

1116-57-896

**Mark Hughes\*** ([hughes@mathematics.byu.edu](mailto:hughes@mathematics.byu.edu)). *Braided cobordisms and the braid rank of a knot.*

We describe a new technique to recast geometric problems involving the 4-ball genus of a link in terms of algebraic properties of a braid representative. These techniques make use of braided cobordisms, and require the study of certain shortest word problems in the braid group described by Rudolph. This leads to a new algebraic invariant of the knot. We will present an upper bound to the solution of this shortest word problem. (Received September 14, 2015)