CONVERGENCE OF MIXING TIMES FOR SEQUENCES OF RANDOM WALKS ON FINITE GRAPHS

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We establish conditions on sequences of graphs which ensure that the mixing times of the random walks on the graphs in the sequence converge. The main assumption is that the graphs, associated measures and heat kernels converge in a suitable Gromov-Hausdorff sense. With this result we are able to establish the convergence of the mixing times on the largest component of the Erdős-Rényi random graph in the critical window, sharpening previous results for this random graph model. Our results also enable us to establish convergence in a number of other examples, such as finitely ramified fractal graphs, Galton-Watson trees and the range of a high-dimensional random walk. This talk is based on the joint work with B.M. Hambly (Oxford) and D.A. Croydon (Warwick).