

Abstract Submitted
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Macroscopic Quantum Mechanics, Tunnelling, and Classical Gravity DEBORAH C. GOOD, MARIE A.P. MCLAIN, LINCOLN D. CARR, Colorado School of Mines — Macroscopic quantum mechanics is an active area of experimental research, which could benefit from understanding the effects of gravitational interactions in tunnelling. The Schrödinger-Newton equation is one method for describing Newtonian gravitational interactions in quantum mechanics. While the Schrödinger-Newton equation has been thoroughly described for the single-particle case, there are still open questions in the many-body case. Therefore, we investigate semi-classical solutions to the Schrödinger-Newton equation for the many-body quantum tunnelling case using a variational-WKB method.

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