

Abstract Submitted  
for the OSF20 Meeting of  
The American Physical Society

**Nested Sampling on Lennard-Jones Particles** LUKE CVETKO,  
Brigham Young University — One of the most sought after qualities of a system in statistical mechanics is the partition function, which can be used to find many useful qualities of a system, including the heat capacity. This function is defined as defined by the sum over all energies of the weighted Boltzmann Factor. The weighting factor is almost always the most difficult part of the partition function to find. One way to approximate this is Nested Sampling. This method involves taking configurations of the atoms, cooling them down and recording their energy. The data we collect from this process gives us a set of energies and the corresponding weighting factors, allowing us to approximate the partition function.

Luke Cvetko  
Brigham Young University

Date submitted: 25 Sep 2020

Electronic form version 1.4