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Calogero-Sutherland model and Quantum Benjamin-Ono Equation ALEXANDER G. ABANOV, Stony Brook University, PAUL B. WIEGMANN, University of Chicago — Collective field theory for Calogero-Sutherland model represents particles with fractional statistics in terms of holomorphic bosonic field made out of the density and velocity fields. We identify an operator equation of motion for this bosonic field with a quantum deformation of a known classical Benjamin-Ono equation. The latter equation is integrable and the same is true for its quantum version. The inverse scattering transform for the classical Benjamin-Ono equation can be extended to its quantum analog. Soliton solutions of quantum Benjamin-Ono equation correspond to particle and hole excitations of Calogero- Sutherland model.

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