

Abstract Submitted  
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**The effect of x-ray illumination on magnetic domain memory in [Co/Pd] / IrMn multilayers**<sup>1</sup> COLBY WALKER, MASON PARKES, Brigham Young University, DAVID KEAVNEY, Advance Photon Source, Argonne National Laboratory, ERIC FULLERTON, Center for Memory and Recording research, UCSD, KARINE CHESNEL, Brigham Young University — We are studying the effect that illumination by coherent x-rays may have on magnetic domain memory (MDM) in a [Co / Pd] / IrMn multilayers. MDM is the ability of the magnetic domains to retain their exact same domain topology upon field cycling. Earlier studies have suggested that under higher dose of x-ray illumination, the material may lose its existing MDM. To investigate this potential effect, we have used both x-ray resonant magnetic scattering (XRMS) along with magneto-transport measurements to track the exchange bias while the sample is illuminated with x-rays. Magneto-transport is here used to measure the hysteresis loop of our multilayers material from which we can measure the exchange bias and its possible alteration. A loss of exchange bias would indicate that the x-rays illumination dose may alter the strength of the exchange couplings and ultimately the amount of MDM. Knowing if a loss of exchange bias has occurred requires collecting magneto-transport data as well as XRMS data and correlating the observed changes under various dose of x-ray illumination. I will show magneto-transport results obtained in the presence and in the absence of x-ray illumination, that provides with preliminary answers.

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