PATRICIA CAHN, Smith College
Knot Invariants from Branched Covers of S^4

We consider dihedral branched covers of S^4, branched along an embedded surface with one non-locally flat point, modelled on the cone on a knot $K \subset S^3$. Kjuchukova proved that the signature of this cover is an invariant $\Xi_p(K)$ of the p-colorable knot K. We prove that the values of $\Xi_p(K)$ fall in a bounded range for ribbon knots, providing a means to test potential counter-examples to the Slice-Ribbon Conjecture. We also construct a family of (non-slice) knots for which the values of Ξ_p are unbounded. More generally, we introduce the notion of the dihedral 4-genus of a knot, and derive a lower bound on the dihedral 4-genus of K in terms of $\Xi_p(K)$. This work is joint with A. Kjuchukova.