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Tunable Magnetic Thermal Hysteresis for Total Moment in Fe and Co/Gd Multilayers SEZEN DEMIRTAS, MARIA R. HOSSU, Department of Physics, The University of Texas at Arlington, Arlington, TX 76019 USA, ROBERT E. CAMLEY, Department of Physics, University of Colorado at Colorado Springs, Colorado Springs, CO 80933 USA, HECTOR C. MIRELES, Physics Department, California State Polytechnic University, Pomona, CA 91768 USA, ALI R. KOYMEN, The University of Texas at Arlington — We investigated the magnetic thermal hysteresis in Fe/Gd and Co/Gd multilayers for the first time by SQUID magnetometry. Total magnetic moment of the antiferromagnetically coupled sublayers show a bow-tie shape with respect to temperature indicating magnetic superheating and supercooling. The width of the "bow-tie" figures can be *tuned* to have values of 200K or higher by decreasing the external field strength and/or thickness of the multilayers. The results are in excellent agreement with theoretical calculations.

Sezen Demirtas
Department of Physics, The University of Texas at Arlington
Arlington,TX 76019 USA

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