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**Tianyuan Xu\*** (tixu6187@colorado.edu), University of Colorado Boulder, Campus Box 395, Boulder, CO 80309, and **R. M. Green**. *On Kazhdan–Lusztig cells of  $\mathbf{a}$ -value 2*. Preliminary report.

Kazhdan–Lusztig (KL) cells partition Coxeter groups and are important to representation theory. One can compute KL cells of symmetric groups via the Robinson–Schensted correspondence, but for general Coxeter groups combinatorial descriptions of KL cells (or even non-recursive ways to compute them) are largely unknown except for cells of  $\mathbf{a}$ -value 0 or 1, where  $\mathbf{a}$  stands for an  $\mathbb{N}$ -valued function defined on Coxeter groups by Lusztig that is constant on each cell. For example, it is known that every Coxeter group has a unique two-sided KL cell of  $\mathbf{a}$ -value 1, which consists of all non-identity elements with a unique reduced word.

We discuss some recent progress on KL cells of  $\mathbf{a}$ -value 2. In particular, we classify Coxeter groups with finitely many elements of  $\mathbf{a}$ -value 2, and for such groups we describe all KL cells of  $\mathbf{a}$ -value 2 via Viennot’s heaps. This is joint work with Richard Green. (Received March 04, 2021)