Aaron T. Lee

Curriculum Vitae

August 11, 2019

Personal Data

full name:	Aaron Thomas Lee
email:	atl8@stmarys-ca.edu
Department Website:	physics.stmarys-ca.edu/faculty/aaronlee
Research Website:	astroalee.com
Languages:	American English (native), French (conversational)

Education

2017 Ph.D. Astronomy
Department of Astronomy, The University of California Berkeley
Dissertation Title: "Star and Planet Formation Through Cosmic Time"

2010 M.A. Astronomy
Department of Astronomy, The University of California Berkeley

2008 Master of Advanced Study (*awarded with honors*)
Department of Applied Mathematics and Theoretical Physics,
Cambridge University

2007 B.A. Physics, B.A. Mathematics (*Summa Cum Laude*)
Department of Physics, Department of Mathematics,
Northwestern University

Professional Appointments

since 2019	Assistant Professor, Physics and Astronomy, St. Mary's College of California
2017 – 2019	Postdoctoral Scholar, University of Texas Austin
2016 – 2017	Researcher, University of Massachusetts Amherst
2015 – 2016	Berkeley Dissertation Fellow, University of California Berkeley
2012 – 2015	Graduate Student, University of California Berkeley
2009 – 2012	National Science Foundation Graduate Fellow, University of California Berkeley
2008 – 2009	Graduate Student, University of California Berkeley

Publications

Articles In Prep or Under Peer-Review

A. T. Lee, S. Offner, K. Kratter, R. Smullen, PS. Li. The formation and evolution of multiple-stellar systems in magnetized clouds. *submitted to ApJ*.

A. Skinner, **A. T. Lee**, C. F. McKee, R. I. Klein. An accurate, parallelized, and fast method for tracing ionizing radiation from point sources. *in prep*.

R. Smullen, **A. T. Lee**, K. Kratter, S. Offner. Using dendograms to map collapsing cores in star-forming clouds. *in prep*.

A. T. Lee, S. W. Stahler. The Magnetized Equilibrium Structure of Dense Cores, *in prep*.

Refereed Journal Articles

K. Burleigh, C. F. McKee, A. J. Cunningham, **A. T. Lee**, R. I Klein. Bondi-Hoyle Accretion in Magnetized Supersonic Turbulence. MNRAS, 468, 717 (2017).

A.L. Rosen, M.R. Krumholz, J.S. Oishi, **A. T. Lee**, R.I. Klein. Hybrid Adaptive Ray-Moment Method (HARM^2): A Highly Parallel Method for Radiation Hydrodynamics on Adaptive Grids. Journal of Computational Physics. 330, 924 (2016).

A. Stacy, V. Bromm, **A. T. Lee**. Building up the Population III initial mass function from cosmological initial conditions. MNRAS, 462, 1307 (2016).

A. T. Lee, A. J. Cunningham, C. F. McKee, R. I Klein. Bondi-Hoyle Accretion in a Magnetized Plasma, ApJ, 783, 50 (2014).

A. T. Lee, S. W. Stahler. Dynamical Friction in a Gas: The Supersonic Case, A&A, 561, 84 (2014).

A. T. Lee, S. W. Stahler. Dynamical Friction in a Gas: The Subsonic Case, MNRAS, 416, 3177 (2011).

A. T. Lee, E. Chiang, X. Asay-Davis, J. Barranco. Forming Planetesimals by Gravitational Instability. II. How Dust Settles to its Marginally Stable State, ApJ, 725, 1938 (2010).

A. T. Lee, E. Chiang, X. Asay-Davis, J. Barranco. Forming Planetesimals by Gravitational Instability. I. The Role of the Richardson Number in Triggering the Kelvin-Helmholtz Instability, ApJ, 725, 1938 (2010).

A. T. Lee, E. W. Thommes, F. E. Rasio. Resonance Trapping in Protoplanetary Disks. I. Coplanar Systems, ApJ, 691, 1684 (2009).

Teaching Experience

F,W,S = Fall, Winter, Summer Semester

St. Mary's College
- Physics 1 – Introduction to Physics for Majors
  - Instructor: F2019

UT Austin
- Star Formation and the ISM (graduate course)
  - Guest Lecturer: F2018

UMass Amherst
- Astrophysical Fluid Dynamics (graduate course)
  - Guest Lecturer: W2017
- Introduction to Computational Physics (undergraduate independent study)
  - Instructor on Record: W2017

UC Berkeley
- Introduction to Astronomy (undergraduate course)
  - Instructor on Record: S2015
  - Teaching Assistant: W2015, W2014, F2011, F2009, F2008.
- Pedagogy and Instructional Methods in Astronomy & Physics (graduate course)
  - Instructor on Record: F2014, F2013, F2011, F2010.

