A short stroll through spectral graph theory

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Abstract: Graphs are an important way to explore the interconnections between objects (for example, the internet is often modeled as a graph of links between pages). One way to understand graphs is through the use of matrices which store information about the connections in the entries; but by going deeper and looking at the eigenvalues of the matrix we can sometimes discover even more about a graph. The study of the eigenvalues of matrices associated with a graph is the area known as spectral graph theory. In this talk we will explore some matrices associated with graphs and what we can learn about the graphs using spectral graph theory.