

Discrete Mathematics Seminar

Illinois State University

2:00–2:50 pm, March 18

Speaker: Vladimir Nikiforov, University of Memphis

Some spectral results for uniform hypergraphs

Spectral methods are a relatively well-established area in graph theory, but for hypergraphs the basics of spectral methods are still settling.

In this talk we shall present two popular approaches to spectra of hypergraphs, and we shall discuss recent results that generalize the following well-known results from spectral graph theory:

- (1) A connected graph is bipartite if and only if its adjacency spectrum is symmetric about 0;
- (2) If G is a χ -chromatic graph, then

$$\frac{\lambda(G)}{-\lambda_{\min}(G)} \leq \chi - 1,$$

where $\lambda(G)$ and $\lambda_{\min}(G)$ are the maximal and minimal adjacency eigenvalues of G .

