

Abstract Submitted  
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**Cloaking of Thermoelectric Transport**<sup>1</sup> TROY STEDMAN, LILIA WOODS, University of South Florida — Transformation optics techniques have proven to be a versatile approach to achieve unprecedented control of electromagnetic fields, heat currents, electric currents, and other physical phenomena. Most applications and designs thus far based on such techniques have targeted independent physical domains with specific functionalities. We present transformation optics applied to thermoelectricity by exploring the invariance of the governing and constitutive equations under coordinate transformations. We show that control of thermoelectrically coupled heat and electric currents is possible with highly anisotropic and inhomogeneous materials. Using layered structures, we design a thermoelectric cloak capable of hiding objects from thermoelectric flow. These proof of principle results constitute a significant step forward towards finding unexplored ways to control and manipulate coupled transport for thermoelectric applications.

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