Barcelona Analysis Seminar **2026–2027**

Date: November 13, 2026
Time: 12:00 CET
Room: CRM Auditorium (Universitat Autònoma de Barcelona)

Traveling salesman metrics and embeddings into Banach spaces

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We study traveling salesman metrics on finite configurations of points in a two-dimensional lattice and ask whether they admit bi-Lipschitz embeddings into Banach spaces. These metrics arise naturally in the study of lamplighter groups. We prove that the planar lamplighter metric does not admit a bi-Lipschitz embedding into L^1 and that its square root does not admit a bi-Lipschitz embedding into Hilbert space. I will explain how Poincaré inequalities can obstruct metric embeddings and prove an inequality adapted to this setting. The argument combines elementary discrete Fourier analysis with geometric estimates for tours through random sets of points. Joint work with Gioacchino Antonelli, Nicola Cavallucci, Luca Nalon, Assaf Naor, and Pietro Wald.