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Exchange bias in [Co/Pd]/IrMn multilayers YOUNG BYUN, KARINE CHESNEL, BYU, Physics Dept, MATT CAREY, ERIC FULLERTON — Exchange bias occurs when a Ferromagnetic (F) layer is placed at the vicinity of an antiferromagnetic (AF) layer. The bias effect is induced in the F layer by uncompensated spins at the interface with the AF layer, and results in a shift in the magnetization loop. We study here [Co/Pd]IrMn multilayers with perpendicular magnetization, where Co/Pd is F, and IrMn is AF. I will present magnetometry results obtained by Vibrating Sample Magnetometry (VSM) and Extraordinary Hall Effect (EHE). While EHE can be used at room temperature, VSM allows varying the temperature down 5K under up to 9T. I will show magnetization loops measured on [Co/Pd]IrMn multilayers at different temperatures from 20K up to 400K after Field cooling and after Zero Field Cooling. The magnetization loops are used to quantify the saturation field, coercive and nucleation points, and possible bias field at each temperature and cooling condition. We observe a bias when the sample is cooled in the presence of a field. We have studied the amount of bias as function of temperature and of the magnitude of the field applied during the cooling process.

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