basque center for applied mathematics

Working Seminar
(APDE)

Thursday, May 20th, 12:00

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UC3M

Joint BCAM-UPV/EHU Analysis and PDE seminar: Discrete magnetic Laplacians, covering graphs and spectral gaps

A periodic graph G is an infinite graph on which a finitely generated group H acts and such that the quotient graph G/H is finite. In this talk we will analyze the conditions under which the spectrum of the Laplacian on G has gaps, i.e., its spectrum does not reach all possible values. To address this question we will study the discrete magnetic Laplacian on the finite quotient. A basic tool for the analysis is the definition of a partial order on the class of finite graphs which controls the spectral spreading of eigenvalues under elementary perturbation of the graph (e.g., edge and vertex virtualisation). As a corollary we will prove the Higuchi-Shirai conjecture for Z-periodic trees. Time periming I will mention other possible applications of the preorder (spectral classification of graphs, construction of isospectral magnetic graphs, etc.)

Link to the session:
https://zoom.us/j/91988722895?pwd=WWczT0NDeUdQOExLVlcwR1lFUDBOZz09

More info at https://sites.google.com/view/apdebilbao/home

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