

High-Performance Magneto-Mechano-Electric Generator through Optimization of Magnetic Flux Concentration

Supporting information

Han Seung Choi,¹ Venkateswarlu Annapureddy,² Nokeun Park,^{1,5} Jae-Won Jeong,³ Geon-Tae Hwang,⁴ and Jungho Ryu^{1,5}

* Corresponding Author: jhryu@ynu.ac.kr

¹ Yeungnam University
School of Materials Science and Engineering
Gyeongsan 38541
Korea

² Department of Physics, National Institute of Technology Tiruchirappalli
Flexible & Multi-Functional Materials Device Lab (FM2D Lab),
Tiruchirappalli, Tamil Nadu 620015
India

³ Korea Institute of Materials Science (KIMS)
Metal Powder Department
Changwon 51508
Korea

⁴ Pukyong National University
Department of Materials Science & Engineering,
Busan 42601,
Korea

⁵ Yeungnam University
Institute of Materials Technology
Gyeongsan 38541
Korea

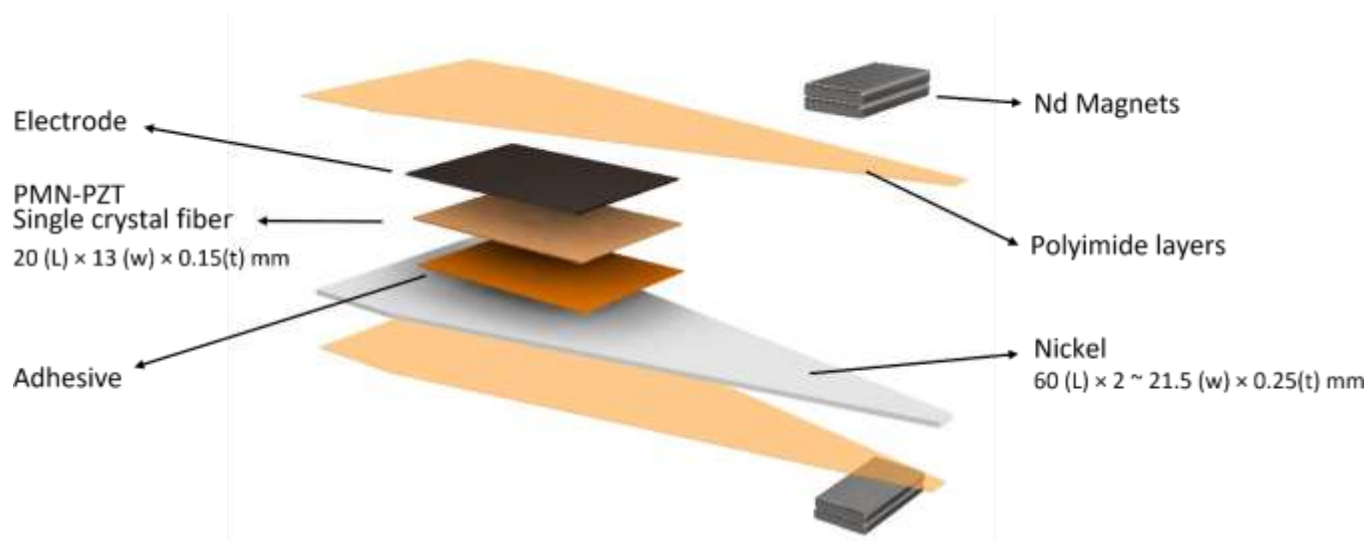


Figure S1 Schematic depiction of MME generator comprising magnetostrictive Ni, interfacial adhesive, PMN–PZT single-crystal fibers (SCFs), polyimide, and proof mass of neodymium (NdFeB) magnets.

