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Mary Radcliffe*, Department of Mathematical Sciences, Wean Hall 6113, Carnegie Mellon University, Pittsburgh, PA 15213. *Nonlinear Eigenvalues of Graphs.*

From a geometrical perspective, one can view the first eigenvalue of graph as a measure of the distortion obtained when embedding a graph into \mathbb{R} . This measurement can be generalized by embedding the graph into an arbitrary metric space X , to obtain what has been called a nonlinear or geometric eigenvalue. We here discuss some structural results of the nonlinear eigenvalue when the metric space X is itself a graph. Further, we connect nonlinear eigenvalues to k -fold Cheeger constants and expansion in graphs. (Received August 25, 2015)