Abstract Submitted
for the SES19 Meeting of
The American Physical Society

The Cosmic Radiation Shielding Properties of Lunar Regolith ELEANOR MURRAY, North Carolina School of Science and Mathematics — Lunar regolith is the most accessible material for use as radiation shielding for human habitation on the Moon. This study aims to determine the thickness of lunar regolith shielding necessary to protect humans from cosmic radiation and its secondaries, including neutrons. We measured the percentage of thermal neutrons that passed through LHS-1 Lunar Highlands Simulant samples of different thicknesses at the Neutron Powder Diffraction Facility at the PULSTAR Reactor at NC State University, prepared for a neutron transmission experiment. We also model our neutron transmission experiment using Geant4. We present the results of this experiment as well as preliminary results of the necessary thickness at which the radiation dose will drop to safe levels based on Geant4 simulations of the interactions of galactic cosmic rays with the lunar regolith-like material.

Jonathan Bennett
North Carolina School of Science and Mathematics

Date submitted: 30 Sep 2019 Electronic form version 1.4