

# THE HILBERT DISTORTION OF BALLS OF THE HEISENBERG GROUP

ROMAIN TESSERA

(joint work with Tim Austin and Assaf Naor)

We prove a new Poincaré inequality on the Heisenberg group. We derive a sharp (up to universal constant) lower bound of the Hilbert distortion of balls of radius  $n$ , namely  $(\log n)^{1/2}$ . Using a (new) quantitative version of the Von Neumann ergodic theorem, we obtain almost sharp estimates of the distortion for embeddings into uniformly convex Banach spaces.