Boris Mesits

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Education

Yale University, New Haven, CT **From October 2024**
Visiting Assistant in Research - Applied Physics

University of Pittsburgh, Pittsburgh, PA **August 2020 - present**
Doctor of Philosophy - Physics

University of North Carolina, Chapel Hill, Chapel Hill, NC **August 2016 - May 2020**
Bachelor of Science - Physics, Highest Honors

Research Training

Doctoral Research, ongoing
Supervisor: Dr. Michael Hatridge, University of Pittsburgh and Yale University (from July 2024)
Parametrically-controlled Josephson junction-based circuits for quantum sensing and qubit readout

Research Internship
Supervisor: Dr. Subhendu Kahaly, ELI-ALPS Research Institute
Numerical analysis of thermionic emission from femtosecond-laser hot spot on a metal surface

Undergraduate Thesis
Supervisor: Dr. Tamara Branca, University of North Carolina, Chapel Hill
"Construction and Characterization of an NMR Spectrometer Operating at Earth's Magnetic Field"

Journal Publications and arVix Preprints

1. **Simple, High Saturation Power, Quantum-limited, RF SQUID Array-based Josephson Parametric Amplifiers** R. Kaufman, C. Liu, K. Cicak, B. Mesits, M. Xia, C. Zhou, M. Nowicki, J. Aumentado, D. Pekker, M. Hatridge. *arXiv preprint arXiv:2402.19435* (2024).
2. **Pump-efficient Josephson parametric amplifiers with high saturation power** N. M. Hougland, Z. Li, R. Kaufman, B. Mesits, R. S. K. Mong, M. Hatridge, D. Pekker. *arXiv preprint arXiv:2402.12586* (2024).
3. **Tunable ultrafast thermionic emission from femtosecond-laser hot spot on a metal surface by control of laser polarization and angle of incidence: A numerical investigation** M U. Kahaly, S. Madas, B. Mesits, S. Kahaly. *Applied Surface Science* (2024).
4. **Practical trainable temporal post-processor for multi-state quantum measurement** S. A. Khan, R. Kaufman, B. Mesits, M. Hatridge, H. E. Türeci. *arXiv preprint arXiv:2310.18519* (2023).
5. **Fast superconducting qubit control with sub-harmonic drives** M. Xia, C. Zhou, C. Liu, P. Patel, X. Cao, P. Lu, B. Mesits, M. Mucci, D. Gorski, D. Pekker, M. Hatridge *arXiv preprint arXiv:2306.10162* (2023).

Honors

- 2022 NSF Graduate Research Fellowship Program Award
- 2022 Thomas-Lain Fund Scholarship
- 2020 University of Pittsburgh Kenneth P. Dietrich School of A&S Fellowship

Presentations

Contributed Talks

- APS March Meeting 2024, Minneapolis, MN. "Interferometric Transmon Readout with Two-Mode Squeezed Light, Part 2"
- APS March Meeting 2023, Las Vegas, NV. "Quantum Efficient Measurement of a Transmon via a High Saturation Power Josephson Parametric Amplifier Part 2"

Posters

- PQI 2024, Pittsburgh, PA. "Parametric amplifiers as interferometers for transmon readout"
- C2QA Quarterly Conference, Princeton, NJ. "A really close look at a really hot transmon"
- Attoconference 2019, Szeged, Hungary. "Light Induced Ultrafast Thermal Processes in Metal: Thermal Evolution to Material Damage"
- UNC Celebration of Undergraduate Research 2019, Chapel Hill, NC. "Accessible NMR Spectroscopy using Earth's Field"

Schools/Trainings Attended

- C2QA QIS 301 Summer School (2022)

References

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