

## **Control of Exciton-photon Interaction in 2D Atomic Crystals**

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Two-dimensional (2D) atomic crystals have emerged as a very attractive class of photonic material due to the unprecedented strength in its interaction with light. In this talk I will discuss approaches to enhance the strength of this interaction even further using microcavities, plasmonic antenna structures and metamaterials. Specifically I will discuss enhancement of spontaneous emission, formation of strongly coupled exciton-photon quasiparticles and enhanced nonlinear optical response from 2D transition metal dichalcogenides (TMD) embedded in microcavities. Potential applications of such structures with controlled exciton-photon interaction and the use of unique valley properties in these TMDs will also be addressed.