

Uncertainty quantification for

Fission Modeling

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A significant amount of research has gone into developing and improving uncertainty quantification methods for nuclear theory, particularly in moving beyond chi-squared calculations and covariance propagation, quantifying truncation and model errors, and developing emulators to apply these improved methods to computationally demanding calculations. Fission modeling presents a variety of challenges for uncertainty quantification, based on the time scales of the process, the computational cost of the modeling, and the large amount of information – mostly on exotic, neutron-rich nuclei – needed for calculations. In this talk, I'll discuss some of our efforts at Los Alamos to consistently model the emission of neutrons and gamma rays from excited fission fragments and a new project aimed at improving the optimization and uncertainty quantification of the variety of correlated observables that are generated in fission events.

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