MICHAEL TAIT, Villanova University

Counting subgraphs using graph eigenvalues

We discuss how to use graph eigenvalues to count subgraphs of various graphs. We discuss the general framework of this problem and how it captures several problems in extremal graph theory, and then we show how to use graph eigenvalues to answer the problem in specific cases. Some applications include to combinatorial number theory, to geometric questions in graph theory, and to VC dimension.