

MICHAEL K. MCCOURT

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EDUCATION AND ACADEMIC POSITIONS

UC Santa Barbara	2016–present	KITP and Hubble Fellow
	2015–2016	Postdoc
Harvard	2014–2015	ITC Fellow
UC Berkeley	2008–2014	Graduate Student
		· 2014: <i>Ph.D. astrophysics</i> · 2010: <i>M.A. astrophysics</i> · advisor: <i>Eliot Quataert</i>
Stanford University	2005–2008	Undergraduate Student
		· 2008: <i>B.S. physics</i> · concentration in <i>theoretical physics</i> · advisor: <i>Roger Blandford</i>

AWARDS

UC Berkeley	April 2014	Mary Elizabeth Uhl Prize
	May 2012	Robert J. Trumpler Graduate Student Excellence Award
Stanford University	Fall 2007	Nomination for the Churchill Scholarship
	Summer 2006	VPUE Grant for Undergraduate Research
Rose Hills Foundation	Summer 2007	Rose Hills Award for Undergraduate Research

PROFESSIONAL SERVICE

- Organizer (“Mentor Master”) for the UC Berkeley Astronomy Department peer-mentoring system.
- Referee for the *Astrophysical Journal* (and *ApJ Letters*), *MNRAS* (and *MNRAS Letters*), *Astrophysics and Space Science*, *Journal of Fluid Mechanics*, and *Nature Letters*.
- Author of several open-source emacs packages, including a popular [major mode](#) for editing gnuplot scripts and a [browser](#) for fetching BibTeX entries from ADS. Both are available in the [MELPA](#) package repository

OBSERVING PROPOSALS

	facility	award (hours)	year
2	GEMINI	1.0	2016
1	VLA	6.0	2014

COMPUTING GRANTS

	agency	award ($\times 10^6$ hour)	value (\$k)	year
7	NSF	1.6	55	2016
6	NSF	1.2	40	2016
5	NSF	0.6	20	2015
4	NSF	3.2	110	2015
3	NASA	4.7	100	2015
2	NSF	2.6	89	2014
1	NASA	2.4	75	2014
total:		16.3	489	

most of these
proposals are
collaborative; this list
includes only grants
where I was a
primary author

TEACHING EXPERIENCE

UC Santa Barbara	2016–present	Supervising undergraduate research · Teaching advanced fluid dynamics to two undergraduate students
UC Berkeley	2008–2009	Graduate Student Instructor
Stanford University	2008	Undergraduate Instructor · co-designed and taught a course on numerical methods (Physics 90SI) under the student-initiated course program.

PUBLICATIONS

21. Gronke, Dijkstra, McCourt, & Oh, *arxiv* (2016)
“From Mirrors to Windows: Lyman-Alpha Radiative Transfer in a Very Clumpy Medium”
20. McCourt, Oh, O’Leary, & Madigan, *arxiv* (2016)
“A Characteristic Scale for Cold Gas”
19. Guillochon & McCourt, *arxiv* (2016)
“Simulations of Magnetic Fields in Tidally-Disrupted Stars”
18. Fielding, Quataert, McCourt, & Thompson, *arxiv* (2016)
“The Impact of Star Formation Feedback on the Circumgalactic Medium”

