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Transport Studies of reduced RA product MTJs produced by highly charged ion irradiation JOSHUA POMEROY, HOLGER GRUBE, National Institute of Standards and Technology — As is commonly known, magnetic tunnel junctions (MTJs) are used for hard drive read heads and are actively being developed for MRAM. In both of these cases, the resistance-area (RA) product is a critical parameter for device speed and bandwidth as well as total power dissipation (particularly for current driven devices). We present transport studies of MTJs whose barrier oxide has been partially reduced by highly charged ions (HCIs). The bias, temperature, and applied field dependence of these devices will be discussed. Beyond magnetic memory applications, HCI modified MTJs provide a compelling new route for preparing order THz spin torque oscillators.

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