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**Digitized Heat Transfer via Liquid Alloy Electrowetting** KAMRAN MOHSENI, MATTHEW EDWARDS, ERIC BAIRD, University of Colorado at Boulder — This presentation examines the use of liquid alloy electrowetting on dielectric (EWOD) as a novel method for active thermal management of compact electronic devices. The digitized nature of EWOD allows microscopic fluid slugs to be manipulated in a highly efficient and programmable manner. In addition, the characteristically high thermal conductivities of liquid metals and alloys allow them to support orders-of-magnitude higher heat fluxes than traditional coolants such as air or water. Consequently, we propose the use of EWOD-activated liquid alloy slugs for digitized heat transfer (DHT), a novel paradigm in micro scale thermal management. The hydrodynamics and heat transfer of EWOD-actuated alloy slugs are discussed, as well as preliminary experimental results.

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