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Optimal ultrafast laser pulse-shaping to direct photo-induced phase transitions BIN HWANG[1], JENNI PORTMAN, PHILLIP DUXBURY[2], Michigan State University — Photo-induced phase transitions (PIPT) in quantum and/or complex materials are the epitome of challenging non-equilibrium many-body phenomena, that also have a wide range of potential applications. We present a computational approach to finding optimal ultrafast laser pulse shapes to control the outcome of pump-probe PIPT experiments. The Krotov approach for optimal control is combined with a Keldysh Green's function calculation to describe experimental outcomes such as photoemission, transient single particle density of states and optical responses. Results for a simple model charge density wave system will be presented.

[1]main author
[2]Advisor

Bin Hwang
Michigan State University

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