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Structure of the Impure Neutron Star Crust JOSEPH HUGHTO, CHARLES HOROWITZ, ANDRE SCHNEIDER, DON BERRY, Indiana University — X-ray observations of LMXBs have shown that in some systems accretion onto a neutron star from a companion can lead to the crust becoming thermally decoupled from the core. After accretion stops, the crust is observed to cool at a rate that implies a high level of crystalline order. We perform Molecular Dynamics (MD) simulations to compute the structure of an impure Coulomb solid and also compute diffusion constants for these systems. We then present the first results of the structure of an impure Coulomb solid and also give the first results for diffusion constants in a multicomponent Coulomb solid.

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