

# CURRICULUM VITAE

## KATHY L. COOKSEY

---

### CONTACT INFORMATION

**Current Position:** Associate Professor, University of Hawai'i at Hilo

Department of Physics & Astronomy

Phone: (808) 932-7195

College of Natural & Health Sciences

Fax: (808) 932-7295

200 West Kāwili Street, STB 219

E-mail: [kcooksey@hawaii.edu](mailto:kcooksey@hawaii.edu)

Hilo, Hawai'i 96720-4091, USA

Web: <http://www2.hawaii.edu/~kcooksey>

---

### EDUCATION

#### Graduate

2003–2009, University of California, Santa Cruz

Ph.D. Astronomy & Astrophysics

August 2009

*Probing the Chemical Composition of the  $z < 1$  Intergalactic Medium with Observations and Simulations* (advisor: Prof. J. Xavier Prochaska)

M.S. Astronomy & Astrophysics

June 2005

*Characterizing the Low-redshift Intergalactic Medium towards PKS1302–102* (advisor: Prof. J. Xavier Prochaska)

#### Undergraduate

1999–2003, Valparaiso University, Indiana

B.S. Physics with Honors, *Summa Cum Laude*

May 2003

Senior Honors Thesis: *The Formation of Substellar Companions due to Protostellar Disk Instabilities: Modeling the Effects of the Gravitational Environment* (advisor: Prof. Brian K. Pickett)

Christ College Scholar (interdisciplinary humanities-based honors program)

#### Secondary

1996–1999, Beaver Creek High School, Ohio

Diploma with Honors, Salutatorian (class of 520)

June 1999

---

### EMPLOYMENT HISTORY

- Associate professor, University of Hawai'i, Hilo, 2018–present (tenured: 2019)
  - Department Chair, 2019–2021
- Assistant professor, University of Hawai'i, Hilo, 2014–2018
- NSF Astronomy & Astrophysics Postdoctoral Fellow, MIT Kavli Institute, 2010–2013
  - Section Leader, 8.02t: “Physics II,” MIT, spring 2011
- Postdoctoral Fellow for Prof. Robert Simcoe, Department of Physics, MIT, 2009–2010
- Graduate Student Researcher with Prof. J. Xavier Prochaska, Department of Astronomy & Astrophysics, UCSC, 2004–2009
  - Instructor, AY5: “Introductory Astronomy—The Formation and Evolution of the Universe,” UCSC, summer 2008
  - Astronomy Lead Instructor (Cluster 7), California State Summer School for Mathematics and Science (COSMOS), UCSC, summers 2005–2007
  - Project Advisor (Cluster 7), COSMOS, UCSC, summer 2004
- Teaching Assistant, AY16: “Life in the Universe,” UCSC, fall 2003
- Northeastern University Research Experiences for Undergraduates (REU), CERN, summer 2002
- Laser Interferometer Gravitational-wave Observatory REU, Caltech, summer 2001
- Cerro Tololo Inter-American Observatory REU, Chile, winter 2001

- VU Department of Physics and Astronomy research assistant, summer 2000

## TEACHING EXPERIENCE

### Undergraduate Mentoring:

10. *Kenji Emerson* (BS Astronomy & BA Physics, UH Hilo class of 2019): Stacking analysis of Si IV-selected absorption-line systems in SDSS DR7; funded through NSF AST-1615296 (summer) and Hawai'i/NASA Space Grant Consortium (HSGC) Fellowship (academic year): 2017–2018
9. *Tino Wells* (BS Astronomy & BA Physics, UH Hilo class of 2019): Classifying multi-ion absorption-line systems in SDSS DR7 with non-parametric clustering analysis; funded through NSF AST-1615296 (summer) and HSGC Fellowship (academic year): 2017–2018
8. *Kyle Cannoles* (BS Computer Science, UH Hilo class of 2017): Study of hierarchical clustering analysis for CS422: “Database Analytics”; spring 2017
7. *Chantelle Kiessner* (BS Astronomy & BA Physics, UH Hilo class of 2019): Analysis of high-resolution spectra, with VPFIT and CLOUDY, of strong C IV systems; funded through HSGC Traineeship; fall 2016
6. *Alex Hedglen* (BS Astronomy & BA Physics, UH Hilo class of 2017): Organizing and processing spectra of 30 galaxy-quasar pairs; funded through HSGC Traineeship (academic year); summer 2015–spring 2016
5. *Jasmin Silva* (BS Astronomy & BS physics, UH Hilo class of 2017): Stacking analysis of multi-ion absorption-line systems in SDSS DR7; funded through HSGC Fellowship (spring–fall 2015) and UH Hilo Seed Grant (summer); spring 2015–spring 2016
4. *Iosefa Trainer* (math major, UH Hilo): Classifying multi-ion absorption-line systems in SDSS DR7 with non-parametric clustering analysis; funded through UH Hilo Seed Grant; spring 2015
3. *Robert Ponga* (BA Physics & BS Astronomy, UH Hilo class of 2015): Analysis of high-resolution spectra, with VPFIT and CLOUDY, of strong C IV systems; funded as UCSC Jr. Specialist (summer 2014) and HSGC Fellowship (fall 2014); summer 2014–spring 2015
2. *Natalie Nagata* (physics major, UH Mānoa): Stacking analysis of absorption-line systems in SDSS DR7; funded/organized through Akamai Workforce Initiative Internship; summer 2014
1. *Eduardo Seyffert* (BS Aeronautical & Astronautical Engineering, MIT class of 2014): Survey for intergalactic Mg II absorbers in SDSS DR7 quasars; funded/organized through MIT Undergraduate Research Opportunity Program; 2011–2013
  - Publications: Matejek et al. 2013 (*ApJ*, 764, 9); Seyffert et al. 2013 (*ApJ*, 779, 161); and Gauthier et al. 2014 (*MNRAS*, 439, 342)

