

Abstract Submitted  
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**MD simulations of electron and WIMP scattering from neutron star crust**<sup>1</sup> JAKE FISH, Harvey Mudd College, CHARLES HOROWITZ, Indiana University — Neutron star crust is composed of a crystal lattice of atomic nuclei embedded in a relativistic degenerate electron gas. We use molecular dynamics simulations to determine the crystal structure of neutron star crust material. From these simulations, we calculated the static structure factor  $S(q)$  that describes the scattering of electrons, neutrinos, or weakly interacting dark matter particles (WIMPs) from ions in the crust. The scattering of electrons determines the crust thermal conductivity, while WIMP scattering from the crust may allow dark matter particles to be trapped in neutron stars.

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