Sattwik Deb Mishra

Stanford University
Email: sdmishra@stanford.edu
Google Scholar

Education

Sep 2018 – Jan 2024 (expected)	Ph.D., Electrical Engineering, Stanford University (GPA: 3.93/4.0) *Advisor:* Prof. Jelena Vučković
July 2014 – June 2018	B.Tech., Electrical Engineering, Indian Institute of Technology, Bombay (Ranked **1st** in the department and **3rd** in the institute by GPA: 9.88/10.0)

Research Interests

- Quantum computing
- Tensor network methods
- Quantum optics
- Control of dynamics, scattering, and emission from open quantum systems

Journal Publications and Preprints (in chronological order)

[1] **Sattwik D. Mishra***, Miguel Frías-Pérez*, Rahul Trivedi, Classically computing performance bounds on depolarized quantum circuits. arXiv:2306.16360 (2023).

[2] **Sattwik D. Mishra***, Rahul Trivedi*, Amir H. Safavi-Naeini, Jelena Vučković, Control Design for Inhomogeneous-Broadening Compensation in Single-Photon Transducers. *Phys. Rev. Applied* 16, 044025 (2021).

[3] Alison Rugar*, Shahriar Aghaeimeibodi*, Constantin Dory*, Haiyu Lu, Patrick McQuade, **Sattwik D. Mishra**, Shuo Sun, Zhixun Shen, Nicholas Melosh, Jelena Vučković. Narrow-linewidth tin-vacancy centers in a diamond waveguide. *ACS Photonics*, 7 (9), 2356-2361 (2020).

[4] Daniil M. Lukin*, Constantin Dory*, Melissa A. Guidry*, Ki Youl Yang, **Sattwik D. Mishra**, Rahul Trivedi, Marina Radulaski, Shuo Sun, Dries Vercruysse, Geun Ho Ahn, Jelena Vučković. 4H-silicon-carbide-on-insulator for integrated quantum and nonlinear photonics. *Nature Photonics* 14, 330 (2020).

[5] Rahul Trivedi*, Kevin Fischer*, **Sattwik D. Mishra** and Jelena Vučković. Point-coupling Hamiltonian for frequency-independent linear optical devices. *Physical Review* A 100, Issue 4, page 043827 (2019).

Awards

[1] **Soheil and Susan Saadat Graduate Fellowship**, Stanford University.

[2] **Institute Academic Prize (2015, 2017)** for ranking 1st in the Department of Electrical Engineering, Indian Institute of Technology Bombay.

[3] **Urvesh Medh Memorial Prize (2015, 2016)** and **Aditya Choubey Memorial Prize (2015)** for academic achievement, Indian Institute of Technology Bombay.

Patents

[1] Optimized quantum transduction, Stanford docket number S20-514.

Computational skills

- Proficient in scientific computing with **Python, C++, MATLAB,** and **Mathematica**.
- *Relevant libraries:* Experienced with QuTiP, google/JAX and google/TensorNetwork.

Teaching experience

- Teaching assistant for Applied Quantum Mechanics II (EE223, Winter 2022) taught by Prof. David Miller at Stanford University.

Additional research experience

[1] Construction and characterisation of an optical tweezer for trapping and manipulating cold Yb atoms. Princeton University, 2017. *Advisor:* Jeff Thompson. Supported by **International Student Internship Program, Princeton University.**

[2] Approximate W-state generation in NV centers through magnetic dipolar interaction. Purdue University, 2016. *Advisor:* Peter Bermel. Supported by **S. N. Bose Scholars Program, Indo-U.S. Science and Technology Forum.**