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Jonathan Beardsley* (jbeards1@uw.edu) and **Marcy Robertson**
(marcy.robertson@unimelb.edu.au). *Operads of Singular and Virtual Braids.*

There is an operad in the category of groupoids whose objects in arity n are orderings of the set $\{1, \dots, n\}$, and whose morphisms are braids with strands labeled by that set. The algebras over this operad are braided monoidal categories, and its geometric realization is the little 2-disks operad of Boardman and Vogt. We describe similar operads in the category of categories whose morphisms are either singular braids (braids whose strands may intersect) or the virtual braids of L.H. Kauffman. We describe the algebras over these operads and give some specific examples. We also discuss our hopes for relating this structure to the Grothendieck-Teichmüller group and Vassiliev knot invariants. (Received January 31, 2018)