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Chris Fraser*, chfraser@iupui.edu. *Braid group symmetries of Grassmannian cluster algebras.*

We define an action of the k -strand braid group on the set of cluster variables for the Grassmannian $\text{Gr}(k, n)$, whenever k divides n . The action sends clusters to clusters, preserving the underlying quivers, defining a homomorphism from the braid group to the cluster modular group for $\text{Gr}(k, n)$. Then we apply our results to the Grassmannian $\text{Gr}(3, 9)$. We prove the $n = 9$ case of a conjecture of Fomin-Pylyavskyy describing the cluster combinatorics for $\text{Gr}(3, n)$, in terms of Kuperberg's basis of non-elliptic webs. (Received February 01, 2017)