current Deficiencies



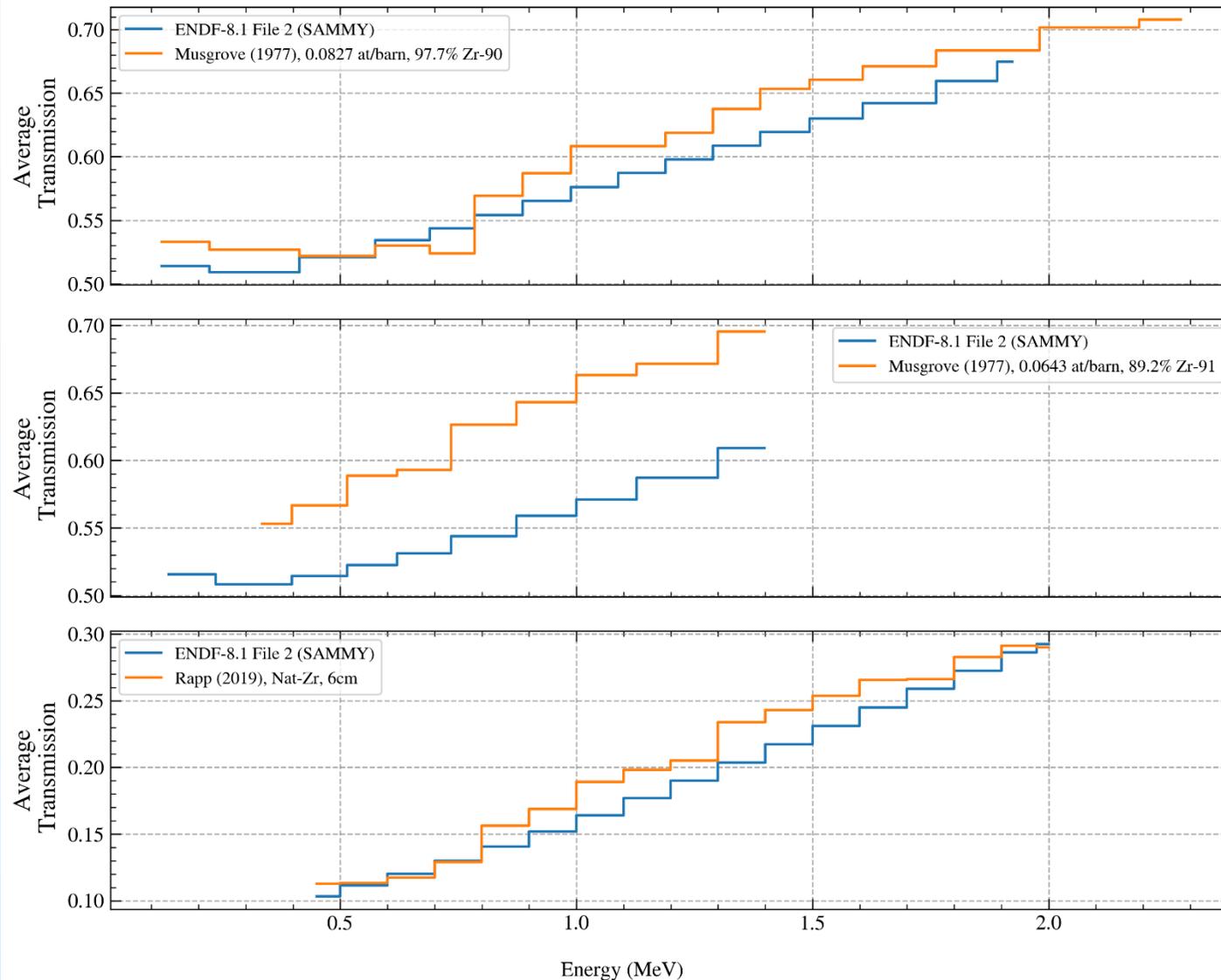
File 3 background cross-sections are currently sourced from natural Zirconium - not isotopic data



Resonant structure that is observable in Zr-90 is propagated to Zr-91  
Structure not observable in Zr-91 data



# Current Deficiencies



File 2 parameters don't accurately represent isotopic behavior by themselves

Significant deviation between theoretical cross-section calculated from Zr-91 URR parameters and experiment

Natural Zr is arguably better represented – compensating errors between isotopes

# Objectives

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- Perform URR evaluation concurrently with a new Resolved Resonance (RR) evaluation.
- Utilize new SAMMY functionality to fit parameters to multi-isotope self-shielded URR measurements
- Implement a physical model to capture the non-resonant intermediate structure (doorway states).
- Improve UQ on parameters (add File 32 to evaluation)