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Molecular dynamics simulations of nuclear pasta ANDRE DA SILVA SCHNEIDER, JOE HUGHTO, DON BERRY, CHARLES HOROWITZ, Indiana University — The study of supernovae requires understanding the properties of matter at a large range of densities and temperatures. At subnuclear densities of about 10^{14} g/cm³ nucleons, protons and neutrons, become the relevant degrees of freedom. Both nucleons interact via a short-range nuclear force. Meanwhile, protons also interact via a long range Coulomb force. Because of competition between these two forces nucleons arrange themselves in a variety of complex shapes known as *nuclear pasta*. In the present work we describe a simple semiclassical model for the nucleon interactions and use large scale molecular dynamics simulations to study the *nuclear pasta*.

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