### Academic Courses:<sup>1</sup>

- *Professor*, University of Hawai'i at Hilo
  1. ASTR110L: “General Astronomy Lab”: lab component of the introductory astronomy for non-majors (S15: 17 students; F15: 21 and 15 students in 2 sections; S16: 17 and 13 in 2 sections)
  2. ASTR180: “Principles of Astronomy I”: introductory astronomy course for majors, covering properties of light, astronomical observing, orbital mechanics, and solar system properties with group problem-solving active learning techniques (F14: 36 students; F15: 33; F16: 23)
  3. ASTR181: “Principles of Astronomy II”: introductory astronomy course for majors, covering extragalactic astrophysics (e.g., stellar structure and evolution, formation and evolution of universe), using group problem-solving active-learning techniques (S14: 23 students; S15: 13; S16: 21; S17: 10)
  4. ASTR250: “Observational Astronomy”: introduction to modern observational techniques: statistics, instruments, data processing, etc. (S15: 10 students; S16: 7; F17: 12; F18: 6)

<sup>1</sup>Numbering tally total number of courses taught at UH Hilo; they do not reflect chronological order.

CURRICULUM VITAE — KATHY L. COOKSEY

5. ASTR260: “Computational Physics & Astronomy” (cross-listed w/PHYS260): introduction to scientific programming and numerical analysis (F15: 8 students; S17: 7)
6. ASTR260L: “Computational Physics & Astronomy Lab” (cross-listed w/PHYS260L): lab component of ASTR/PHYS260, focused on the computer-programming elements (S17: 7 students)
7. ASTR375: “Literature Review Practicum”: writing-intensive, upper-division course where students read and synthesize, in writing, a current astronomy or physics topic (F14: 9 students)
8. ASTR394: “Spectroscopy in Astronomy”: experimental upper-division course covering how spectroscopy is used in modern astronomical research (S14: 9 students)
9. ASTR495A/B: “Seminar”: natural sciences senior seminar (cross-listed with CHEM, GEOL, MATH, and PHYS); presentations include guest lecturers and 495B participants (S14: 15/20 students; S17: 8/9)
10. ASTR399V: “Directed Studies”
  - Advised student, Jennifer Solis, on an astrobiology literature review (S14)
  - Supervised student, Chantelle Kiessner, as ASTR110L lab assistant (S16)
11. PHYS170: “General Physics I”: calculus-based introductory mechanics course (F17: 54 students; S19: 26; F19: 20; S20: 19)
12. PHYS170L: “General Physics I Lab”: lab component of the introductory mechanics class (F14: 21 students; S15: 11; F18: 16; F19: 15)
13. PHYS170“R”: “General Physics I” recitation (F16: 19 students; F17: 19; F18: 17; S19: 16; F19: 20; S20: 19)
14. PHYS272: “General Physics II”: calculus-based introductory electricity and magnetism course (S21: 16)
15. PHYS171L/272L: “General Physics II Lab”: lab component of the introductory electromagnetism class (F14: 16 students; F17: 11; S19: 10)  
[course-number change in F17]
16. PHYS171/272“R”: “General Physics II” recitation (F16: 20 students; F17: 10; S20: 24; S21: 16)  
[course-number change in F17]
17. PHYS331: “Optics”: upper-division physics course on optics, with focus on applications in astronomy (F14: 13 students; F16: 8; F18: 10; F20: 9)
18. PHYS371: “Classical Mechanics” (F20: 8)
19. PHYS399V: “Directed Studies”
  - Instructed student, Taishi Nammoto, on substitute for PHYS371: “Classical Mechanics” (S20)
- *Guest lecturer:*
  - “Is Science a Meritocracy?: Issues of Diversity & Equity,” natural sciences senior seminar (ASTR/CHEM/GEOL/MATH/PHYS495A/B), UH Hilo, 19 Sep 2014, 25 Sep 2015, 16 Sep 2016, and 18 Sep 2020
  - “The Universe in Absorption,” Astronomy 101: “Techniques in Observational Astrophysics,” Pomona College, CA, 20 Nov 2012
- *Section Leader:* 8.02t: “Physics II” (technology-enabled active learning version), MIT, spring 2011; instructor for one section of introduction to electromagnetism, content required for all MIT undergraduates ( $\approx 50$  students)
- *Instructor:* Astronomy 005: “Introductory Astronomy—The Formation and Evolution of the Universe,” UCSC, summer 2008; 5-week introductory course for non-science majors (13 students)
- *Astronomy Lead Instructor:* Cluster 7: “Stars and Cells,” California State Summer School for Mathematics and Science (COSMOS) at UCSC, 2007; month-long introductory course on astronomy, as-

trobiology, evolutionary biology, and paleontology for high-school students, focusing on inquiry-based teaching methods (17 students)

- *Astronomy Lead Instructor*: Cluster 7: “Stars, Sight, and Science,” COSMOS at UCSC, 2005, 2006; month-long introductory course on astronomy and vision science for high-school students, focusing on inquiry-based teaching methods (15–17 students)
- *Teaching Assistant*: Astronomy 016: “Life in the Universe,” UCSC, fall 2003, Laurence Doyle (instructor); introductory course for science majors ( $\approx 50$  students)

