

UCLA Department of Physics & Astronomy

COLLOQUIUM

Thursday, February 16 at 4 p.m.
1-434 PAB

Interaction Induced Magnetism in
2D Semiconductor Moiré Superlattices

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Many-body interactions between carriers lie at the heart of correlated physics. The ability to tune such interactions would open the possibility to access and control complex electronic phase diagrams on demand. Recently, moiré superlattices formed by two-dimensional materials have emerged as a promising platform for quantum engineering such phenomena. In this talk, I will present a systematic study of the emergent magnetic interactions (both antiferromagnetic and ferromagnetic) in strongly correlated transition metal dichalcogenides moiré superlattices. I will show that the combination of doping, electric field, and optical excitation provide dynamic controls of the rich many-body Hamiltonian of moiré quantum matter.

Refreshments at 3:30 p.m. on the PAB Patio. Undergraduates Welcome!