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**Christopher R. H. Hanusa** and **Brant C. Jones\*** (jones3bc@jmu.edu). *Abacus models in affine Weyl groups.*

We introduce abacus diagrams that describe minimal length coset representatives in affine Weyl groups of types B, C, and D. These diagrams extend a construction of James for the symmetric group, and encode generalized core partitions that can be used to detect Bruhat relations. As an application, we enumerate the lecture hall partitions of Bousquet-Mélou and Eriksson. (Received September 25, 2012)