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**Joshua Batson\*** (batson@mit.edu). *Nonorientable four-ball genus can be arbitrarily large.*

The nonorientable four-ball genus of a knot  $K$  is the smallest first Betti number of any smoothly embedded, nonorientable surface  $F$  in  $B^4$  bounding  $K$ . In contrast to the orientable four-ball genus, which is bounded below by the Murasugi signature, the Ozsvath-Szabo tau-invariant, and the Rasmussen  $s$ -invariant, the best lower bound in the literature on the nonorientable four-ball genus for any  $K$  is 3. We find a lower bound in terms of the signature of  $K$  and the Heegaard-Floer  $d$ -invariant of the integer homology sphere given by  $-1$  surgery on  $K$ . In particular, we prove that the nonorientable four-ball genus of the torus knot  $T(2k, 2k - 1)$  is  $k - 1$ . (Received August 14, 2012)