

Abstract Submitted  
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**Preliminary experiments on SAW based magnetization switching of nanomagnets**<sup>1</sup> VIMAL SAMPATH, NOEL D'SOUZA, SUPRIYO BANDYOPADHYAY, JAYASIMHA ATULASIMHA, Virginia Commonwealth University — Magnetization rotation in micron-sized ferromagnetic elements, using Surface Acoustic Waves (SAW), has been demonstrated experimentally [1] while the use of SAW to lower the energy dissipation in switching of nanomagnets with spin transfer torque has been studied theoretically [2]. Furthermore, SAW can be used to “Bennett clock” an array of nanomagnets in nanomagnetic logic without requiring lithographic contacts to individual nanomagnets [3]. We report preliminary experiments on use of SAW to switch magnetostrictive Co nanomagnets grown on bulk 128 Y-cut lithium niobate. Switching is studied by imaging the nanomagnets' magnetic states with Magnetic Force Microscopy (MFM) before and after the SAW waves interact with them. Switching of single, isolated nanomagnets of various sizes, and dipole coupled nanomagnets implementing a Boolean NOT gate, is studied.

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[2] A. K. Biswas, S. Bandyopadhyay & J. Atulasimha, *Appl. Phys. Lett.*, 105, 072408 (2014).

[3] J. Atulasimha & S. Bandyopadhyay, *App. Phys. Lett.*, 97, 173105 (2010).

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