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PHYSICS AND ASTRONOMY COLLOQUIUM

Dr. Juan Miguel Arrazola

Xanadu

“Photonic quantum computing at Xanadu”

Abstract

“This talk gives an overview of the efforts at Xanadu to design, build, and operate integrated nanophotonic devices as building blocks for photonic quantum computing. We discuss the basic physical concepts underlying on-chip squeezing, programmable interferometers, and photon-number resolving detectors, which can be combined to build photonic devices. We also outline basic algorithms that can be run on these primitive devices and how they can be programmed using Xanadu's software library StrawberryFields. We then discuss their role in architectures for fault-tolerant photonic quantum computers and give an overview of Xanadu's long-term vision to build universal quantum computers. The talk includes a live demo of the Xanadu Quantum Cloud.”

Wednesday, October 6,