Infinite type invariant of surface braids with 4 branch points

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Abstract. Hurwitz action of the n braid group B_n on the n-fold direct product of a group G is studied. Hurwitz action can be used in study of surface braids. In this talk, we will give an infinite type invariant of surface braids with 4 branch points by determining the orbit decomposition of Hurwitz action on G^4 when G is the semi-direct product $S_m \ltimes Z^m$, where S_m is the symmetric group of degree m and Z^m is the m-fold direct product of the cyclic group Z.