### Innovative Teaching and Outreach:

- *Volunteer*:
  - Maunakea Astronomy Outreach Committee Annual AstroDay at local mall:
    - \* 30 Apr–2 May 2021 (contactless): provided “Pinwheels in Physics & Astronomy” kits for distribution by partner store
    - \* 4 May 2019: supported student-led Solar-System activity
    - \* 6 May 2017: organized and manned all-day “Ingredients of an Observatory” demonstrations (e.g., optical path, spectroscopy, infrared camera)
    - \* 30 Apr 2016: supported students leading astrobiology demonstration and telescopes
    - \* 2 May 2015: organized and manned all-day 6-in telescopes demonstration
    - \* 3 May 2014: organized and manned all-day “Color, Light, & Spectra” demonstration (e.g., gas emission tubes, spectroscopy)
  - Gemini Observatory “Journey through the Universe”:
    - \* 2 Mar 2021 (contactless): online presentation “Galaxies: Islands of Stars” to 9<sup>th</sup>–12<sup>th</sup>-grade students on Big Island and Maui; online career panel for K–8<sup>th</sup>-grade students.
    - \* 3 Mar 2020: visited one 1<sup>st</sup>- and one 3<sup>rd</sup>-grade classrooms to teach about galaxies, at Waiakeawaena and Waiakea Elementary Schools (21 and 27 students), respectively
    - \* 5 Mar 2019: visited two 3<sup>rd</sup>- and one 2<sup>nd</sup>-grade classrooms to teach about galaxies, at Hilo Union Elementary School ( $\approx 20$ –24 students each)
    - \* 14, 16 Mar 2017: visited one 2<sup>nd</sup>- and four 6<sup>th</sup>-grade classrooms to teach about galaxies, at Chiefess Kapi‘olani Elementary School ( $\approx 20$  students), Hilo Union Elementary ( $\approx 20$ ), and Waiakea Intermediate School (three periods,  $\approx 25$ –30 each)
    - \* 9, 10 Mar 2016: visited 2<sup>nd</sup>-, 3<sup>rd</sup>-, and 5<sup>th</sup>-grade classrooms to teach about galaxies, at E. B. DeSilva Elementary School ( $\approx 20$  students), Chiefess Kapi‘olani Elementary School ( $\approx 20$ ), and Waiakea Elementary School ( $\approx 30$ ), respectively
    - \* 3, 4 Mar 2015: visited 5<sup>th</sup>-grade and 7<sup>th</sup>-grade classrooms to teach about galaxies, at Ha‘aheo Elementary ( $\approx 30$  students) and Waiakea Intermediate ( $\approx 30$ ), respectively
    - \* 11 Mar 2014: visited three kindergarten classrooms to teach about galaxies; two at Waiakea Elementary ( $\approx 40$  students total) and one at Ha‘aheo Elementary ( $\approx 30$ )
  - Ellison Onizuka Science Day at UH Hilo Campus Center:
    - \* 25 Jan 2020: interactive optics and spectra demonstrations
    - \* 28 Jan 2017: interactive scale model of Solar System
    - \* 30 Jan 2016: demonstrated simple reflecting telescopes
    - \* 24 Jan 2015: answered questions and led activities for the Department of Physics & Astronomy table; activities included galaxy classification, solar observing, and angular momentum demonstration
    - \* 25 Jan 2014: *ibid.*
  - ‘Imiloa 2020 birthday celebration with 0.7-m Educational Telescope, 23 Feb 2020
  - UH Hilo Women in STEM Conference “Work-Family-Life Balance” panelist, 12 Feb 2019

## CURRICULUM VITAE — KATHY L. COOKSEY

- Upward Bound Program panelist with undergraduate researchers Emerson & Wells, UH Hilo, 5 Jul 2017
  - After-school Python programming class at Kamehameha High School, Kea‘au, organized by Michelle Correia (chemistry and astronomy), fall 2015–spring 2016
  - Amelia Earhart Girls Engineering Day speaker, co-sponsored by Waiakea High Robotics Club and Hilo Zonta Club, 10 Oct 2015
  - “Labor Pains: Fighting for Women in Science” panelist, AAUW-Hilo & UH Hilo’s Women’s Studies co-sponsored event, 23 Apr 2015
  - Thirty Meter Telescope panelist, HawaiiCon 2014, 14 Sep 2014
  - Astronomy Open House @ MIT, 30 April 2011: demonstrated optical versus ultraviolet light with UV-sensitive beads; field questions from community
  - *Discussion Leader*: Organized and led discussion on issues of imposter syndrome for MIT Department of Physics Diversity & Inclusion Luncheon series, Dec 2011
    - Described discussion in *SPECTRUM* (see Publications:Other)
    - MIT School of Science Infinite Kilometer Award 2012
  - *Mentor*: MIT Office of Minority Education Mentor Advocate Partnership, 2011–2012; paired with freshman to assist her transition to undergraduate life
    - MAP “Titanium” Mentor Award 2012
  - *Co-Facilitator*: “Three-kinds of Hands-on Learning” activity, ED212A: “Science Learning and Teaching in Elementary Classrooms,” UCSC, January 2007, Jerome Shaw (instructor); teaching inquiry techniques to undergraduate education majors
  - *Co-Facilitator*: “Color and Light Inquiry,” physics/engineering lab, December 2004 & 2005, Maui Community College, Mark Hoffman (instructor); teaching properties of light and additive and subtractive color mixing with inquiry
  - *Project Advisor*: “Stars, Sight, and Science,” COSMOS at UCSC, 2004; small-group, inquiry-based project on variable stars (3 students)
- 

## PRESENTATIONS

### Colloquia and Seminars:

19. “Is Science a Meritocracy?: Issues of Diversity & Equity,” Physics Colloquium, Valparaiso University, 23 Oct 2020
18. “Precious Metals (or Lack Thereof) in SDSS Quasar Spectra,” Galaxy Journal Club, Space Telescope Science Institute, Baltimore, MD, 26 May 2017
17. “Designing Undergraduate Research Projects: A Case Study,” IfA Mānoa Colloquium, 29 Mar 2017 (invited)
16. “Precious Metals (or Lack of) in SDSS Quasar Spectra,” IfA Mānoa Colloquium, 8 Apr 2015 (invited)
  - “Precious Metals in SDSS Quasar Spectra”
    15. Gemini Observatory North, 23 Oct 2014 (invited)
    14. Subaru Observatory, 4 Aug 2014 (invited)
    13. IfA Hilo Tech Talk, 29 Jan 2014 (invited)
    12. IfA Mānoa WEDGE, 22 Apr 2013
  - “Tracking the Evolution of Strong,  $1.5 < z < 4.5$  CIV Absorbers with Thousands of Systems”
    11. UC Irvine *Astrophysics Seminar*, 22 Jan 2013
    10. Caltech *Tea Talk*, 19 Nov 2012
    9. UCLA Journal Club, 9 Oct 2012
    8. Carnegie Observatories, 14 Sep 2012

