Abstract Submitted
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Surface Acoustic Wave induced magnetization change in Perpendicular anisotropy Co/Pt multilayers[1] UDAY SINGH, SHIREEN ADENWALLA, Univ of Nebraska - Lincoln — We have demonstrated the ability of focused surface acoustic waves (FSAW) to control the magnetization direction of Co/Pt multilayers microstructure (4 x 5 μm) with perpendicular anisotropy. The strain wave generated by the FSAW results in large values of periodic compressive and tensile strain at the focal spot. The magnetoelasticity of Co results in changes in the magnetization easy axis with strain. To switch the magnetization from out of plane to in-plane requires tensile strain of more than 1%. These large strains are obtained using annular interdigital transducers (AIDT) fabricated on 128° Y-Cut $LiNbO_3$, with a fundamental resonance frequency of 87.95MHz. We have mapped the strain distribution at the focal center using optical reflectivity and a knife edge, which selects for reflections above the specular edge. An array of Co/Pt multilayers was patterned at the focal center using e-beam lithography. In the region of highest strain, we observe magnetization changes in the Co/Pt multilayers excited by FSAW. We will discuss both dc and rf measurements of the changes in magnetization.

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