17. Guillochon, McCourt, Chen, Johnson, et al., *ApJ* (2016)
“Unbound Debris Streams and Remnants Resulting from the Tidal Disruptions of Stars by Supermassive Black Holes”
16. Madigan & McCourt, *MNRAS* (2016)
“A new inclination instability reshapes Keplerian discs into cones: application to the outer Solar system”
15. Lecoanet, McCourt, Quataert, Burns, et al., *MNRAS* (2016)
“A validated non-linear Kelvin-Helmholtz benchmark for numerical hydrodynamics”
14. Madigan, McCourt, & O’Leary, *arxiv* (2016)
“Using gas clouds to probe the accretion flow around SgrA: G2’s delayed pericenter passage”*
13. McCourt & Madigan, *MNRAS* (2016)
*“Going with the flow: using gas clouds to probe the accretion flow feeding Sgr A**”*
12. McCourt, O’Leary, Madigan, & Quataert, *MNRAS* (2015)
“Magnetized gas clouds can survive acceleration by a hot wind”
11. McBride & McCourt, *MNRAS* (2014)
“Bent radio jets reveal a stripped interstellar medium in NGC 1272”
10. Wagh, Sharma, & McCourt, *MNRAS* (2014)
“Thermal conduction and multiphase gas in cluster cores”
9. McCourt, Quataert, & Parrish, *MNRAS* (2013)
“What sets temperature gradients in galaxy clusters? Implications for non-thermal pressure support and mass-observable scaling relations”
8. Sharma, McCourt, Parrish, & Quataert, *MNRAS* (2012)
“On the structure of hot gas in haloes: implications for the L_X - T_X relation and missing baryons”
7. Parrish, McCourt, Quataert, & Sharma, *MNRAS* (2012)
“The effects of anisotropic viscosity on turbulence and heat transport in the intracluster medium”
6. Sharma, McCourt, Quataert, & Parrish, *MNRAS* (2012)
“Thermal instability and the feedback regulation of hot haloes in clusters, groups and galaxies”
5. McCourt, Sharma, Quataert, & Parrish, *MNRAS* (2012)
“Thermal instability in gravitationally stratified plasmas: implications for multiphase structure in clusters and galaxy haloes”
4. Parrish, McCourt, Quataert, & Sharma, *MNRAS* (2012)
“Turbulent pressure support in the outer parts of galaxy clusters”
3. McCourt, Parrish, Sharma, & Quataert, *MNRAS* (2011)
“Can conduction induce convection? On the non-linear saturation of buoyancy instabilities in dilute plasmas”
2. Bradač, Schrabback, Erben, McCourt, et al., *ApJ* (2008)
“Dark Matter and Baryons in the X-Ray Luminous Merging Galaxy Cluster RX J1347.5-1145”

1. Samulon, Islam, Sebastian, Brooks, et al., *Phys. Rev. B* (2006)
 “Low-temperature structural phase transition and incommensurate lattice modulation in the spin-gap compound $\text{BaCuSi}_2\text{O}_6$ ”

SELECTED PRESENTATIONS

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| 27. <i>Invited Talk</i> , What matter(s) around galaxies | June 2017 |
| 26. <i>Astronomy Colloquium</i> , University of Washington | February 2017 |
| 25. <i>MPS Seminar</i> , UC Santa Cruz | October 2016 |
| 24. <i>Invited Talk</i> , Fellows at the Frontier Conference | September 2016 |
| 23. <i>Invited Talk</i> , Theory & Computation in the ICM | August 2016 |
| 22. <i>Seminar</i> , Cold Universe Workshop | June 2016 |
| 21. <i>Astronomy Seminar</i> , UCSB | April 2016 |
| 20. <i>Lunch Talk</i> , Harvard ITC | April 2015 |
| 19. <i>Pizza Lunch</i> , Harvard ITC | April 2015 |
| 18. <i>Lunch Talk</i> , UCSB | April 2015 |
| 17. <i>Lunch Talk</i> , UC Berkeley | March 2015 |
| 16. <i>Contributed Talk</i> , Black Holes in Dense Star Clusters | January 2015 |
| 15. <i>Cosmology Seminar</i> , Yale | September 2014 |
| 14. <i>CIERA Astrophysics Seminar</i> , Northwestern | September 2014 |
| 13. <i>Lunch Talk</i> , UC Berkeley | February 2014 |
| 12. <i>TAPIR Seminar</i> , Caltech | October 2013 |
| 11. <i>KIPAC “Tea-Talk” Seminar</i> , Stanford | October 2013 |
| 10. <i>ITC Seminar</i> , Harvard CfA | September 2013 |
| 9. <i>Geo- and Astro-physical Fluid Dynamics Seminar</i> , UCSC | April 2013 |
| 8. <i>Invited Talk</i> , SnowCluster conference | March 2013 |
| 7. <i>Astrophysics Seminar</i> , UCSB | October 2012 |
| 6. <i>Theory Seminar</i> , CITA | October 2012 |
| 5. <i>Informal Astrophysics Seminar</i> , Princeton IAS | October 2012 |
| 4. <i>Invited Talk</i> , Theory & Computation in the ICM | August 2012 |
| 3. <i>KITP Theory Lunch talk</i> , UCSB | April 2011 |
| 2. <i>Contributed Talk</i> , Theory & Computation in the ICM | August 2010 |
| 1. <i>KIPAC “Tea-Talk” Seminar</i> , Stanford | August 2006 |

USELESS AND UNUSUAL SKILLS

- *building boats*
- *making furniture*
- *picking locks*

- *restoring vintage pens*
- *designing and building lightweight camping gear*
- *growing heirloom tomatoes and peppers in hostile climates*
- *adjusting automatic watches*
- *onetime holder of a federal pyrotechnics permit*

Last updated: December 9, 2016

current version: mkmcc.github.io/cv/mkmcc-cv.pdf