

Abstract Submitted  
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**Neutrino emissivity in the quark-hadron mixed phase of neutron stars**<sup>1</sup> WILLIAM SPINELLA, Computational Science Research Center & Department of Physics, San Diego State University, FRIDOLIN WEBER, Department of Physics, San Diego State University & Center for Astrophysics and Space Sciences, University of California, San Diego — Neutrino-pair bremsstrahlung due to interactions between electrons and the crystalline lattice in the quark-hadron mixed phase of high mass neutron stars has been previously studied by Na et al. 2012. We extend this study by first replacing the MIT bag model with the nonlocal three-flavor Nambu-Jona-Lasinio model to describe the quark matter phase. We then include rod and slab rare-phase geometries in addition to spherical blobs. Finally we compare contributions due to Bragg diffraction and electron-phonon scattering. We find that the neutrino emissivity due to electron-lattice interactions in the mixed phase may be substantial at low temperature and quark fraction.

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