

# Physics Department Seminar

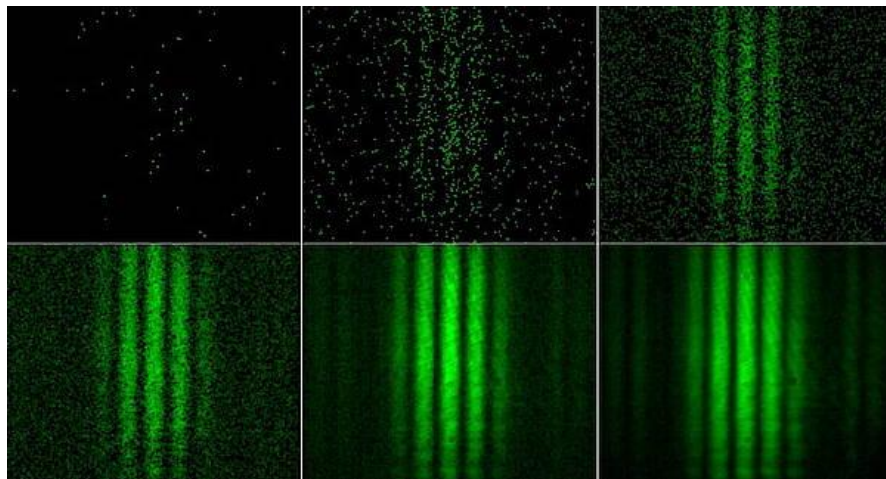
**April 25, 2025 2pm**  
Science Building - Room 250

## Single Photon Interference Through Piezo Path Length Shifted Interferometer

**David Marquez**

This talk aims to explore quantum interference through the use of a Mach-Zehnder interferometer, analyzing the behavior of single photons as they traverse beam splitters and mirrors. The experiment studied and performed is designed to investigate the fundamental principles of quantum mechanics, particularly

the concept of the wave-particle duality of light and the concept of superposition. By refining alignment and conducting piezo scans, clear interference patterns are established as well as oscillatory behavior, providing insights into the fundamental probabilistic nature of quantum mechanics.



Interference patterns created through single photon interference