7. Leiden Observatory, 1 Aug 2012 (invited)
6. MPIA *Galaxy Coffee*, 26 Jul 2012
5. LERMA, Observatoire de Paris, 20 Jul 2012
4. Yale Center for Astronomy and Astrophysics, 8 May 2012 (invited)
- “The Last Eight-Billion Years of Intergalactic C IV and Si IV Evolution”
  3. CTIO, 19 Nov 2010
  2. Brown University, 10 Nov 2010 (invited)
  1. Boston University, 1 Nov 2010 (invited)

**Conferences and Symposia:**

13. “Precious Metals in SDSS Quasar Spectra: Toward a Multi-Ion Classification Scheme,” *235th Meeting of the American Astronomical Society*, Honolulu, HI, Jan 2020 (poster)
12. “Precious Metals (or Lack Thereof) in SDSS Quasar Spectra,” *From Wall to Web*, Max Planck Institute for Astronomy, Berlin, Germany, Jul 2016 (invited)
11. “Precious Metals in SDSS QSOs: The Hunt for Intergalactic C IV in DR7,” *MKI Postdoc Symposium*, MIT, Apr 2012
  - “The Last Eight-Billion Years of Intergalactic C IV and Si IV Evolution”
    10. *Santa Cruz Galaxy Workshop 2011*, Santa Cruz, CA, Aug 2011
    9. *The Cosmic Odyssey of the Baryons*, Marseilles, France, Jun 2011
    8. *Gas in Galaxies: From Cosmic Web to Molecular Clouds*, Kloster Seeon, Germany, Jun 2011
    7. *MKI Postdoc Symposium*, Apr 2011
6. “The Cosmic Enrichment Cycle: Probing the Galaxy-IGM Boundary,” *MKI Postdoc Symposium*, MIT, Mar 2010
5. “The Last Eight-Billion Years of Intergalactic C IV Evolution,” *The Chemical Enrichment of the Intergalactic Medium*, Leiden, the Netherlands, May 2009
4. “Metals in the Low-redshift Universe: From Galaxies to the Intergalactic Medium,” *213th Meeting of the American Astronomical Society*, Long Beach, California, Jan 2009 (dissertation-year talk)
3. “Properties of Metal-line Absorption Systems and Their Neighboring Galaxies,” *The Cosmic Odyssey of the Elements*, Aegina, Greece, Jun 2008
2. “Metal-Line System Survey: Characterizing the Low- $z$  IGM,” *Space Astronomy: The UV Window to the Universe*, El Escorial, Spain, May 2007
1. “Gravitational-wave Signal Simulation for LIGO,” *16th National Conference of Undergraduate Research*, U. of Wisconsin–Whitewater, Apr 2002

**Public Lectures:**

6. “What One Astrophysicist/Professor/Chair/Human Parent Does,” *What Physicists Do* series, Sonoma State University, CA, 2 Nov 2020
5. “The Universe in Absorption,” UH Hilo Faculty Lecture Series, 15 July 2015
  - “Is Science a Meritocracy?: Issues of Diversity & Equity”
    4. American Association of Undergraduate Women, Hilo branch, 21 Jan 2015 (invited)
    3. UH Hilo Department of Physics & Astronomy, 23 Oct 2014
  - “The Universe in Absorption”
    2. *The Universe Tonight* series, Maunakea Visitor Information Station, 4 Oct 2014
    1. *What Physicists Do* series, Sonoma State University, CA, 15 Oct 2012 (invited)

