

# Negative energy blowup for the focusing Hartree hierarchy via identities of virial and localized virial type

Aynur Bulut  
University of Michigan

## Abstract

The Hartree hierarchy is an infinite system of coupled PDEs which arises in the study of many-body quantum mechanics. In this talk we report on recent blowup results for this hierarchy. The results obtained are of “negative energy” type, both with and without an assumption of finite variance on the initial data. The key tools in this context are a class of virial identities and their localizations – the most delicate case of the analysis is the proof without finite variance, where we use a suitable quantum de Finetti theorem and a carefully chosen truncation lemma allowing for the control of additional terms appearing from the localization procedure.