Thesis Project Progress Report

Development of an Improved Subgroup Method for Resonance Calculations

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Nuclear Engineering Research Seminar, May 19th, 2020

General Objective

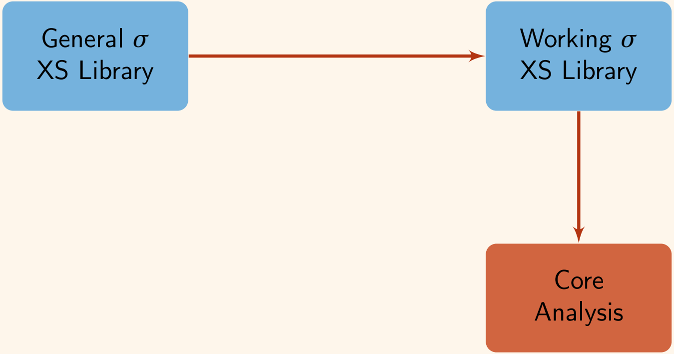
Develop a lattice code for high fidelity analysis.

Legacy Nuclear Reactor Analysis Procedure

General σ
XS Library

Legacy Nuclear Reactor Analysis Procedure

Legacy Nuclear Reactor Analysis Procedure



Less General Objective

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- What is the trade off between computational resources and accuracy?

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- 2D method of characteristics

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2. More exact equivalence method, pointwise energy slowing down (Choi et al 2017)
3. Incorporation of a *basic* subgroup method then add improvements

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2. Gemma conditioning.

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2. Code Documentation

More Specific Plans for Fall 2020

1. Module to read from a *general σ cross section library*

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2. Equivalence theory resonance calculation module.

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$$\sigma_x(T,\sigma_b) \approx \frac{I_x(T,\sigma_b)}{1 - \frac{I_a(T,\sigma_b)}{\sigma_b}} \tag{1}$$

Looking Ahead to PhD Pre-Defense

Work within ~ 18 months and code review article:

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Thanks!

Questions?