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Manoussos G. Grillakis* (mng@math.umd.edu), M. G. Grillakis, Dept. of Mathematics, University of Maryland, College Park, MD 20742, and **Matei Machedon**. *Pair excitations and the mean field approximation of interacting Bosons.*

We consider a large number (N) of interacting Bosons. The mean-field is a wave-function describing the "typical" particle and it satisfies a non-linear Schrödinger equation. In joint work with M. Machedon I will describe a novel method on how to derive a correction to the mean-field. This correction describes pair excitations and has Physical significance. The derivation gives rise to a singular system of coupled equations and I will explain a method for proving local existence with estimates independent of the number of particles (N). (Received July 23, 2017)