

ABSTRACT

A Monte Carlo simulation can be used to model freeze-out from high energy collisions. Existing Monte Carlo freeze-out algorithms usually do not account consistently for all conservation laws, such as the conservation of momentum or the conservation of energy. This poster will document the author's work during his REU program, to develop a Monte Carlo simulation modeling the freeze-out from high energy nuclear collisions imposing momentum conservation. We briefly explain the sampling algorithm that exactly enforces momentum conservation for non-relativistic Maxwell-Boltzmann distributions and test how it performs as an approximation to relativistic Bose-Einstein and Fermi-Dirac systems. Once completed, our simulation could provide important insights into the behavior of quark gluon plasma and high energy collisions.