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BCS-BEC Crossover in Strongly Coupled Quark Matter ISRAEL PORTILLO, EFRAIN FERRER, VIVIAN DE LA INCERA, JASON KEITH, University of Texas at El Paso, HIGH-ENERGY/NUCLEAR THEORY TEAM — We investigate the possibility of a crossover from the BCS to BEC (Bardeen-Cooper-Schrieffer to Bose-Einstein Condensation) phase for strongly-coupled quark matter, and its implications for the system equation of state. The study uses zero temperature effective quark models at densities beyond nuclear density. We use mean-field approximation and consider quark-quark, quark-antiquark, and diquak-diquark interactions. We determine the region of parameters where the crossover can take place for a stable system (i.e. that with a corresponding positive pressure).

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