

## **Benjamin Schlein: "Upper bounds on the ground state energy of dilute hard spheres"**

*Wednesday, January 18, 2023 11:30 AM (55 minutes)*

We review some recent estimates on the energy of bosons interacting through hard-sphere potentials. We first discuss Bose gases in the Gross-Pitaevskii regime, in which  $N$  hard spheres with radius of order  $1/N$  move on the unit torus; in this setting, we show an upper bound for the ground state energy, valid up to errors that vanish as  $N$  tends to infinity. We conclude presenting a simple new bound for hard spheres in the thermodynamic limit, resolving the ground state energy up to an error comparable with the so-called Lee-Huang-Yang corrections.