1046-57-1373 **Heather M. Russell*** (`hrussell@math.uiowa.edu`), University of Iowa Department of Mathematics, 15 MacLean Hall, Iowa City, IA 52242-1419, and **Julianna S. Tymoczko** (`tymoczko@math.uiowa.edu`), University of Iowa Department of Mathematics, 15 MacLean Hall, Iowa City, IA 52242-1419. *Crossingless matchings and the Springer representation.*

Springer varieties are subvarieties of the flag variety whose cohomology carries a representation of the symmetric group. Using Khovanov's construction of a family of Springer varieties X_{2n}, we apply topological techniques to obtain an explicit combinatorial definition of the Springer action on $H_*(X_{2n})$ in terms of dotted, crossingless matchings. We use this formulation to identify the Springer representations in *every* homology degree, proving the Springer representation on $H_k(X_{2n})$ is the irreducible representation corresponding to the partition $(2n - k, k)$. (Received September 15, 2008)