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Equation of State in a Strongly Interacting Relativistic System
JASON KEITH, EFRAIN FERRER, Physics Department, The University of Texas at El Paso — The graphical representation of the equation of state of a fermion system with a four-fermion interaction in the strong coupling regime is shown as a function of the four-fermion coupling constant. The crossover from a superconducting BCS regime to a Bose-Einstein-condensate (BEC) regime is obtained by increasing the coupling constant. We show the characteristic quasi-particle spectra for each phase. We discuss how the BEC regime becomes unstable in the strong coupling limit giving rise to BCS stable bound states.

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