1116-05-1386   **Patricia Hersh*** (`plhersh@ncsu.edu`) and **Cristian Lenart** (`clenart@albany.edu`). *From the weak Bruhat order to crystal graphs as posets.*

Crystal graphs give a combinatorial approach to studying the representation theory of Kac-Moody algebras, and often can be regarded as partially ordered sets. We prove that fundamental properties of the weak Bruhat order transfer to lower intervals in these crystal posets, but that even in type A these properties do not always hold for arbitrary intervals. In particular, for lower intervals we give a crystal theoretic analogue for the statement that any two reduced expressions for the same Coxeter group element are connected by a series of (long and short) braid moves, and we prove that the Moebius function only takes the values 0,1,-1. This Moebius function determination is a consequence of a stronger homotopy theoretic statement. We will also discuss the role of the key of a crystal in this story. (Received September 19, 2015)