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Resonance Self-Shielding Methodologies in Scale 6

The paper goes through the method used by Scale 6 to calculate self shielding using the Boltzmann transport equation with discrete ordinates and other non-monte carlo approaches. The authors discuss the breakdown of the total transport equation into discretized quantities from energy to cross section to linear and angular coordinates.

It is very interesting how the authors create a method for self shielding that is accurate as monte carlo calculations run. Given the validation of their model to MC results it is clear that this method works and can be adopted when modeling the self shielding issue. The fundamental issue of this method still lies in the uncertainty of the values of cross sections. In order to improve the accuracy of both Scale 6 and MCNP a more accurate table of cross section values must be generated/updated.