## Rigidity, associahedron graph and eigenvalues

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In this talk, I will describe the connections between spectral graph theory and two geometric parameters/problems. In the first part, I will present a spectral condition for a graph to be rigid in terms of the second eigenvalue of its Laplacian. This is joint work with Xiaofeng Gu and based on this paper https://arxiv.org/abs/2001.06934 . In the second part, I will describe some recent results on the spectrum of the associahedron graph. This has as vertices the triangulations by n-3 non-crossing diagonals of a convex n-gon where two triangulations are adjacent if they differ by a diagonal flip.