1062-57-224   **Alex Engstrom*** (`alex@math.berkeley.edu`), Department of Mathematics, University of California, Berkeley, 851 Evans Hall #3840, Berkeley, CA 94720. *Topological representation of matroids from diagrams of spaces.*

Swartz proved that any matroid can be realized as the intersection lattice of an arrangement of codimension one homotopy spheres on a sphere. This was an unexpected extension from the oriented matroid case, but the construction is not explicit. Anderson later provided an explicit construction, but had to use cell complexes of high dimensions that are homotopy equivalent to lower dimensional spheres.

Using diagrams of spaces we give an explicit construction of arrangements in the right dimensions. Swartz asked if it is possible to arrange spheres of codimension two, and we provide a construction for any codimension. We also show that all matroids, and not only tropical oriented matroids, have pseudo-tropical representations.

We determine the homotopy type of all the constructed arrangements. (Received August 09, 2010)