The Grushin eigenvalue problem: sensitivity, optimization, and blow-up

Paolo Luzzini
Università degli Studi del Piemonte Orientale Amedeo Avogadro

June 6, 15:15

One of the oldest and most studied problems in the spectral theory of differential operators is the eigenvalue problem for the Dirichlet Laplacian. Classical questions about Laplacian eigenvalues concern their sensitivity analysis, optimization, asymptotic expansions, and many other more properties.

On the other hand, similar questions remain open for an important class of degenerate operators, that is the Grushin Laplacians. In this talk I will present some recent results regarding the spectral theory of the Grushin Laplacian and in particular its shape sensitivity analysis, the optimization of the first eigenvalue, and a blow-up analysis.