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*Computing the signature of a dihedral cover of a four-manifold with a singular branching set.*

We describe an algorithm for computing the signature of a 3-fold dihedral cover of a four-manifold, when the branching set is embedded and has a isolated singularity modeled on the cone over a knot  $K$  in the three-sphere. The computation uses a formula of Kjuchukova, together with an algorithm for computing linking numbers of curves in a 3-fold dihedral cover of the three-sphere branched along  $K$ . The later generalizes an algorithm due to Perko for computing the linking numbers of the branch curves in such a cover. (Received March 20, 2017)