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Thomas Chen and **Natasa Pavlovic*** (natasa@math.utexas.edu), Department of Mathematics, University of Texas at Austin, 1 University Station, C 1200, Austin, TX 78712, and **Nikolaos Tzirakis**. *On the Cauchy problem for Gross-Pitaevskii hierarchies.*

In this talk we will discuss results on the Cauchy problem for the so called Gross-Pitaevskii hierarchy (GP), which describes a system of infinitely many interacting bosons in a mean field limit.

In particular, we identify an observable corresponding to the average energy per particle, and prove that it is conserved. Furthermore, we prove the virial identity on the level of the GP hierarchy that enables us to obtain an analogue of Glassey's argument from the analysis of focusing NLS equations. As a consequence, we prove that all solutions to the focusing GP hierarchy at the L^2 -critical or L^2 -supercritical level blow up in finite time if the energy per particle in the initial condition is negative. (Received February 20, 2010)