Anuj Apte

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EDUCATION

UNIVERSITY OF CHICAGO **GPA: 4.0/4.0**
Candidate for Ph.D. in Physics *September 2020 - Current*

Selected Coursework: Quantum Information · Quantum Computation
Implementation of Quantum Processors · Quantum Complexity Theory

MASSACHUSETTS INSTITUTE OF TECHNOLOGY **GPA: 4.9/5.0**
B.S. in Physics and Philosophy with minor in Music and Mathematics *August 2016 - June 2020*

RESEARCH EXPERIENCE

XANADU QUANTUM TECHNOLOGIES Toronto, ON
PhD Research Resident *May 2022 - Aug. 2022*

- Designed Algorithms for Faster Simulations of Gaussian Quantum Circuits
- Demonstrated 100x Speedup of Circuit simulation for GKP Qubit preparation

NASA QUANTUM AI LAB Mountain View, CA
Research Intern with Dr. Norman Tubman *June 2021 - Sept. 2021*

- Studied performance of Pulse level VQE via simulations
- Currently working on applications of QAOA to Quantum Chemistry problems

MICHELSON CENTER FOR PHYSICS Chicago, IL
Research Assistant to Prof. Clay Cordova *July 2020 - Current*

- Studied the physics of Topological Quantum Computing and Error Correction
- Currently investigating phase transitions due to breaking of Categorical Symmetries

DEPARTMENT OF NUCLEAR SCIENCE AND ENGINEERING Cambridge, MA
Research Assistant to Prof. Mingda Li *Feb. 2019 - June 2020*

- Studied Kohn anomalies in Topolgical Weyl Semi-metals using QFT
- Characterized behaviour of Semi-metals via spectroscopy at Oak Ridge Lab

KAVLI INSTITUTE FOR ASTROPHYSICS Cambridge, MA
Research Assistant to Prof. Scott Hughes *Dec 2016 - Feb 2018*

- Devised a framework to calculate inclined inspiral trajectories into Kerr Black holes
- Implemented code to numerically compute inspiral trajectories

SELECTED PUBLICATIONS

- Embedding Learning in Hybrid Quantum-Classical Neural Networks arXiv:2204.04550
  To appear in Proceedings of QCE22
- Topological Singularity Induced Chiral Kohn Anomaly in a Weyl Semimetal PhysRevLett.124.236401
- Topological signatures in nodal semimetals through neutron scattering New J. Phys. 24 013016
- Learning about black hole binaries from their ringdown spectra PhysRevLett.123.161101
- Exciting black hole modes via misaligned coalescences II PhysRevD.100.084032
- Exciting black hole modes via misaligned coalescences I PhysRevD.100.084031

HONORS AND AWARDS

- Awarded **Nambu Fellowship** for being the highest rated applicant to the Ph.D. Program
- **Phi Beta Kappa** inductee from the Class of 2020
- **Gold Medal** in Asian Physics Olympiad 2015
- **Silver Medal** in International Physics Olympiad 2015
- Awarded **NTSE** Scholarship by Human Resources Department, Government of India

SKILLS

- Languages: Mathematica, Python, C++
- Tools and Frameworks: git, Slurm, Qiskit, Cirq, Pennylane