SHEAVES ON BRUHAT GRAPHS

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In [1] T. Braden and R. MacPherson introduced the notion of combinatorially pure sheaves on moment graphs in order to calculate the equivariant intersection cohomology of certain varieties with torus action, in particular that of Schubert varieties.

My aim is to study sheaves on Bruhat graphs (i.e. moment graphs of Schubert varieties or their generalization to arbitrary Coxeter systems) and related structures for Bott-Samelson varieties from a combinatorial point of view.

I am looking for conditions that ensure the existence of a Kazhdan-Lusztig type algorithm (in the spirit of Soergels work, cf. [2]) to determine combinatorially the indecomposable pure sheaves even if there is no underlying geometry.

The key points are the (conjectural) behaviour of purity under taking *inverse* images and a certain stalkwise self-duality (which derives from Verdier self-duality in the "geometric" cases).

References

[1] T. Braden, R. MacPherson. From moment graphs to intersection cohomology, *math.AG/0008200.*

[2] W. Soergel. On the relation between intersection cohomology and representation theory in positive characteristic, *Journal of Pure and Applied Algebra* **152**(2000), pp. 311-335.