SAND2010-6281C

A micro Compliant Bistable Mechanism is presented, which acts out-of-plane from the manufactured position. The MEMS device is constructed in a five-layer surface micromachined polysilicon process. Its bi-stability does not depend on intrinsic stresses or a compliant linkages toggle positions. Instead, it achieves bi-stability through the symmetry of an elastic hoop. An electrostatic actuator flips the band inside-out with a plate acting in coulombic repulsion relative to the substrate. A scanning electron microscope injects charge to simultaneously energize and visualize the actuation.