

HARMONIC AND SPECTRAL ANALYSIS

International Zoom Conference

May 31 – June 2, 2021

The discrete Pompeiu problem

PETER LINNELL

Virginia Tech

(joint work with MIKE PULS)

Let K be a compact subset of \mathbb{R}^n with nonzero Lebesgue measure. The Pompeiu problem asks if $f = 0$ is the only continuous function such that $\int_{\sigma(K)} f dx = 0$ for all rigid motions σ of \mathbb{R}^n . We will consider a version of the Pompeiu problem for discrete groups. We shall also describe $\mathcal{U}(G)$ and its role in this problem.