1165-14-132   **Rebecca Goldin*** (`rgoldin@gmu.edu`), **Leonardo Mihalcea** and **Rahul Singh**. *Positivity of Schubert Calculus.*

The Peterson variety $\mathbf{P}$ is a subvariety of the flag manifold G/B with an action of a one-dimensional torus S. For each subset I in the Dynkin diagram of G, and each choice of a Coxeter element v_I , the restriction of the opposite Schubert class for v_I from $H_S^*(G/B)$ determines an equivariant cohomology class $p_I \in H_S^*(\mathbf{P})$. In joint work with Rahul Singh and Leonardo Mihalcea, we prove that the classes $\{p_I\}$ form a basis of the S-equivariant cohomology of the Peterson variety, and that the fundamental classes of Peterson subvarieties of $\mathbf{P}$ give an orthogonal basis with respect to the intersection pairing. We utilize this and Graham's positivity for multiplication of Schubert classes to prove that the structure constants of the multiplication $p_I \cdot p_J$ also satisfy Graham's positivity property. For type A, in separate joint work with Brent Gorbutt, we offer a nonnegative combinatorial formula for the structure constants in full generality. (Received January 15, 2021)