

Abstract Submitted
for the APR20 Meeting of
The American Physical Society

Rotating Gravastars EMIL MOTTOLA, Los Alamos Natl Lab — Gravitational Condensate Stars (gravastars) have been proposed as the non-singular end state of complete gravitational collapse consistent with quantum principles. Unlike black holes, gravastars have a finite density $p=-\rho$ condensate interior, and a boundary layer of finite surface tension replacing the classical black hole horizon. In the non-rotating spherically symmetric case, the gravastar solution actually follows from Schwarzschild's well-known interior solution, when its radius approaches the Schwarzschild radius. I will describe recent progress in finding solutions that describe rotating gravastars, and a new proposal for the interior of the Kerr geometry describing a spinning condensate, as well as the possibility of testing this proposal with gravitational wave and multi-messenger signatures.

Emil Mottola
Los Alamos Natl Lab

Date submitted: 10 Jan 2020

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