

Abstract Submitted
for the TSF09 Meeting of
The American Physical Society

Lifetime expectancy and characterization of MEMS chevron actuators¹ ARMANDO NAVA, Angelo State University Department of Physics, GANAPATHY SIVAKUMAR, TIM DALLAS, Texas Tech University Department of Electrical and Computer Engineering, STEPHEN JOHNS, Baylor University Department of Electrical Engineering — This work will present a detailed reliability and lifetime expectancy study of electrothermal micro-actuators under different actuation scenarios. The actuators are designed using the topmost poly-silicon layer of Sandia National Laboratories' SUMMiT V process. The legs of the actuator are $\sim 395 \mu\text{m}$ in length, $2.25 \mu\text{m}$ in thickness, with an offset angle of 5° . A custom made optical characterization setup was built to conduct the reliability and lifetime testing of the device. The test involved first identifying key power levels and then actuating the devices until the onset of plasticity. The entire test setup was automated by use of custom built LabView virtual instruments (VIs).

¹This work was supported by NSF EEC REU 0648761.

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Date submitted: 01 Oct 2009

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