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Tim Susse* (tsusse@simons-rock.edu), 84 Alford Rd., Great Barrington, MA 01230, and **Jason Behrstock, Victor Falgas-Ravry** and **Mark Hagen**. *From random graphs to random groups*.

Given any simplicial graph $\Gamma = (V, E)$, we can define the right-angled Coxeter group corresponding that graph, W_Γ , generated by reflections corresponding to the vertices of Γ , with commutation relations determined by the edges. This group acts naturally on a non-positively curved cube complex, called the Davis complex, by reflections.

Using the Erdős—Rényi random graph model, we can randomly generate a right-angled Coxeter group (and hence build a random Davis complex) and ask questions about the “generic” geometric and algebraic properties of these groups. In this talk, we will give the sharp threshold for a random graph to be “constructed from squares,” which corresponds to quadratic divergence of geodesics in the corresponding Davis complex. An overview of the methods, building on the percolation framework of Bollobás and Riordan, will be discussed. In a second talk, we will build on this by investigating boundaries and the geometry of special subgroups of these groups, developing an incomplete picture of the evolution of these random groups. (Received January 21, 2022)