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Magnetic Thermal Hysteresis in (Co, Fe)/Tb Multilayers MARIA HOSSU, Department of Physics,University of Texas at Arlington,Arlington,TX,76019, ALI KOYMEN, Department of Physics,University of Texas at Arlington,,Arlington,TX,76019 — In plane and out of plane magnetic thermal hysteresis have been measured to investigate the ferrimagnetic behavior of (Co, Fe)/Tb multilayers. Due to antiferromagnetic coupling between the (Co, Fe) and Tb, the multilayers behave like artificial ferrimagnets. For [Co (30Å)/Tb (45 Å)] $_8$ the measurement of magnetic moment (M) as a function of temperature shows that magnetic phase transition occurs at different temperatures during the heating (superheating) and cooling (supercooling) cycles resulting in a characteristic **bow-tie** shaped thermal hysteresis curve for **M (**T**)**.The width of the thermal hysteresis was measured to be to be around 90 K in an external magnetic field of 2000 Oe. Increasing the field to 4000 Oe reduces the thermal hysteresis width to about 40 K and above 6000 Oe the thermal hysteresis disappears. Co/Tb multilayers with thicker layers show the same trend, however, the width of the thermal hysteresis is generally smaller at a given magnetic field.

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