Evan C. Mayer
Curriculum Vitae

Contact

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Education

The University of Arizona
Department of Astronomy and Astrophysics — 2021-present
PhD Research

The University of Chicago
Department of Physics — 2013-2017
AB, Physics (2017)

Research Interests

Radio astronomy	Compact radio sources	Active galactic nuclei	Interferometry
Instrument design	Antenna design and simulation	Receiver design	Cryogenic engineering
Signal processing	FPGA and GPU cross-correlators	Data processing pipelines	Data visualization
Accessible science	Software-defined radio	Community science	Science communication

Publications

[1] Barry, P. S. et al. **2018**. "Design and Performance of the Antenna-Coupled Lumped-Element Kinetic Inductance Detector". In: *Journal of Low Temperature Physics* 193.3-4, pp. 176–183. ISSN: 15737357. DOI: 10.1007/s10909-018-1943-y. arXiv: arXiv:1801.06265v1.

Conference Proceedings

[2] Kim, Junhan et al. **May 2018**. "A VLBI receiving system for the South Pole Telescope". In: *Proc. SPIE 10708, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy IX, 107082S (9 July 2018)*. Austin, p. 97. ISBN: 9781510619692. DOI: 10.1117/12.2301005. arXiv: 1805.09346. URL: https://arxiv.org/abs/1805.09346.

[1] Khaire, Trupti et al. **Jan. 2018**. "Development of mm-wave sensors for measurements of the Cosmic Microwave Background". In: *APS March Meeting Abstracts*. Vol. 2018. APS Meeting Abstracts, R08.010.

Honors and Awards

2017 — Bachelor of Arts in Physics with Honors
The University of Chicago

2013-2017 — Dean's List
The University of Chicago

Theses

2017 — Simulation of scalable lensed dual slot antennas
The University of Chicago

Skills

Python	C/C++	MATLAB	bash	git
Software defined radio	Signal processing	Simulation dev	Failure analysis	Agile processes
ANSYS HFSS	Fusion360	Solidworks	3D Printing	Soldering

Work Experience

2017-Present — Raytheon Technologies
Design Realization

- Performed research and literature surveys for, wrote requirements for, wrote unit tests for, implemented, tested, validated, and documented program-critical models of aerospace hardware and operating environments, all in a collaborative software development environment
- Performed massively parallelized Monte Carlo analysis and root cause failure analysis on large sets of telemetry data from six degree-of-freedom system-of-systems simulations
- Presented model development progress and future work to government and company leadership to secure program funding and pass design reviews

2015-2017 — The University of Chicago
Kavli Institute for Cosmological Physics

- Designed and simulated scalable focal plane array antennas for astronomy with microwave kinetic inductance detectors (MKIDs)
- Designed, simulated, produced, and integrated equipment for cryogenic testing of MKIDs
- Bluefors dilution refrigerator component fabrication and maintenance

2015-2015 & 2017 — The University of Arizona
Steward Observatory

- Designed, simulated, produced drawings of, and integrated mm-wave optical component support structures for South Pole Telescope Very Long Baseline Interferometry receiver for Event Horizon Telescope project
- Performed VLBI receiver cryostat maintenance & wiring
- Designed environmental seals around VLBI receiver components for South Pole Telescope equipment cabin