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math@tubitak.gov.tr

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Solution of the Word Problem in the Singular Braid Group

Stepan Yu. OREVKOV
Laboratoire Emile Picard, UFR MIG, Univ. Paul Sabatier,
118 route de Narbonne, 31062 Toulouse, France
e-mail: orevkov\@picard.ups-tlse.fr
Steklov Mathematical Institute, ul. Gubkina 8, Moscow, 119991 Russia

Abstract: Singular braids are isotopy classes of smooth strings which are allowed to cross each other pairwise with distinct tangents. Under the usual multiplication of braids, they form a monoid. The singular braid group was introduced by Fenn-Keyman-Rourke as the quotient group of the singular braid monoid. We give a solution of the word problem for this group. It is obtained as a combination of the results by Fenn-Keyman-Rourke and some simple geometric considerations based on the mapping class interpretation of braids. Combined with Corran's normal form for the singular braid monoid, our algorithm provides a computable normal form for the singular braid group.

Key Words: Singular braid, word problem

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