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Gravitational Self-interactions of a highly degenerate quantum scalar field[1] YAQI HAN, SANKHA CHAKRABARTY, SEISHI ENOMOTO, PIERRE SIKIVIE, ELISA TODARELLO, Univ of Florida - Gainesville — We give a description of the quantum evolution of a homogeneous self-gravitating condensate in critical expansion and show how it differs from its classical counterpart. We show that in quantum description, parametric resonance would cause the quanta to jump in pairs into an increasing amount of low-wavevector modes over time. While the condensate persists forever in the classical picture, it would be depleted rapidly in the quantum picture. We estimate the time scale for the condensate to get completely depleted.

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