The spectral theory of complexes

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008 Kemeny, 4:00PM
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Abstract

While the Laplacian of a discrete graph is well known and studied, too little attention has been given so far to its high dimensional sibling — the Laplacian of a simplicial complex. This operator can be thought of as a discrete analogue of the Hodge Laplacian in Riemannian geometry, but at the same time it is very easy to define and compute, being a finite dimensional linear transformation. I plan to give a survey of some of the topological, geometric, and combinatorial information the simplicial Laplacian carries on a complex. No prior knowledge is assumed.

This talk should be accessible to graduate students.