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**Jane Breen\*** (janebreen@ontariotechu.ca). *Kemeny's constant and random walks on graphs.*

Kemeny's constant is an interesting and useful quantifier of how well-connected the states of a Markov chain are, and is calculated using the eigenvalues of the transition matrix. By considering the random walk on a simple, undirected graph, and the eigenvalues of the normalized Laplacian matrix of the graph, we can compute Kemeny's constant and regard this value as a graph parameter with a concrete interpretation in terms of the expected length of a random trip in the graph. In this talk we give a survey of known results, consider extremal graphs where Kemeny's constant is largest-possible, and present new techniques in spectral graph theory which facilitate the computation of Kemeny's constant for these graphs. (Received August 30, 2020)