Abstract Submitted
for the APR21 Meeting of
The American Physical Society

**Comparison of vBAG and vMIT Bag Models at Finite Temperature**[1] CRISTIEN ARZATE, THOMAS KLAEHN, California State University, Long Beach — The observation of neutron stars with masses $\sim 2M_{\odot}$ supports the idea that quark matter exists in the cores of neutron stars. However, to construct effective theoretical frameworks which can successfully model the dense matter found inside neutron stars, one must take into account vector repulsion between interacting quarks.The vBAG and vMIT bag models of quark matter are examples of such frameworks and have been useful tools in the study of neutron stars. Here, we present a finite temperature extension to vBAG and vMIT which utilizes a Sommerfeld expansion to approximate the behavior of dense matter at low finite temperatures. This is relevant for large parameter space studies of proto-neutron stars as formed during supernovae and during neutron star mergers. The results of this work can also aid in the study of sound speeds for use in the investigation of gravitational waves observed by LIGO.

[1]This work was supported by National Science Foundation grant PHY 1913693, a Google Graduate Summer Research Assistantship award, and the Sally Casanova Pre-Doctoral Scholarship.

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Date submitted: 08 Jan 2021 Electronic form version 1.4