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Search for rare flavor-changing and penguin decays of the  $B_s^0$  meson RALF BERNHARD, University of Zurich, DZERO COLLABORATION — Using data collected with the DØ detector in Run II of the Tevatron, limits are presented for searches for the rare flavour changing neutral current decay  $B_s^0 \rightarrow \mu^+\mu^-$ , as well as  $B_s^0 \rightarrow \mu^+\mu^-\phi$ . The former decay mode is particularly sensitive to supersymmetric extensions of the Standard Model. For the latter mode, a measurement of the branching ratio could validate the prediction of the Standard Model.

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