Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Probing Thermal Properties of Hydrogels LAUREEN MEROUEH, SHAOTING LIN, GANG CHEN, XUANHE ZHAO, Massachusetts Inst of Tech-MIT — Hydrogels, with compositions ranging from 90-99% water and the rest polymer and their liquid yet solid-like behavior promise various uses in the biomedical field, such as drug transport vehicles, cancer therapy, biosensors, medical electrodes, tissue engineering, etc. The structure of the polymer network that forms the hydrogel gives rise to different thermal transport properties of hydrogel. In this work, we utilize various methods to probe these thermal properties, such as time-domain thermoreflectance (TDTR) and transmission with embedded nanoparticles, laser flash analysis, and the classic hot-wire thermal conductivity measurement. These studies shed light on heat conduction mechanisms in hydrogels.

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Date submitted: 16 Nov 2016 Electronic form version 1.4