Abstract Submitted
for the TSS21 Meeting of
The American Physical Society

Calculating Relativistic Atomic Properties Using Monte Carlo Methods STEVEN ALEXANDER, GERARDO GONZALEZ, Southwestern University, R.L. COLDWELL, University of Florida — There are a number of computational methods that can be used to calculate the energies and properties of nonrelativistic atoms. Fully relativistic calculations of these systems are much less common and more complicated. In part, this is because each relativistic particle generates four coupled components and the presence of negative energy states prohibits the use of most variational techniques. In this talk I will describe how variational Monte Carlo methods can be used to calculate the energy and properties of fully relativistic one-electron atoms.

Steven Alexander
Southwestern University

Date submitted: 30 Mar 2021 Electronic form version 1.4