

Neutron heating of metastables with NJOY

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Metastable nuclides with complete secondary distributions are increasingly more available in major evaluations, allowing for the calculation of their KERMA values. When processing these metastable nuclides using NJOY's heatr module, negative total energy release values are being calculated for certain nuclides.

On investigation, the method by which NJOY calculates the heating for inelastic reactions is incorrectly handling the Q-values for metastable materials resulting in significant negative values equivalent to the metastable energy level which may be greater than the contribution from all other reactions. The cause for these values have been identified and further questions have been raised for the processing of metastable nuclides.

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