Enhanced Light Emission and Absorption in Two-Dimensional Layered Materials

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Research Objectives: We plan to initiate and develop an active research program that focuses on nanophotonic structures to control, manipulate and direct photons to the MoS$_2$ and other emerging 2D layered material monolayers for enhancing either light emission or light absorption in these materials.

We will investigate routes and mechanisms for enhancing light emission and absorption in two-layered material systems with the overarching theme of exploiting optical resonances in nanostructured MoS$_2$ films and metal nanoparticle arrays on MoS$_2$ films.