

New results on the Lieb-Thirring inequality

The Lieb-Thirring inequality is a generalization of the Gagliardo-Nirenberg inequality, which plays a central role in the analysis of large quantum systems. In this talk I will first introduce the inequality and then focus the discussion on its best constant. After reviewing what is believed, what is known and what is open, I will present new results on the value of the best constant as well as numerical simulations in 1D and 2D. Collaboration with Rupert L. Frank (Caltech, USA) and David Gontier (Paris-Dauphine, France).