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Ultrafast light-induced lattice distortions and phase transformation

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(via Zoom)
Recent progress in ultrafast science using X-ray free electron lasers has opened up new research opportunities. These advances allow for detailed examination of structural dynamics in materials, element-specific analysis of electronic structure, and exploration of the relationship between electronic and atomic structural dynamics. By combining pump-probe techniques with coherence applications, one can gain valuable information about the structural dynamics of complex material systems. In addition, the interation between the carriers and lattice can be explored by pumping with laser above the bandgap in the semiconducing materials. In my talk, some recent results include the study of band inversion-related topological phase transition in Bi2Se3 and the generation and evolution of polarons in perovskite oxides will be discussed.

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