

## **A Wrist-worn Rotational Energy Harvester Utilizing Magnetically Plucked [001] Oriented Bimorph PZT Thin Film Beams**

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A wrist-worn eccentric rotor-based energy harvester utilizing multiple magnetically plucked flower petal-shaped bimorph lead zirconate titanate (PZT) thin-film beams was designed and fabricated. The bimorph beams were formed by depositing {001} oriented PZT films up to 5.4  $\mu\text{m}$  in thickness on both sides of a 50  $\mu\text{m}$  thick nickel foil. The prototype was characterized with an analytical system-level model and a bench-top swing-arm test set-up. The prototype can achieve approximately 40  $\mu\text{W}$  power output from a bench-top pseudo walking motion input. Further simulation suggests that improvement can be made by growing thicker PZT layers.