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**Weiyan Chen\***, 5734 S. University Ave., Chicago, IL 60637. *Topology of braid arrangement via counting polynomials*. Preliminary report.

Many problems about the braid arrangement (topology) are equivalent to counting polynomials over finite fields (combinatorics). In this talk, I will present several results about the representation of the symmetric groups on the cohomology of the braid arrangement complement, and explain how they are proved by counting polynomials. For example, I will show that the  $i$ -th cohomology of the braid arrangement complement in  $C^n$  not only stabilize in  $n$  as representations of  $S_n$  (recovering a theorem of Church-Ellenberg-Farb), but also are recurrent in  $i$  in certain sense. Part of the work is joint with Joel Specter. (Received January 25, 2016)