

Eigenvalues of graphs and spectral Moore theorems

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Abstract: The eigenvalues of a regular graph are closely related to its combinatorial invariants. From Alon and Boppana, and Serre, we know that for any given integer $k > 2$ and real number θ less than $2\sqrt{k-1}$, there are finitely many k -regular graphs whose second largest eigenvalue is at most θ . In this talk, we investigate the largest number of vertices of such graphs. This is joint work with Jack Koolen, Hiroshi Nozaki and Jason Vermette.