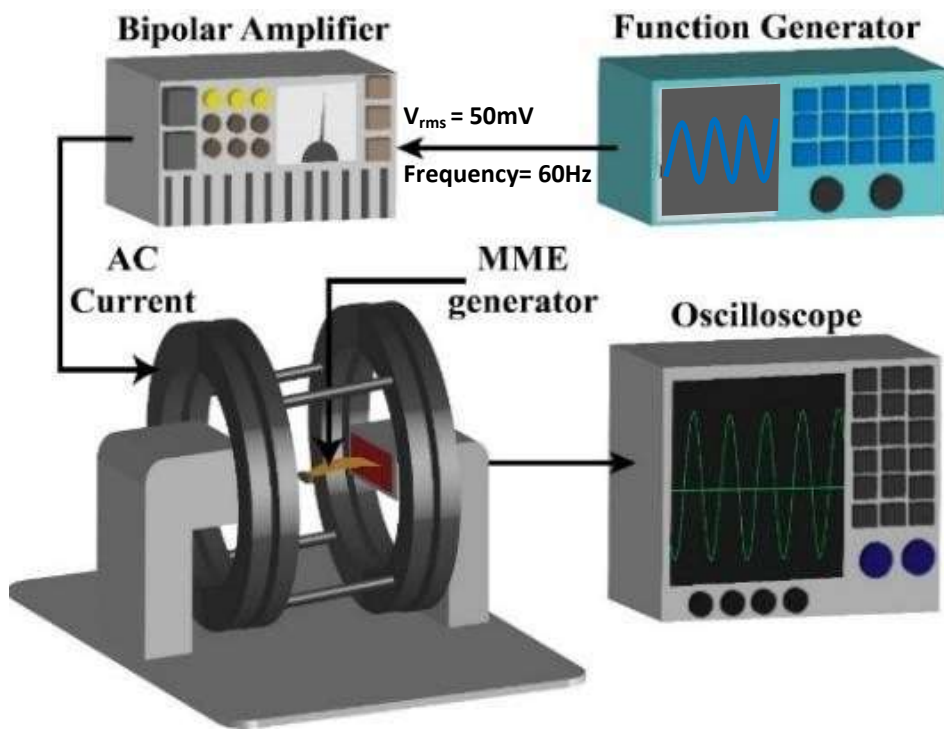
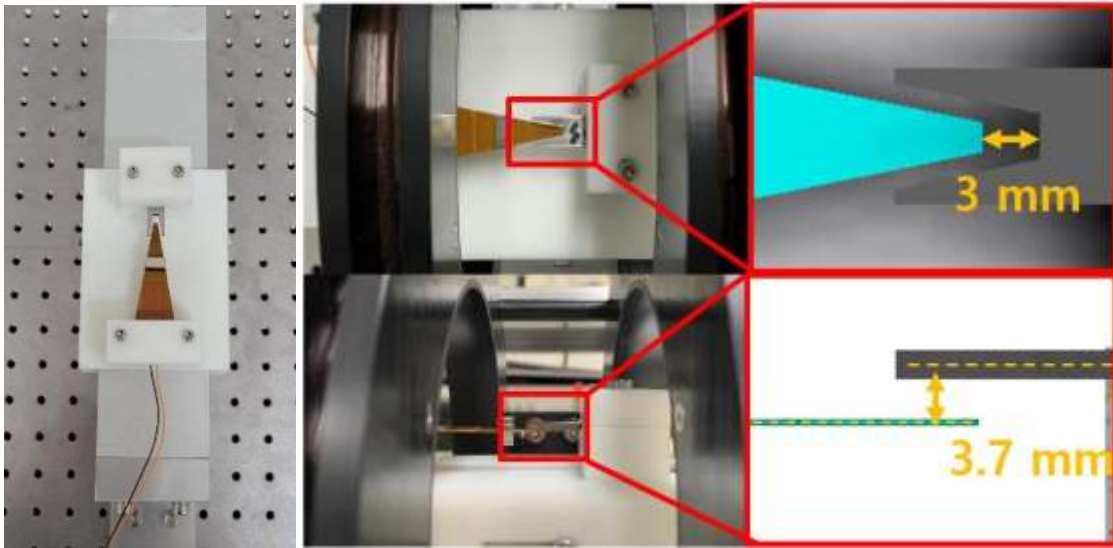
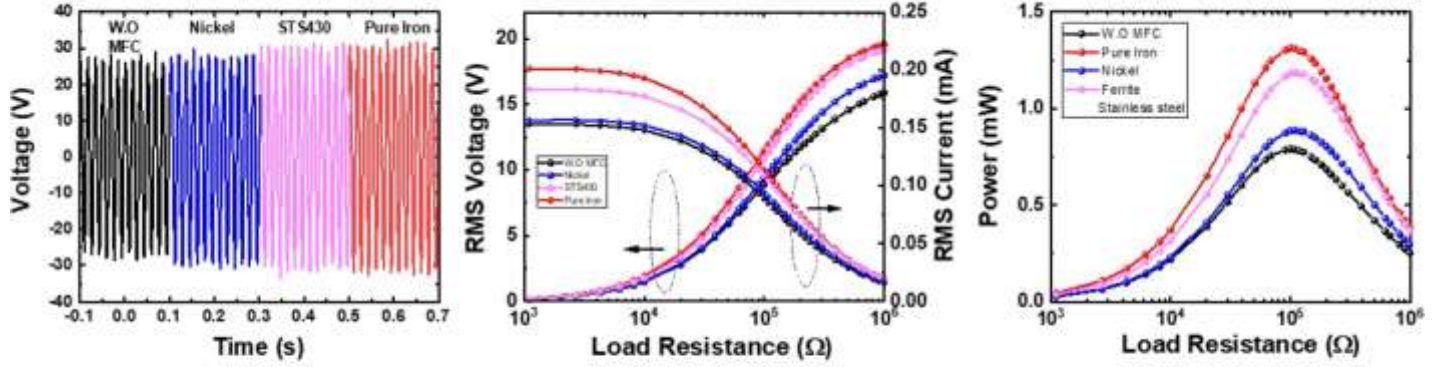