## PUBLICATIONS

## Refereed Articles:

33. Rubin, K. H. R., Juarez, C.,<sup>†</sup> **Cooksey, K. L.** et al. (+7) 2021, “On the Kinematics of Cold, Metal-Enriched Galactic Fountain Flows in Nearby Star-Forming Galaxies.” *Submitted to ApJ*.
32. Gibson, J. L.,<sup>†</sup> Lehner, N., Oppenheimer, B. D., Howk, J. C., **Cooksey, K. L.**, & Fox, A. J. 2021. “The COS CGM Compendium IV. Effects of Varying Ionization Backgrounds on Metallicity Determinations in the  $z < 1$  Circumgalactic Medium.” *accepted to AJJ*, arXiv:2204.07586.
31. Boettcher, E., Gupta, N., Chen, H.-W., Chen, M. C.,<sup>†</sup> Józsa, G. I. G., Rudie, G. C., Cantalupo, S., Johnson, S. D., Balashev, S. A., Combes, F., **Cooksey, K. L.**, et al. (10) 2022. “Discovery of a Damped Ly $\alpha$  Absorber Originating in a Spectacular Interacting Dwarf Galaxy Pair at  $z = 0026$ .” *ApJ*, 926L, 2. <https://doi.org/10.3847/2041-8213/ac5250>
30. Cooper, T., Rudie, G. C., Chen, H.-W., Johnson, S. D., Zahedy, F. S., Chen, M. C.,<sup>†</sup> Boettcher, E., Walth, G. L., Cantalupo, S., **Cooksey, K. L.**, et al. (+12) 2021. “The Cosmic Ultraviolet Baryon Survey (CUBS) IV. The complex multiphase circumgalactic medium as revealed by partial Lyman limit systems.” *MNRAS*, 508, 3. <https://doi.org/10.1093/mnras/stab2869>
29. Zahedy, F. S., Chen, H.-W., Cooper, T. M., Boettcher, E., Johnson, S. D., Rudie, G. C., Chen, M. C.,<sup>†</sup> Cantalupo, S., **Cooksey, K. L.**, et al. (+12) 2021. “The Cosmic Ultraviolet Baryon Survey (CUBS) III. Physical properties and elemental abundances of Lyman limit systems at  $z < 1$ .” *MNRAS*, 506, 877. <https://doi.org/10.1093/mnras/stab1661>
28. Boettcher, E., Chen, H.-W., Zahedy, F. S., Cooper, T. M., Johnson, S. D., Rudie, G. C., Chen, M. C.,<sup>†</sup> Petitjean, P., Cantalupo, S., **Cooksey, K. L.**, et al. (+11) 2021. “The Cosmic Ultraviolet Baryon Survey (CUBS) II: Discovery of an H<sub>2</sub>-Bearing DLA in the Vicinity of an Early-Type Galaxy at  $z = 0.576$ .” *ApJ*, 913, 18. <https://doi.org/10.3847/1538-4357/abf0a0>
27. Chen, H.-W., Zahedy, F. S., Boettcher, E., Cooper, T. M., Johnson, S. D., Rudie, G. C., Chen, M. C.,<sup>†</sup> Walth, G. L., Cantalupo, S., **Cooksey, K. K.**, et al. (+12) 2020. “The Cosmic Ultraviolet Baryon Survey (CUBS) I. Overview and the diverse environments of Lyman limit systems at  $z < 1$ .” *MNRAS*, 497, 498. <https://doi.org/10.1093/mnras/staa1773>
26. Lehner, N., Wotta, C. B.,<sup>†</sup> Howk, J. C., O’Meara, J. M., Oppenheimer, B. D., and **Cooksey, K. L.** 2019. “The COS CGM Compendium (CCC). III: Metallicities and Physical Properties of the Cool Circumgalactic Medium at  $z < 1$ .” *ApJ*, 877, 5. <https://doi.org/10.3847/1538-4357/ab41fd>
25. Cooper, T. J., Simcoe, R. A., **Cooksey, K. L.**, et al. (+5) 2019. “Heavy Element Absorption Systems at  $5.0 < z < 6.8$ : Metal-Poor Neutral Gas and a Diminishing Signature of Highly Ionized Circumgalactic Matter.” *ApJ*, 882, 77. <https://doi.org/10.3847/1538-4357/ab3402>
24. Chen, H.-W., Boettcher, E., Johnson, S. D., Zahedy, F. S.,<sup>†</sup> Rudie, G. C., **Cooksey, K. L.**, et al. (+2) 2019. “A Giant Intragroup Nebula Hosting a Damped Ly $\alpha$  Absorber at  $z = 0.313$ .” *ApJ*, 878L, L33. <https://doi.org/10.3847/2041-8213/ab25ec>
23. Wotta, C. B.,<sup>†</sup> Lehner, N., Howk, J. C., O’Meara, J. M., Oppenheimer, B. D., and **Cooksey, K. L.** 2019. “The COS CGM Compendium (CCC). II: Metallicities of the Partial and Lyman Limit Systems at  $z < 1$ .” *ApJ*, 872, 81. <https://doi.org/10.3847/1538-4357/aafb74>
22. Lehner, N., Wotta, C. B.,<sup>†</sup> Howk, J. C., O’Meara, J. M., Oppenheimer, B. D., and **Cooksey, K. L.** 2018. “The COS CGM Compendium (CCC). I: Survey Design and Initial Result.” *ApJ*, 866, 33. <https://doi.org/10.3847/1538-4357/aadd03>
21. Rubin, K. H. R., O’Meara, J. M., **Cooksey, K. L.**, et al. (+8) 2018. “Andromeda’s Parachute: A Bright Quadruply Lensed Quasar at  $z = 2.377$ .” *ApJ*, 859, 146. <https://doi.org/10.3847/1538-4357/aaab7>

<sup>†</sup>Graduate student at time of publication.

