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Probing Carrier Dynamics in Perovskite via Ultrafast Laser Spectroscopy

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Organic-inorganic hybrid perovskites have received considerable research interests for their applications in solar cells. The process of converting from photon to separated charge carriers includes multiple dynamic processes. We study these dynamic processes in perovskite solar cells by femtosecond laser transient absorption and transient reflection spectroscopies. For example, we utilize these techniques to probe coherent phonon and charge transfer between different phases. I will also talk about interfacial charge transfer and diffusion at the interface between perovskite and charge transport layer, that can largely affect the device performance.

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