Select Public Education & Outreach

2018	"Cost-effective demos for teaching astronomy," Workshop on teaching practices for high school science teachers, Austin, Austin, Texas
2018 – 2019	Organizer and co-host for Astronomy on Tap in Austin, Austin, Texas
2017	"Forming Planets: The Collective Power of Pebbles," Astronomy on Tap Austin, Austin, Texas
2016 – 2018	"Adopt a Physicist" online program, American Institute of Physics & Sigma Pi Sigma
2015	"Ending the Dark Ages: Forming the Universe's First Stars," San Francisco Amateur Astronomy Society, San Francisco, California
2013	"Comets and Conic Sections," popular science article written for *Girls' Angle Magazine*, a magazine for high school girls interested in math.

Awards & Honors

2015	Certificate in Teaching and Learning in Higher Education, UC Berkeley
2010	Award for Teaching Effectiveness, UC Berkeley
2010	Outstanding Teaching Assistant Award, UC Berkeley
2008	Alex Mischenko Poster Prize, Cambridge University
2007	Lee Corbin Prize for Arts & Sciences, Northwestern University
2007	Department award for best thesis in physics, Northwestern University

Grants & Fellowships

2015 Final-Year Dissertation Fellowship, UC Berkeley
2014 Course Improvement Grant, PI, UC Berkeley
2009 NSF Graduate Research Fellowship, National Science Foundation
2008 Cambridge Overseas Trust Scholarship, Cambridge University

Computing Proposals

2019 Exploring the origins of stellar multiplicity in young star systems II. XSEDE Computing Proposal (PI), National Science Foundation (*submitted*)

2017-2019 Stellar Multiplicity in Star-Forming Regions.
Computing Proposal (co-PI), Texas Advance Computing Center
(renewable in 200,000 hour increments; over 1 million hours total)

2016 Exploring the origins of stellar multiplicity in young star systems. XSEDE Computing Proposal (PI), National Science Foundation (1 million hours)

2010–2016 Progress towards a comprehensive theory of star formation – from Brown Dwarfs to high mass stars, clusters, and on to giant molecular clouds.
XSEDE Computing Proposal (group member), National Science Foundation
(10 million hours / year)

2009 Understanding the role of the Richardson Number in protoplanetary disks.
Teragrid Starter Computing Proposal (PI as NSF Graduate Fellow),
National Science Foundation (50,000 hours)

Invited Talks & Conferences

Talks

2019 "What's in the Box? Cost-effective physics demonstrations." AAPT Conference, Houston, Texas

2017 "Numerical Studies in Star Formation." UMass Amherst Astronomy Department Colloquium Series, UMass Amherst

2011 "Bondi and Bondi-Hoyle Accretion in a Magnetized Plasma." Star Formation through Spectroimaging at High Angular Resolution, ASIAA, Taipei, Taiwan

Posters

2018 "Stellar Multiplicity in Star-Forming Regions" Texas Advance Computing Center Conference, Austin, Texas

2016 "Professional Development: Practice Makes Perfect." AAPT Conference, New Orleans, Louisiana

2012 "Bondi and Bondi-Hoyle Accretion in a Magnetized Plasma." Star Formation and the Interstellar Medium, Thirty-Five Years Later, UC Berkeley, Berkeley, California

Workshops & Schools

2010 – 2016 Instructional Methods For Incoming Graduate Students. UC Berkeley GSI Teaching and Resource Center, UC Berkeley, Berkeley, California

Research Students (co-) supervised

Undergraduate Students

Dhruva Karkada (2019), with Stella Offner. Undergraduate research student.
Zachary Sun (2017), with Stella Offner. Participant in the 10-week UMass Astronomy undergraduate research internship.
Doris Lee (2013–2016), with Steven Stahler. Mentored as part of the UC Berkeley COMPASS project. Now a graduate student in computer science at the University of Illinois.

Professional Development

2017 Using Technology in the classroom, CIRTL MOOC, Vanderbilt University, Nashville, Tennessee
2016 An Introduction to Evidence-Based Undergraduate STEM Teaching, CIRTL MOOC, Vanderbilt University, Nashville, Tennessee
2015 Using Javascript in the classroom, Astronomical Inquiry in Astro101. AAPT, San Diego, California
2014 Science Communication Summer School, University of Chicago and Alan Alda Center for Science Communication, Chicago, Illinois

Department & University Service

2016 Panelist for "Teaching and the Academic Job Market," UC Berkeley
2008 – 2015 Public liaison for the astronomy department, UC Berkeley

Professional Memberships

American Association of Physics Teachers (AAPT)
American Astronomical Society (AAS)
Phi Beta Kappa, Sigma Pi Sigma, Pi Mu Epsilon

References

Stella Offner, assistant professor at UT Austin
Research, teaching, mentoring reference
soffner@astro.as.utexas.edu

Steven Stahler, research astronomer at UC Berkeley
Research, mentoring reference
stahler@astro.berkeley.edu

Alex Filippenko, professor at UC Berkeley
Teaching reference
alex@astro.berkeley.edu

Christopher McKee, professor at UC Berkeley
Research reference
cmckee@astro.berkeley.edu