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Quadratic Forms on Graphs

The eigenvalues of a graph are defined as the eigenvalues of a certain matrix associated with that graph. Maximizing or minimizing an extreme eigenvalue in some class of graphs is a topic in spectral graph theory, from which we can understand the structure of graphs. The quadratic forms on graphs are combinatorial viewpoint or method on this topic, as it contains information on the graph structure and it has more meaning than the quadratic form of matrices. In this talk I will introduce the quadratic forms on graphs and illustrate it with some examples.