

## Andrew Milne

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### EDUCATION

- **Bachelor of Science, Astronomy** *University of Iowa, Anticipated December 2024*
- **Bachelor of Arts, Physics**
- **Minor, Chemistry**  
3.54 Cumulative GPA

### HONORS AND AWARDS

- **Strayer-Rairden Scholarship in Physics** *January 2021*
- **Iowa Flagship Award** *August 2020*
- **Bucksbaum Academy Scholarship** *August 2020*
- **University of Iowa Dean's List** *Fall 2021 & 2022 Semester, Spring 2022 & 2024 Semester*
- **Andrew Nelson Award** *November 2024*

### RELATED EMPLOYMENT

- **Research Assistant, Philip Kaaret, Iowa City, IA** *August 2021-May 2022*
  - Conducted tests of CMOS sensor effectiveness on X-ray detection using Fe-55 samples and data processing using Python 3
  - Assembled new CMOS sensor instrument package for usage at Argonne National Laboratory's Advanced Photon Source for further X-ray detection at other wavelengths
  - Designed sensor package mount for future experiment in cooperation with NASA, for atmospheric or orbital use
  - Conducted tests on various cameras for Earth observing instrument, and design & construct a customized cable to connect the cameras together to a computer
- **Research Assistant, William Kurth & George Hospodarsky, Iowa City, IA** *September 2022-Present*
  - Analyze data from Juno instruments "UVS" and "Waves" to identify aurora crossing times
  - Process and analyze data from "Waves" instrument from perijove observations
  - This work springboarded me to working alongside George Hospodarsky in cataloging "Waves" readings on lightning whistlers
  - Developed whistler digitizing tool alongside Jeremy Faden to catalog whistlers by their dispersion constants
  - Analyzed over 1000 distinct whistlers to identify long dispersion whistlers, and perform statistical analysis using Juno orbital data
  - Won the Andrew Nelson award for a poster presentation on this work
- **REU Scholar, Dominique Segura-Cox & Stella Offner, University of Texas, Austin, TX** *May 2023-August 2023*
  - Derived protostellar masses using Keplerian and infalling-rotating envelope C<sup>18</sup>O models and comparing to the values derived from a simple Keplerian fit from a previous project

- Used Keplerian and IRE C<sup>18</sup>O models to find the radii of the centrifugal barrier
- Presented research at local symposium, as well as the 243rd AAS Meeting January 2024

## **PUBLICATIONS**

- Hospodarsky, G., Milne, A., Kurth, W., et al. (2023). Jupiter Long Dispersion Lightning Whistlers that propagate through the Io torus: Juno Observations. In Planetary (pp. 103686).
- Milne, A., Segura-Cox, D., Offner, S. (2023). Determining the Mass and Characteristic Disk Radii of a Class o/I Protostar Using FERIA. Manuscript in preparation.
- Milne, A., Kirkpatrick, C., Segura-Cox, D., Offner, S., et al. (2023). Determining the Mass and Characteristic Disk Radii of 10 Class o/I Protostars using Keplerian Rotation Fitting and FERIA. Manuscript in preparation.
- Hospodarsky, G., Milne, A., Kurth, W., et al. (2023). Jupiter Long Dispersion Lightning Whistlers that propagate through the Io torus: Juno Observations. Manuscript in preparation.

## **PRESENTATIONS**

- A. Milne, G. Hospodarsky, J. Faden (2024) A Survey of Jovian Long Dispersion Lightning Whistlers as Detected by Juno Waves. Presented November 6 2024. <https://andrewmilne.org/WhistlerPoster.pdf>
- Milne, A., Segura-Cox, D., Offner, S. (2024). Studying Infall Towards 10 Class o/I Protostars Using ALMA Data and FERIA. Presented at 243rd AAS Meeting January 11 2024. <https://aas243-aas.ipostersessions.com/Default.aspx?s=F7-02-B9-0F-C7-C3-E7-05-Bo-28-CB-06-B6-57-10-65>
- Milne, A., Segura-Cox, D., Offner, S. (2023). Studying Infall Towards 10 Class o/I Protostars Using ALMA Data and FERIA. Presented August 11 2023. [https://andrewmilne.org/Milne\\_Andrew-Poster.pdf](https://andrewmilne.org/Milne_Andrew-Poster.pdf)
- G. B. Hospodarsky, A. J. Milne et al. (2023). Comparison of Models for the Jupiter Magnetosphere and Io Torus Electron Density to the Observed Dispersion of Jovian Long Dispersion Lightning Whistlers as Detected by Juno (poster, SM23D-2846) American Geophysical Union Annual Meeting, San Francisco, CA, December 2023.

## **RELATED CLASSES**

- **Calculus 3 (MATH:2850)**
- **Linear Algebra (MATH:2700)**
- **Introduction to Astrophysics 2 (ASTR:3772)**
- **Observational Techniques in Astronomy (ASTR:4850)**
- **Electricity and Magnetism 2 (PHYS:3812)**
- **Introduction to Quantum Mechanics 2 (PHYS:3741)**
- **Intermediate Mechanics (PHYS:3710)**
- **Principles of Chemistry 2 (CHEM:1120)**
- **Organic Chemistry 2 (CHEM:2220)**

## **OTHER EXPERIENCE**

- **Vice President**, American Institute of Aeronautics and Astronautics *August 2020-May 2024*
  - Develop leadership and communication skills
  - Design, construct, and successfully fly a Level 1 certification rocket according to National Association of Rocketry specifications
  - Act as chief engineer for the design and construction of high powered rockets
  - Formerly was Secretary and Safety Officer of student organization from August 2021 - May 2022
- **Webmaster**, Society of Physics Students, Iowa City, IA *September 2021-May 2024*
  - Operate club website, and be executive leader for club