20. Chen, S.-F. S.,<sup>‡</sup> Simcoe, R. A., Torrey, P., Bañados, E., **Cooksey, K. L.**, et al. (+10) 2017. “Mg II Absorption at  $2 < z < 7$  with Magellan/FIRE, III: Full Statistics of Absorption towards 100 High-Redshift QSOs.” *ApJ*, 850, 188. <https://doi.org/10.3847/1538-4357/aa9707>
19. Murphy, M. T. & **Cooksey, K. L.** 2017. “Subaru Telescope limits on cosmological variations in the fine-structure constant.” *MNRAS*, 471, 4930. <https://doi.org/10.1093/mnras/stx1949>  
 – Murphy, M. T. & **Cooksey, K. L.** “Subaru quasar spectra and absorption profile fits for limiting fine-structure constant variations,” doi:10.5281/zenodo.574904.
18. Glidden, A.,<sup>‡</sup> Cooper, T. J.,<sup>†</sup> **Cooksey, K. L.**, et al. (+2) 2016. “Predominantly Low Metallicities Measured in a Stratified Sample of Lyman Limit Systems at  $z = 3.7$ .” *ApJ*, 833, 270. <https://doi.org/10.3847/1538-4357/833/2/270>
17. Cooper, T. J.,<sup>†</sup> Simcoe, R. A., **Cooksey, K. L.**, et al. (+2), 2015. “The Incidence of Low-Metallicity Lyman-Limit Systems at  $z \sim 3.5$ : Implications for the Cold-Flow Hypothesis of Baryonic Accretion.” *ApJ*, 812, 58. <https://doi.org/10.1088/0004-637X/812/1/58>
16. Crighton, N. H. M., Hennawi, J. F., Simcoe, R. A., **Cooksey, K. L.**, et al. (+4) 2015. “Metal-enriched, Sub-kiloparsec Gas Clumps in the Circumgalactic Medium of a Faint  $z = 2.5$  Galaxy.” *MNRAS*, 446, 18. <https://doi.org/10.1093/mnras/stu2088>
15. Gauthier, J.-R., Chen, H.-W., **Cooksey, K. L.**, et al. (+3) 2014. “Halo Masses of Mg II absorbers at  $z \sim 0.5$  from Sloan Digital Sky Survey Data Release 7.” *MNRAS*, 439, 342. <https://doi.org/10.1093/mnras/stt2443>
14. Seyffert, E. N.,<sup>‡</sup> **Cooksey, K. L.**, et al. (+4) 2013. “Precious Metals in SDSS Quasar Spectra II. Tracking the Evolution of Strong,  $0.4 < z < 2.3$  Mg II Absorbers with Thousands of Systems.” *ApJ*, 779, 161. <https://doi.org/10.1088/0004-637X/779/2/161>
13. Cucchiara, A., Prochaska, J. X., Zhu, G., Ménard, B., Fynbo, J. P. U., Fox, D. B., Chen, H.-W., **Cooksey, K. L.**, et al. (+9) 2013. “An Independent Measurement of the Incidence of Mg II Absorbers along Gamma-Ray Burst Sightlines: the End of the Mystery?” *ApJ*, 773, 82. <https://doi.org/10.1088/0004-637X/773/2/82>
12. Matejek, M. S.,<sup>†</sup> Simcoe, R. A., **Cooksey, K. L.**, et al. (+1) 2013. “Mg II Absorption at  $2 < z < 6$  with Magellan/FIRE. II: A Longitudinal Study of HI, Metals, and Ionization in Galactic Haloes.” *ApJ*, 764, 9. <https://doi.org/10.1088/0004-637X/764/1/9>
11. **Cooksey, K. L.**, et al. (+4) 2013. “Precious Metals in SDSS Quasar Spectra I. Tracking the Evolution of Strong,  $1.5 < z < 4.5$  CIV Absorbers with Thousands of Systems.” *ApJ*, 763, 37. <https://doi.org/10.1088/0004-637X/763/1/37>
10. Simcoe, R. A., Sullivan, P.,<sup>†</sup> **Cooksey, K. L.**, et al. (+3) 2012. “Extremely Metal-Poor Gas at a Redshift of  $z = 7$ .” *Nature*, 492, 79. <https://doi.org/10.1038/nature11612>
9. Simcoe, R. A., **Cooksey, K. L.**, et al. (+10) 2011. “Constraints on the Universal CIV Mass Density at  $z \sim 6$  from Early IR Spectra Obtained with the Magellan FIRE Spectrograph.” *ApJ*, 743, 21. <https://doi.org/10.1088/0004-637X/743/1/21>
8. Prochaska, J. X., Weiner, B., Chen, H.-W., Mulchaey, J. S., & **Cooksey, K. L.** 2011. “Probing the IGM/Galaxy Connection V: Associating Galaxies and Their Local Environments with Ly $\alpha$  and O VI Absorption at  $z < 0.2$ .” *ApJ*, 740, 91. <https://doi.org/10.1088/0004-637X/740/2/91>
7. Prochaska, J. X., Weiner, B., Chen, H.-W., **Cooksey, K. L.** et al., (+1) 2011. “Probing the IGM/Galaxy Connection IV: The LCO/WFCCD Galaxy Survey of 20 Fields Surrounding UV Bright Quasars.” *ApJS*, 193, 28. <https://doi.org/10.1088/0067-0049/193/2/28>
6. **Cooksey, K. L.**, et al. (+3) 2011. “The Last Eight-Billion Years of Intergalactic Si IV Evolution.” *ApJ*, 729, 87. <https://doi.org/10.1088/0004-637X/729/2/87>

---

<sup>‡</sup>Undergraduate or post-baccalaureate student at time of publication.



5. **Cooksey, K. L.**, et al. (+3) 2010. “The Last Eight-Billion Years of Intergalactic CIV Evolution.” *ApJ*, 708, 868. <https://doi.org/10.1088/0004-637X/708/1/868>
4. Lehner, N., Prochaska, J. X., Kobulnicky, H. A., **Cooksey, K. L.**,<sup>†</sup> et al. (+3) 2009. “The Connection Between a Lyman Limit System, a Very Strong O VI Absorber, and Galaxies at  $z \sim 0.203$ .” *ApJ*, 694, 734. <https://doi.org/10.1088/0004-637X/694/2/734>
3. **Cooksey, K. L.**,<sup>†</sup> et al. (+4) 2008. “Characterizing the Low-Redshift Intergalactic Medium towards PKS1302–102.” *ApJ*, 676, 262. <https://doi.org/10.1086/528704>
2. Alcalá, J. M., Wachter, S., Covino, E., Sterzik, M. F., Durisen, R. H., Freyberg, M. J., Hoard, D. W., & **Cooksey, K.**<sup>†</sup> 2004. “Multi-wavelength Observations of the Star-forming Region in L1616.” *A&A*, 516, 677. <https://doi.org/10.1051/0004-6361:20034495>
1. Day, A., Layden, A. C., Hoard, D. W., Brammer, G.,<sup>‡</sup> **Cooksey, K.**,<sup>‡</sup> et al. (+4) 2002. “Light and Color Curves of Six Field RR Lyrae Variable Stars.” *PASP*, 114, 645. <https://doi.org/10.1086/341685>

#### Monograph:

1. **Cooksey, K. L.**<sup>†</sup> 2009. “Probing the Chemical Composition of the  $z < 1$  Intergalactic Medium with Observations and Simulations” (Ph.D. thesis):  
[http://guavanator.uhh.hawaii.edu/~kcooksey/MLSS/thesis\\_kcooksey\\_pub.pdf](http://guavanator.uhh.hawaii.edu/~kcooksey/MLSS/thesis_kcooksey_pub.pdf).

