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Let  $\{g\} = \{sl\}_n$  and  $U_q(\widehat{\{g\}})$  the corresponding quantum affine algebra. Hernandez and Leclerc proved that there is an isomorphism  $\Phi$  from the Grothendieck ring  $\{R\}_\ell$  of a certain subcategory  $\{C\}_\ell$  of finite-dimensional  $U_q(\widehat{\{g\}})$ -modules to a certain quotient  $\{C\}[\widetilde{\text{Gr}}(n, n + \ell + 1, \sim)]$  of a Grassmannian cluster algebra. We proved that this isomorphism induces an isomorphism  $\widetilde{\Phi}$  from the monoids of dominant monomials and the monoid of semi-standard Young tableaux. Using this result and the results of Qin and the results of Kashiwara, Kim, Oh, and Park, we have that every cluster monomial (resp. cluster variable) in a Grassmannian cluster algebra is of the form  $ch(T)$  for some real (resp. prime real) rectangular semi-standard Young tableau  $T$ .

We translated a formula of Arakawa–Suzuki to the setting of  $q$ -characters and Grassmannians and obtained an explicit  $q$ -character formula for every finite-dimensional  $U_q(\widehat{\mathfrak{g}})$ -module and a formula for  $ch(T)$ . This is joint work with Wen Chang, Bing Duan, and Chris Fraser. (Received August 15, 2019)