

# Lucas M. Arthur

Curriculum vitae

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Massachusetts Institute of Technology  
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## EDUCATION

- 2025 – Ph.D. in Planetary Sciences, Department of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology, Cambridge, MA
- 2021 S.B. in Physics, Department of Physics, Massachusetts Institute of Technology, Cambridge, MA

## PROFESSIONAL APPOINTMENTS

- 2022 – 2025 Technical Associate, Department of Nuclear Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA

## PUBLICATIONS

### Refereed Publications

- 2025 J. Dunsmore, **L.M. Arthur** and R.S. Kemp. “The optimum mix of storage and backup in a highly renewable, highly reliable European electricity grid,” *Energy Policy*, (Submitted)
- 2025 **L.M. Arthur** and R.S. Kemp. “Emerging Accuracy of Ballistic Missile Guidance Systems,” *Science & Global Security*

### Non-Refereed Publications

- 2025 **L.M. Arthur** and R.S. Kemp. “LiDAR for Robust Exoatmospheric Positioning,” <https://arxiv.org/abs/2502.00091>
- 2023 **L.M. Arthur**, F. Chelazzi, D. Lawrence and M.D. Price. “Probabilistic Reconstruction of Paleodemographic Signals,” <https://arxiv.org/abs/2312.05152>

## GRANTS AND FELLOWSHIPS

- 2025 Desmond Presidential Fellowship, Massachusetts Institute of Technology, Cambridge, MA

## INVITED TALKS

2025 “Accurate Guidance Enables Fewer, Smaller Nuclear Weapons,” MIT Global Security Technical Webinar, Massachusetts Institute of Technology, Cambridge, MA

## CONFERENCE ACTIVITY

2023 “SLBM Guidance Under the Microscope,” Princeton School on Science and Global Security, Princeton University, Princeton, NJ  
2020 “Numerical Study of Higgsino Dark Matter,” MIT Kavli Institute for Astrophysics and Space Research, Massachusetts Institute of Technology, Cambridge, MA  
2020 “Numerical Calculation of Higgsino Sommerfeld Enhancement and Bound State Formation Rate,” MIT PRISM 2020, Massachusetts Institute of Technology, Cambridge, MA

## WORKSHOPS AND CONTINUING EDUCATION

2023 Princeton School on Science and Global Security, Princeton University, Princeton, NJ  
2023 NSF Institute for Artificial Intelligence and Fundamental Interactions Workshop and Summer School, Boston, MA  
2023 MIT Advanced Study Program Fellow, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology, Cambridge, MA

## COMMUNITY OUTREACH

2023 “Nuclear Security in the 21st Century” Dartmouth College Pugwash, Hanover, NH

## RELATED PROFESSIONAL SKILLS

**Programming Languages:** Python, Julia, C, C++, Bash

**Packages:** NumPy, Matplotlib, AstroPy, JAX, Xarray, PyTest, GSL, Eigen, BLAS

**Other Tools:** Make, CMake, Git, SLURM, L<sup>A</sup>T<sub>E</sub>X