

Abstract Submitted  
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**Measurement of the Branching Fraction for  $B_s \rightarrow D_{s1}^{\pm}(2536)\mu\nu X$**   
**at D0** JASON RIEGER, RICK VAN KOOTEN, Indiana University, D0 COLLABORATION — The state  $B_s^0 \rightarrow D_{s1}^{\pm}(2536)\mu\nu X$  has been observed at D0 through the decay channel  $D_{s1}^{\pm}(2536) \rightarrow D^{*\pm}K_S^0$  with  $D^{*+} \rightarrow D^0 \pi^+$ ,  $D^0 \rightarrow K^- \pi^+$  and  $K_S^0 \rightarrow \pi^+ \pi^-$ . The branching fraction for this  $B_s^0$  semileptonic decay to an orbitally excited  $D_s$  state is measured for the first time and the  $D_{s1}^{\pm}(2536)$  mass peak is presented with a signal significance of greater than 5.0 sigma in approximately  $1.3 \text{ fb}^{-1}$  of data from the D0 detector.

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