

UCLA Department of Physics & Astronomy

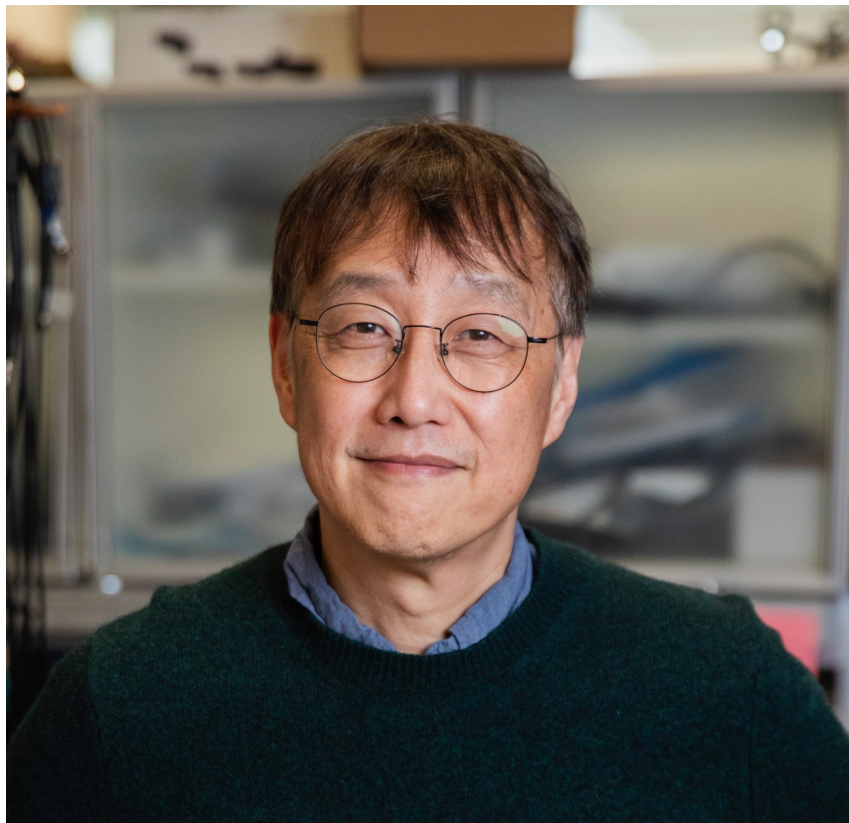
COLLOQUIUM

Thursday, January 22nd, 2026 at 4 p.m.

PAB 1-434

Searching for Anyon in Quantum Materials

**Philip Kim
(Harvard)**



The search for anyons, quasiparticles with fractional charge and exotic exchange statistics, has inspired decades of condensed matter research. Moreover, it has been predicted that exchange braiding of these particles, especially non-abelian anyons, can produce topologically protected logic operations that can serve as building blocks for fault-tolerant quantum computing. In this talk, I will discuss the progress of research on two quantum materials platforms to realize these exotic particles. In the first example, we will discuss anyons arising in fractional quantum Hall (FQH) effects, using quantum Hall interferometers for direct observation of the anyon braiding phase around a confined cavity. In the second example, we will discuss our recent experimental efforts to realize non-abelian anyons in proximitized topological insulator surfaces by controlled manipulation of magnetic vortices containing non-abelian anyons.