Alexander Engström (alexander.engstrom@aalto.fi) and Matthew T. Stamps* (stamps@math.kth.se). An Orlik-Solomon theorem for matroids.

The Brieskorn and Orlik-Solomon theorems state that the cohomology ring of the complement of a complex hyperplane arrangement is isomorphic to the Orlik-Solomon algebra of its underlying matroid. In this talk, we will show that the homotopy sphere arrangements arising as homotopy colimits of diagrams of spaces on the geometric lattice of a matroid are embeddable into topological spheres when the codimension is greater than or equal to two. From this we obtain a Goresky-MacPherson type formula for the cohomology groups of the complements of these arrangements and provide a cohomological interpretation for the Orlik-Solomon algebra of any matroid. (Received August 26, 2014)