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Observation of excitonic Floquet states in a monolayer transition metal dichalcogenide EDBERT J. SIE, XI LING, MIT, YI-HSIEN LEE, NTHU Taiwan, LIANG FU, JING KONG, NUH GEDIK, MIT — Quantum systems that are driven by a time-periodic potential can form a series of new states that are called the Floquet states. In solids, the realization of Floquet states is rare and fascinating because it contains novel features that could be hybridized to create a new phase of matter. To date, such observation is limited to a recent experiment on a topological insulator (Y. H. Wang et al., *Science* 342, 453 (2013)). In this talk, we will show the observation of Floquet states from the excitons in a monolayer transition metal dichalcogenide that is performed using ultrafast optical spectroscopy. We will discuss the generation mechanism of these Floquet states as well as the significance of these observations.

Edbert Jarvis Sie
Massachusetts Inst of Tech-MIT

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