Physics & Astronomy Colloquium

Presents

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Sagnik Saha

Doctoral Candidate
Duke Quantum Center, Duke University, Durham

Thursday, March 7, 2024
12:10 pm, Webster Room 11

Please meet our guest speaker and share in refreshments 11:45 a.m. -12:10 p.m. in the foyer on floor G above the lecture hall

"Quantum networking with trapped ions"

Trapped ion systems represent one of the leading platforms for quantum computing because of their exceptionally long coherence times and the ability to execute high-fidelity single as well as two-qubit gates. Scaling up these systems necessitates innovative strategies such as ion shuttling within single quantum nodes and employing photonic interconnects to link multiple quantum nodes. Utilizing naturally emitted photons from ions, quantum information is encoded and transmitted through various degrees of freedom such as polarization and time-bins, facilitating entanglement generation among distinct quantum nodes. Our experimental setup collects these photons via in-vacuum optics with high numerical aperture, which helps us achieve the highest entanglement generation rate. Furthermore, our setup can serve as a testbed for verifying fundamental predictions of quantum mechanics.

Host: Dr. Peter Engels

ZOOM Information: Meeting ID: 965 8240 9398• Passcode: physastro