

Does diffusion determine the graph structure?

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Abstract

We discuss properties of weighted graphs that are encoded in the graph Laplacian. Analogous to the work of Wolfgang Arendt for Laplacians on domains in Euclidean space, we study graphs for which the semigroups of the graph Laplacians are equivalent up to an order isomorphism. We present some geometric quantities that are preserved in this situation. For important classes of graphs, all defining properties can be recovered. (this is joint work with Matthias Keller, Daniel Lenz, and Marcel Schmidt)