Demazure crystals for flagged key polynomials

By

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ABSTRACT
One definition of key polynomials is as the weight generating functions of key tableaux. Assaf and Schilling introduced a crystal structure on key tableaux and related it to the Morse-Schilling crystal on reduced factorizations for permutations via the weak Edelman-Greene insertion. In this thesis, we consider generalizations of key tableaux and reduced factorizations depending on a flag. We extend the weak EG insertion to a bijection between our flagged objects and show that the recording tableau gives a crystal isomorphism. We prove that extending the Assaf--Schilling crystal operators to flagged key tableaux gives a Demazure crystal. As an application, we show that the weight generating functions of flagged key tableaux recover Reiner and Shimozono's definition of flagged key polynomials.

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