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Spectral Properties of the Zig-Zag Product of Graphs

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Abstract of Report Talk: The zig-zag product of expander graphs was introduced by Reingold, Vadhan, and Widgerson in order to combinatorially construct infinite sequences of expander graphs. This product extends naturally into a wider generalization which applies to non-regular and infinite graphs. In this new generality, determining the spectral invariants of an infinite graph is of particular interest. The combinatorial structure of the zig-zag product preserves covering maps and combinatorial covers and, in some cases, allows for direct spectral analysis, such as determining the spectral radius of the transition operator or constructing products of graphs that preserve spectral gaps. [DD12095319]

[Joint work with Samuel Cooper]

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