Figure S1 The setup for measuring the output performance of the MME generator.

MFC Material	Permeability, μ (H/m)	Relative permeability, μ/μ_0	Remark
Nickel, Ni	$1.26-7.54 \times 10^{-4}$	100-600	low
Magnetic steel with STS430 grade	$\sim 2.25 \times 10^{-3}$	1000 - 1800	medium
Pure-iron (Fe)	$\sim 6.3 \times 10^{-3}$	5000	high

Table S1. The material properties of materials used as MFCs

5 Oe



10 Oe

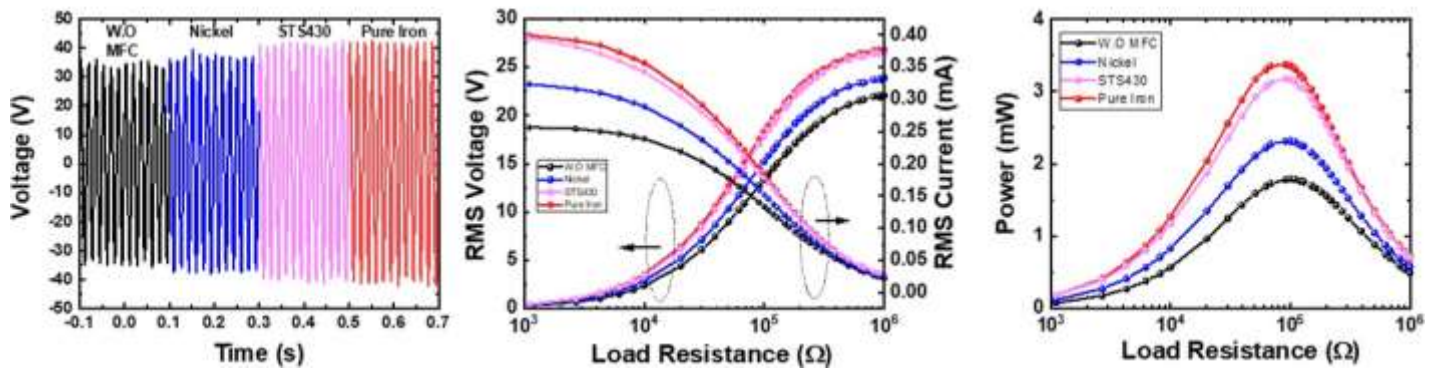


Figure S3 Additional data (Magnetic field dependency at 5 Oe and 10 Oe).