1099-35-159   **Philip T Gressman** (`gressman@math.upenn.edu`), University of Pennsylvania, David Rittenhouse Laboratory, 209 South 33rd Street, Philadelphia, PA 19104, **Vedran Sohinger*** (`vedranso@math.upenn.edu`), University of Pennsylvania, David Rittenhouse Laboratory, 209 South 33rd Street, Philadelphia, PA 19014, and **Gigliola Staffilani** (`gigliola@math.mit.edu`), Massachusetts Institute of Technology, 77 Massachusetts Avenue, Building E17, Cambridge, MA 02139. *The Gross-Pitaevskii hierarchy on the three-dimensional torus.*

In this talk, we will study the Gross-Pitaevskii hierarchy on the spatial domain $\mathbb{T}^3$. In the first part of the talk, we will prove a conditional uniqueness result for the hierarchy. As a result of our analysis, it will be possible to obtain a sharp range of integrability exponents in the key spacetime estimate.

In the second part of the talk, we will add randomness into the problem by randomizing the collision operators on the Fourier domain. For such collision operators, we will show that the spacetime estimate holds for a wider range of regularity exponents, provided that one takes averages in the randomization parameter. In addition, we will study the limiting behavior of Duhamel iteration terms in a low-regularity context. Finally, we will construct local-in-time solutions to the obtained randomized hierarchies. This talk is based on joint work with Philip Gressman and Gigliola Staffilani. (Received February 06, 2014)