#### Conference Proceedings:

6. **Cooksey, K. L.** & Jonsson, P. 2022. “Using Pre/Post-Quizzes Intentionally in Curriculum Development and Evaluation.” *Impact through Inquiry: Twenty Years of Preparing Leaders in Effective and Inclusive Education at the Institute for Scientist & Engineer Educators*, S. Seagroves et al., eds. *in prep.*
5. **Cooksey, K. L.**, et al. (+4) 2022. “Galaxy-Classification Activity for All Ages.” *Impact through Inquiry: Twenty Years of Preparing Leaders in Effective and Inclusive Education at the Institute for Scientist & Engineer Educators*, S. Seagroves et al., eds. *in prep.*
4. **Cooksey, K. L.**, et al. (+5) 2010. “The CfAO’s Astronomy Course in COSMOS: Curriculum Design, Rationale, and Application.” *Learning from Inquiry in Practice*, L. Hunter & A. Metevier, eds. *ASPCS*, 436, 381 (also arXiv:1011.0752).
3. Quan, T. K., Dorighi, K. M., & **Cooksey, K. L.** 2010. “Astrobiology: Identifying Bacteria from Extreme Environments.” *Learning from Inquiry in Practice*, L. Hunter & A. Metevier, eds. *ASPCS*, 436, 264.
2. **Cooksey, K. L.**<sup>†</sup> & Prochaska, J. X. 2009. “Metal-line System Survey: Characterizing the Low-redshift IGM.” *Ap&SS*, 320, 31. <https://doi.org/10.1007/s10509-007-9721-3>
1. Alcalá, J. M., Covino, E., Wachter, S., Hoard, D. W., Sterzik, M. F., Durisen, R. H., Freyberg, M. J., & **Cooksey, K.**<sup>‡</sup> 2003. “X-ray and Optical Observations of NGC1788.” *Galactic Star Formation Across the Stellar Mass Spectrum*, J. M. De Buizer & N. S. van der Blik, eds. *ASPCS*, 287, 140.

#### Other:

1. **Cooksey, K. L.** 2014. “Imposter: Understanding, Discussing, and Overcoming Imposter Syndrome,” *SPECTRUM*, the AAS Committee on the Status of Minorities in Astronomy newsletter, January, [https://csma.aas.org/sites/csma.aas.org/files/SPECTRUM/spectrum\\_Jan14.pdf](https://csma.aas.org/sites/csma.aas.org/files/SPECTRUM/spectrum_Jan14.pdf).

GRANTS and OBSERVING PROPOSALS<sup>2</sup>

- Co-I, *Hubble Space Telescope*
  27. Cycle 30 (2022): “*HST* NUV Legacy for Tracking the Baryon Cycle” (PI: H.-W. Chen: 138 orbits, *pending*)
    - Cycle 29 (2021):
      26. *Mid-Cycle*: “Identifying Starburst Driven Superwids at  $z > 1$ ” (PI: Z. Qu: 9 orbits, *pending*)
      25. “*HST* NUV Legacy for Tracking the Baryon Cycle” (PI: H.-W. Chen: 138 orbits, *declined*)
      24. “Revealing the role of galaxy interactions in fueling quasars and shaping the CGM with *HST* imaging of MUSE quasars at  $z \approx 1$ ” (PI: S. D. Johnson: 23 orbits, *declined*)
    - Cycle 28 (2020):
      23. “An NUV Legacy for Cosmic Ultraviolet Baryon Studies” (PI: H.-W. Chen: 138 orbits, *declined*)
      22. “A Comprehensive Study of Diffuse Intragroup Medium in Absorption and in Emission” (PI: H.-W. Chen: 14 orbits, *declined*)
    - Cycle 27 (2019):
      21. “An NUV Legacy for Cosmic Ultraviolet Baryon Studies” (PI: H.-W. Chen: 138 orbits, *declined*)
      20. “A Comprehensive Study of Diffuse Intragroup Medium in Absorption and in Emission” (PI: H.-W. Chen: 13 orbits, *declined*)
    - Cycle 26 (2018):
      19. “An NUV Legacy for Cosmic Ultraviolet Baryon Studies” (PI: H.-W. Chen; 138 orbits, *declined*)
      18. “A Comprehensive Survey of the Multiphase Nature of the Circumgalactic Medium at  $z < 1$ ” (PI: N. Lehner; AR-15634, archival)
  17. Cycle 25 (2017): “COS Ultraviolet Baryon Survey (CUBS)” (PI: H.-W. Chen; GO-15163; 145 orbits)
    - Cycle 24 (2016):
      16. “Birth of the Col: Galaxies and their Neighborhoods Approaching the Epoch of Reionization” (PI: R. Simcoe; 20 orbits, *declined*)
      15. “COS Ultraviolet Baryon Explorer (COS UBER)” (PI: H.-W. Chen; 359 orbits, *declined*)
  14. Cycle 21 (2013): “The Structure of Mg II Absorbing Galaxies at  $z = 2$ : Linking CGM Physics and Stellar Morphology During Galaxy Assembly” (PI: R. Simcoe; GO-13303; 27 orbits)
  13. Cycle 19 (2011): “Probing the Warm-Hot Intergalactic Medium using Weak, Distributed Metal Absorption” (PI: M. Pieri; AR-12643)
  12. **PI**, 2017 Cottrell Scholar Award by Research Corporation for Science Advancement, “Studying Evolution of Galaxies through Their Circumgalactic Gas, while Training Diverse STEM Professionals,” pre-proposal (*accepted*), \$100,000 award (*declined*)
  - 11.<sup>+</sup> **PI**, University of Hawai‘i at Hilo observing time, semesters 2017A (1 n Keck I), 2017B (1 n Keck I), 2019B (1 n Keck II), 2020A (2 n Keck II)
  - 10.<sup>+</sup> **PI**, University of Hawai‘i observing time, semesters 2014B (2 n UH88, 3 n Subaru, 1.5 n Keck II), 2015A (2 n Keck II), 2015B (1 n Keck I), 2016A (1 n Keck I), 2016B (0.5 n Keck I, 0.5 n Keck II), 2017A (1 n Keck I, 2 n Keck II), 2018B (1 n Keck II)
  9. Surprise Grant from UH Hilo’s College of Arts & Sciences Dean’s Council, Spring 2017 (one of 10 \$700 awards for research)
  8. University of Hawai‘i at Hilo Research Council Travel Award 2016 to *From Wall to Web* (\$2200)

<sup>2</sup>Items numbered with a plus (+) indicate multiple semesters of successful observing proposals.

