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Investigation of the tunnel magnetoresistance in junctions with a strontium stannate barrier[1] MATTHIAS ALTHAMMER, Walther-Meißner-Institut, Bayerische Akademie der Wissenschaften, Walther-Meissner-Strasse 8, 85748 Garching, Germany, ROHAN MISHRA, Department of Mechanical Engineering and Materials Science, Washington University in St. Louis, St. Louis, MO 63130 USA, ALBINA J. BORISEVICH, Materials Sciences and Technology Division, Oak Ridge National Laboratory, Oak Ridge,TN 37831 USA, AMIT VIKAM SINGH, SAHAR KESHAVARZ, MEHMET KENAN YURTISIGI, PATRICK LECLAIR, ARUNAVA GUPTA, MINT Center, University of Alabama, Tuscaloosa AL 35487 USA — We experimentally investigate the structural, magnetic and electrical transport properties of $La_{0.67}Sr_{0.33}MnO_3$ based magnetic tunnel junctions with a $SrSnO_3$ barrier [1]. Our results show that despite the high density of defects in the strontium stannate barrier the observed tunnel magnetoresistance is comparable to tunnel junctions with a better lattice matched $SrTiO_3$ barrier, reaching values of up to 350 % at $T = 5$ K. Further analysis of the current-voltage characteristics of the junction and the bias voltage dependence of the observed tunnel magnetoresistance show a decrease of the TMR with increasing bias voltage. Our results suggest that by reducing the structural defects in the strontium stannate barrier, even larger TMR ratios might be possible in the future.
[1] Althammer et al., arXiv, **1607.08393**, (2016)

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