Abstract Submitted
for the DAMOP19 Meeting of
The American Physical Society

Studying light-matter interaction and energy transfer at nanoscale using a trapped-ion apparatus WEI-TING CHEN, JOE BROZ, ELI MEGIDISH, RYAN SHAFFER, DYLAN GORMAN, UC Berkeley, BOERGE HEMMERLING, UC Riverside , HARTMUT HAEFFNER, UC Berkeley — It becomes crucial to understand energy absorption and transfer in structured environments, as people move to the direction of designing nanoscale engineered materials where environments can be tailored to function. However, it is a grand challenge because solving theoretical models for such phenomena, which often occur over vastly different time and energy scales, has proven difficult on classical computers. Thus, our goal is to develop a quantum simulation platform based on precisely controlled trapped ions capable of modeling energy absorption and transfer in complex environments. We expect that the insights from these studies will inform the design of next-generation photovoltaic technologies and optoelectronic devices. Here we demonstrated proof of principle experiments using two ions and describe the undergoing progress and future plans.

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No Company Provided

Date submitted: 01 Feb 2019 Electronic form version 1.4