1154-35-265 **J. Darby Smith*** (jsmit16@sandia.gov) and **Rich Lehoucq**. *An SDE Representation of Particle Transport for Low Power Implementation.*

A quantity of interest concerning particle transport is the angular flux Φ, defined as particle speed times the particle angular density. Traditionally, the PDE for angular flux is numerically approximated by first expressing Φ as a Neumann series with a physical interpretation, and then employing Monte Carlo techniques. With the advent of low power neuromorphic hardware, we have the ability to cheaply simulate large numbers of random walks. However, there is a fundamental tradeoff as these walks live in a coarser, discretized space. We have returned to the derivation of the transport equation and the random walk method looking for alternate forms and methods optimized for implementation on neuromorphic hardware and present the derivation of a jump-SDE for particle angular flux. (Received August 27, 2019)