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Tom Braden* (braden@math.umass.edu), **June Huh**, **Jacob Matherne**, **Nicholas Proudfoot** and **Botong Wang**. *Equivariant cohomology and intersection cohomology of a completion of a hyperplane arrangement*. Preliminary report.

Given a vector subspace $V \subset k^n$, its closure $Y(V)$ inside $(\mathbb{P}_k^1)^n$ has many properties reminiscent of Schubert varieties, but whereas the geometry of a Schubert variety is governed by the associated Coxeter-Weyl group, the geometry of $Y(V)$ is governed by the central hyperplane arrangement of coordinate hyperplanes in V . In particular $Y(V)$ has a stratification by affine spaces indexed by flats, and its local intersection cohomology is given by an analog of the Kazhdan-Lusztig polynomial defined by Elias, Proudfoot and Wakefield, in terms of the lattice of flats.

We consider a T -equivariant version of this story, where T is the one-dimensional torus acting on V by scalar multiplication. Although T is too small for standard GKM/moment graph techniques to apply, we are able to give a simple presentation for the equivariant cohomology $H_T^*(Y(V))$ and an inductive description of the equivariant intersection cohomology $IH_T^*(Y(V))$, in a spirit similar to the computations of T -equivariant IH of toric varieties and Schubert varieties using sheaves on fans and moment graphs. (Received February 12, 2018)