Harmonic and Spectral Analysis

International Zoom Conference

December 2–4, 2026

Spectrality and Tiling Beyond the Finite-Measure Setting

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The relationship between spectral sets and translational tiling, originating in Fuglede's conjecture, has been extensively studied for sets of finite Lebesgue measure. Pedersen's notion of spectral pairs provides a framework for extending this investigation to sets of infinite measure. In this talk, we discuss connections between spectral pairs, translational tiling, and Plancherel identities for unbounded subsets of $\mathbb{R}^d$. Our results establish relationships between tilings by discrete subgroups and the existence of corresponding spectral pair measures.