

1137-57-297

Patricia Cahn* (pcahn@smith.edu) and **Alexandra Kjuchukova**. *Ribbon Obstructions and Colored Tri-Plane Diagrams*.

Consider a four-manifold Y which is presented as a p -fold dihedral branched cover of S^4 , with one singularity on the branching set, modeled on the cone on a knot K . Kjuchukova showed that the signature of Y is an invariant of K . We show that this signature is a ribbon obstruction, and give an algorithm for computing this signature from a p -colored knot diagram of K . We use colored tri-plane diagrams to identify the diffeomorphism type of the cover for given families of singularities. In particular, we construct infinitely many singular dihedral covers of S^4 by CP^2 . We conclude by giving a classification of singular dihedral branched covering maps from CP^2 to S^4 , and explain the implications of this classification for finding potential counterexamples to the Slice-Ribbon Conjecture (Received February 05, 2018)