

Christopher Bert

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Objective To investigate fundamental physics of the Sun and heliosphere, to design instruments and missions for solar system exploration, and to bridge the divide between space science and engineering

EDUCATION

University of Michigan

Degree - PhD Pre-Candidate
Discipline - Heliophysics
GPA - none (1st semester)
Graduation - 2022
Advisor - Dr. Justin C. Kasper

University of Michigan

Degree - Master of Engineering
Discipline - Space Systems Eng.
GPA - 3.254 (4.0 scale)
Graduation - 2018

University of Massachusetts

Degrees - (2) Bachelors of Science
Disciplines - Physics, Astronomy
GPA - 3.570 (4.0 scale)
Graduation - May 2016
Minor of Music - Saxophone

Relevant Coursework

- Mission design, requirements definition, trade studies, PDR-level design, risk burndown, policy & mgmt
- Propulsion and payload systems design, space environment modelling and analysis, physics, astronomy

SPACE MISSIONS/ENGINEERING PROJECT

MiTEE – Miniature Tether Electrodynamics Experiment (3U CubeSat) – subsystem lead *Fall 2016 – Present*

- Directed combined science/propulsion subsystem (electron collection & emission, space plasma detection)
- Managed mission science requirements, compiled subsystem specifications, assigned team member tasks
- Contributed to structural design of cathode emitter housings and boom deployment of the Langmuir probe
- Developed test and validation processes, trained in campus machine shop on waterjet, mill, and lathe

M-Barc – Michigan Bicentennial Archive (1U CubeSat) – systems engineer *Spring 2017*

- Managed schedule and WBS, performed trade studies and mission analysis, mentored high school students

SALEx – Search for Anions in the Lunar Exosphere (12U CubeSat) – proposal team engineer *Fall 2016*

- Formulated proposal for a science mission to lunar orbit, wrote requirements, traceability, and budgets
- Analyzed the spacecraft's disturbance environment, designed ADCS system to satisfy plasma science needs
- Completed trade studies and STK analyses to evaluate feasibility, developed concept of operations
- Delivered PDR-style presentation and report with team, defended design decisions to class and JPL mentors

WORK EXPERIENCE/SCIENCE RESEARCH

MATLAB, IDL, STK

MITRE Corporation – Missile Defense Radar Performance – Engineering Intern *Summer 2015 & Jan 2016*

- Adapted a published analytical, probabilistic model into useable MATLAB functions for more efficient characterization of phased radar arrays, assessed fulfillment of missile defense performance requirements
- Presented classified findings, wrote MATLAB tools for use in future analysis complete with documentation

University of Michigan – Mercury Solar Wind Interactions – Space Physics Research Intern *Summer 2014*

- Investigated replenishment of gaseous metals in Mercury's exosphere using data from NASA MESSENGER
- Performed computational analysis in IDL of ion precipitation into the planet's magnetic cusp, created intuitive visualizations of results to separate temporal and spatial changes in the spacecraft environment

University of Idaho –Magnetic Nanoparticle Characterization – Physics Research Intern *Summer 2013*

- Assisted in fabrication and testing of iron nanoparticles for remediation of spent nuclear fuel (DOE project)
- Measured magnetic hysteresis, learned lab safety for biohazardous material and vacuum chamber use

LEADERSHIP/VOLUNTEERING

SEDS-USA – National Secretary to the Board of Directors *Nov 2016 – present*

- Elected by the council of SEDS chapters (Students for the Exploration and Development of Space)

Boy Scouts of America – Eagle Scout Award *Nov 2009*

- Recognition of troop leadership, mentorship, and service project management involving volunteer labor

PROFESSIONAL AND COMMUNITY ORGANIZATIONS

Organizations: SEDS@UM; Society of Physics Students; Phi Mu Alpha Sinfonia National Music Fraternity

Music Performance: Volunteer concert band and vocal ensembles, support of local school music programs