Optically quenched superconductivity in cuprates

Alessandra Lanzara[1,2]

[1]*Physics Department, University of California, Berkeley*

[2]*Materials Science Division, Lawrence Berkeley National Laboratory*

The recent advancements in laser technology have dramatically expanded the applications of lasers to table top experiments in condensed matter physics. Femtosecond time-resolved spectroscopy techniques are emerging tools in the study of quantum materials, offering new paths to disentangle coexisting phases with similar energy scale, selectively tune a specific phase across a quantum critical point and create hidden states that do not exist in equilibrium, to name a few.

In this talk I will present some of our work where ultrafast light is used to quench the superconducting state in cuprates and to study the resulting transient electronic structure, electron-phonon interaction and relaxation dynamics. The evolution of this behavior as a function of doping momentum and temperature will be discussed.