## CURRICULUM VITAE — KATHY L. COOKSEY

- **PI**, National Science Foundation Astrophysics Research Grant (AAG 12-589) through Research in Undergraduate Institutions (RUI 14-579): “RUI/AAG—Precious Metals in SDSS Quasar Spectra: Observing Galaxy Evolution in Absorption”
    7. 2015: AST-1615296; 3 yr extended (2016–2022), \$138,300 (Excellent and Excellent/Very Good preliminary ratings)
    6. 2014: 3 yr, \$195,518; *declined* (Excellent and Very Good)
  - 5. **PI**, University of Hawai‘i at Hilo Seed Money Grant (2014): “Observing Galaxy Evolution in Absorption” (1 yr, \$11,565)
  - 4.<sup>+</sup> **PI**, Magellan Clay 6.5-m Telescope, semesters 2009B (3 n), 2010A (2 n), 2010B (2.25 n), 2011A (2.7 n), 2012A (24 hr), 2012B (8 hr), 2013A (2 n)
  - 3.<sup>+</sup> Co-I, Magellan Baade & Clay 6.5-m Telescopes, semesters 2010B (8.5 n), 2012A (8 n), 2013A (2 n)
    - **PI**, National Science Foundation Astronomy & Astrophysics Postdoctoral Fellowship (NSF 08-581): “Seeking the Lost Interstellar Medium of Red-Sequence Galaxies”
      2. 2009: AST-1003139; 3 yr (2010–2013), \$253,000 (Excellent and Good preliminary ratings)
      1. 2008: 3 yr, \$249,000; *declined* (two Very Good’s)
- 

## SERVICE

- Department Chair, UH Hilo: 2019–2021
  - Chancellor’s Maunakea Advisory Committee: 2019–2021
  - *Hubble Space Telescope* proposal-review panelist: Cycles 19 (2011); 21 (2013); 22 (2014); 24 (2016; external reviewer); 27 (2019); 29 (2021; panel Vice Chair & Executive Committee)
  - Oral Session #414 Chair, *235th Meeting of the American Astronomical Society*, Honolulu, HI, 8 January 2020
  - *The Astrophysical Journal* referee: 2011 (1 article), 2012 (1), 2016 (1), 2017 (1), 2020 (1)
  - UH Hilo hiring committees: Physics & Astronomy—2016 (job #83815: assistant professor; successful); 2018 (job #86382: instructor; position cancelled mid-search); Chemistry—2019 (job #82648: instructor; successful)
  - National Science Foundation proposal reviewer:
    - Panelist: 2013 (2 panels); 2014 (1); 2016 (1); 2017 (1)
    - Ad hoc: 2019 (1)
  - Department of Physics & Astronomy representative to CAS→CNHS Transition Team, 2017–2018
  - Akamai Workforce Initiative Internship Program Selection Committee expert reviewer, 2017
  - Optical/Infrared/Submillimeter Time Allocation Committee, University of Hawai‘i: 2015–2018
  - University of Hawai‘i at Hilo Seed Money Grant proposal reviewer: 2015
  - *The Astrophysical Journal Supplement* referee: 2015 (1 article)
  - Kavli in Astrophysics Symposium delegate for MIT Kavli Institute, 15–18 July 2012, Kavli Royal Society International Centre at Chicheley Hall, UK
  - NSF Astronomy & Astrophysics Postdoctoral Fellows Symposium co-organizer, 7–8 January 2012, Austin, TX
  - MIT Kavli Institute morning coffee founder and organizer, 2010–2012
  - MIT Kavli Institute Postdoc Symposium co-organizer, 13–15 April 2011
- 

## PROFESSIONAL DEVELOPMENT

- *Leading By Design* online program by Institute for Scientist & Engineer Educators, UC Santa Cruz, under their NSF Award “Advancing Inclusive Leaders in Astronomy” (AST-1743117), January–June 2021

## CURRICULUM VITAE — KATHY L. COOKSEY

- Machine Learning with `astroML` workshop, *235th Meeting of the American Astronomical Society*, Honolulu, HI, 6 Jan 2020
- Physics and Astronomy New Faculty Workshop, 23–26 June 2014: training in active-learning techniques, with attention to education research; organized by American Association of Physics Teachers
- ISEE/Akamai Mentor Workshop, 25–26 April 2014: develop plan for projects and learn/discuss mentoring-related issues in preparation for Akamai Workforce Initiative interns; organized Institute for Scientist and Engineer Educators, UC Santa Cruz
- Summer School in Statistics for Astronomers VIII, 4–8 June 2012: overview of statistics as applied in astronomy, with hands-on training in R statistics software; organized by Center for Astrostatistics, Pennsylvania State University
- Center for Adaptive Optics Professional Development Workshop, 2004–2008; trained in inquiry-based teaching methods, assumed advanced roles in 2005–2008 to help teach other participants; organized by (now) ISEE, UC Santa Cruz
- Heidelberg Summer School on the Interstellar Medium, 25–29 September 2006: series of lectures and training activities pertaining to research in the gas in galaxies; organized by International Max Planck Research School for Astronomy and Cosmic Physics, University of Heidelberg

---

### PROFESSIONAL ASSOCIATIONS

- American Astronomical Society: junior member 2001–2013; full 2014–present
- American Association for the Advancement of Science: platinum member 2021–2022
- Delta Epsilon Iota Academic Honor Society, 2002–present