

Stimulated Cooperative Dynamics in Complex Solids

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In this talk I will discuss some of our recent activities in the area of photo-control in solids with strongly correlated electrons. Control of a solid-state phase by impulsive electronic excitation in the near-infrared, and that of vibrational resonances at THz frequencies, extends the concepts of filling control and bandwidth control to the ultrafast timescale. These concepts are well known in slowly driven, conventional phase transitions, but are rather obscure in cases where one single degree of freedom is excited far away from equilibrium. Key to our endeavors are the new technological developments of ultrafast science, and the ability to generate ultrashort pulses that cover a spectral range between \sim THz frequencies (4.4 meV) and the hard x-rays (10 keV).