

## **Analog quantum simulation of meson scattering and string breaking (25+5)**

*Wednesday, January 15, 2025 4:20 PM (30 minutes)*

Probing the non-equilibrium and real-time dynamics of composite particles, such as hadrons and nuclei, is an overarching goal for quantum simulators. Observations of confinement and composite excitations in spin systems have enabled the exploration of string-breaking and scattering dynamics with analog quantum simulators. In this talk, I will discuss our recent proposal for meson scattering [1] and our experimental demonstration of string-breaking [2] within a family of quantum Ising chains exhibiting domain-wall confinement. These works signify both the current advancements and the future potential of AMO-based quantum simulators in the field of nuclear physics. [1] <https://arxiv.org/abs/2403.07061> [2] <https://arxiv.org/abs/2411.10652>

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