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**Ioana Dumitriu\*** ([dumitriu@u.washington.edu](mailto:dumitriu@u.washington.edu)), University of Washington, Department of Mathematics, BOX 354350, Seattle, WA 98195, and **Soumik Pal**. *Sparse Regular Random Graphs: Spectra and Eigenvectors*.

Regular graphs are widely studied in connection to Markov chains and expanders, as well as networks. It is interesting, therefore, to understand what a "typical" object from this class looks like, and what kind of properties it exhibits. This can be accomplished, in many cases, by studying the random regular graph.

Of the quantities that characterize the random regular graph, we will focus on eigenvalues and eigenvectors, particularly in the regime when the size of the graph, as well as the degree, grow to infinity (the latter, much slower than the former). We will describe the limiting shape of the empirical eigenvalue distribution, list some eigenvector properties, and mention what is known about other models.

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