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Investigating if a quark star - black hole binary may yield new astrophysics and insights as to gravitational waves and Bose-Einstein condensation

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We wish to investigate if we can extend the insights provided by the publication “Can stellar mass black holes be quark stars?” by Z. Kovacs, et al. in MNRAS, 2009 as to answering their question via examining what may happen in a quark star - black hole binary in its Gravitational wave generation. In doing so, we also examine how to Use this idea to explore the idea of a black hole as a Bose-Einstein condensate of gravitons for black holes in lower mass ranges. Which extends the idea brought up by P.H. Chavanis, page 181 in “Self Gravitating Bose-Einstein condensates” in “Quantum Aspects of black holes” with Xavier Calmet as editor. In essence, full examination of what may be involved via Quark stars as well as investigating via a quark star- black hole binary some fundamental astrophysics questions. In addition, we wish to understand how fundamental Bose-Einstein condensation really is.

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