

Abstract Submitted  
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**Electromagnetic transport in magnetorheological elastomer composites**<sup>1</sup> DARIN ZIMMERMAN, KOFI ADU, RICHARD BELL, TIMOTHY HOOPER, GARY WEISEL, The Pennsylvania State University, Altoona College — We present systematic measurements of the electron transport properties and optical response of gold-coated-iron (Au/Fe)-elastomer composite materials. By mixing micron-sized Au/Fe particles with silicone-based liquid elastomer, we produce two types of magnetorheological elastomer composites (MREs): those in which the particles are aligned by an external magnetic field prior to elastomer hardening and those in which the particles are left in random arrangement. By applying modest external stress or an external magnetic field to the two types of post-hardened MREs, we control the transport properties and optical response and observe significant differences in their behavior.

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