

Dr. Claude-André Faucher-Giguère

CONTACT	Department of Physics & Astronomy Northwestern University 2145 Sheridan Road, F243 Evanston, IL 60208	Voice: (847) 467-4647 E-mail: cgiguere@northwestern.edu Web: http://galaxies.northwestern.edu
RESEARCH INTERESTS	Theoretical astrophysics and cosmology, including: galaxy formation and evolution, star formation, supermassive black holes, the intergalactic medium, radiation backgrounds, pulsars	
POSITIONS	Assistant Professor of Physics & Astronomy, Northwestern University Einstein Fellow, Northwestern University Miller Research Fellow, UC Berkeley	2014 - 2013 - 2014 2010 - 2013
EDUCATION	Ph.D. (Astronomy), Harvard University A.M. (Astronomy), Harvard University B.Sc (Mathematics and Physics), McGill University	2010 2007 2005
SELECTED HONORS	Einstein Fellowship FQRNT Postdoctoral Fellowship Miller Research Fellowship Eric R. Keto Prize in Theoretical Astrophysics Harvard Merit Fellowship FQRNT Graduate Fellowship Canadian Space Agency Graduate Fellowship NSERC Graduate Fellowship Certificates of Distinction in Teaching (×2) Edward Rosenthal Memorial Prize in Mathematics E. R. Pounder Prize in Physics Herbert Brennen Scholarship in Mathematics Canada Millennium Excellence Award NSERC Undergraduate Student Research Awards (×3) James McGill Scholarship Canada Governor General's Academic Medal Canada Governor General's Academic Medal	2013-2014 2011-2013 2010-2013 2010 2009-2010 2009-2010 2007-2009 2005-2009 2006-2007 2005 2004 2003-2004 2003-2004 2003-2005 2002-2005 2002 2000
GRANTS AWARDED	HST-GO-14268.022-A, "Project AMIGA: Mapping the Circumgalactic Medium of Andromeda," \$21,717 Co-I. PI: Nicolas Lehner	2015-2018
	HST-AR-14293.001-A, "Metallicity and Azimuthal Angle Diagnostics of Inflows and Outflows: Interpreting HST Measurements of Circum-Galactic Gas Flows," \$110,658	

2015-2018
PI: Claude-André Faucher-Giguère

NSF AST-1517491, “Toward Physically-Predictive Modeling of Massive Black Hole Growth and Feedback in Galaxy Formation,” \$439,662 2015-2018
PI: Claude-André Faucher-Giguère

NSF AST-1412836, “FIRE: Physically-Predictive Cosmological Simulations of Galaxy Formation with Resolved Feedback,” \$290,164 2014-2017
PI: Claude-André Faucher-Giguère

NASA NNX15AB22G, “The Physical Nature of the Circum-Galactic Medium,” \$414,982 2014-2017
PI: Claude-André Faucher-Giguère

NASA PF3-140106, “The Physics of Black Hole Feedback,” \$108,954 2013-2014
Einstein Fellowship

SUCCESSFUL OBSERVING PROPOSALS Keck MOSFIRE 2015B program U042M, “Feedback in Low-Mass Galaxies at $z = 2.6$,” 2 nights
Co-I. PI: Eliot Quataert (science PI: Ryan Trainor)

J-VLA 2013B program VLA/13B-054, “Finding the Missing Baryons with Dispersion of Transients in M31,” 12 hours
Co-I. PI: Casey Law

Keck LRIS 2011A program U042LA, “The Nature of Cool Gas in Galaxy Groups,” 2 nights
Co-I. PI: Eliot Quataert (science PI: Kevin Bundy).

SUPER-COMPUTING TIME AWARDED NASA SMD-15-6530, “A Broad Sample of Simulated Galaxy Halos to Develop Inflow/Outflow Diagnostics”, 2,457,602 CPU-hours 2015-2016
PI: Claude-André Faucher-Giguère

NSF TG-AST140023, “FIREBOX: Full Cosmological Volumes of Simulated Galaxies with Resolved Interstellar Medium and Feedback Physics,” 4,000,000 CPU-hours 2015-2016
PI: Claude-André Faucher-Giguère

NASA SMD-14-5189, “The Galaxy-Intergalactic Medium Connection in Cosmological Simulations with Stellar and Black Hole Feedback,” 1,474,571 CPU-hours 2014-2015

PI: Claude-André Faucher-Giguère

NSF TG-AST1140023, “The Galaxy-Intergalactic Medium Connection in Cosmological Simulations with Physically-Predictive Star Formation and Stellar Feedback,”
1,407,764 CPU-hours 2014-2015

PI: Claude-André Faucher-Giguère

NSF TG-AST120025 renewal, “Cosmological Simulations of Galaxy Formation With Resolved Star Formation-Driven Feedback,”

3,016,706 CPU-hours 2013-2014

Co-PIs: Claude-André Faucher-Giguère, Dušan Kereš, Philip Hopkins

NSF TG-AST120025, “Cosmological Simulations of Galaxy Formation With Resolved Star Formation-Driven Feedback,”

1,760,000 CPU-hours 2012-2013

Co-PIs: Claude-André Faucher-Giguère, Dušan Kereš, Philip Hopkins

NSF TG-AST110025, “Modeling the Accretion of Gas onto Galaxies and its Observational Diagnostics,”

200,000 CPU-hours 2011-2012

PI: Claude-André Faucher-Giguère

TEACHING

- Instructor for Astron 329/429: *Cosmology and Extragalactic Astrophysics*, Northwestern University, Fall 2015.
- Instructor for Astron 449: *Stellar Dynamics*, Northwestern University, Fall 2014.
- Teaching Fellow for Ay 151: *Astrophysical Fluid Dynamics*, Harvard University, Spring 2008. Instructor: Professor Lars Hernquist.
- Teaching Fellow for Ay 150: *Radiative Processes in Astrophysics*, Harvard University, Fall 2007. Instructor: Professor George Rybicki. Received *Certificate of Distinction in Teaching* for this course.
- Teaching Fellow for Ay 145: *Topics in Astrophysics*, Harvard University, Spring 2007. Instructor: Professor Abraham Loeb.
- Teaching Fellow for Ay 150: *Radiative Processes in Astrophysics*, Harvard University, Fall 2006. Instructor: Professor George Rybicki. Received *Certificate of Distinction in Teaching* for this course.

MENTORING

Postdocs: Dr. Alexander Richings (Lindheimer Fellow), Northwestern University, molecular chemistry in galaxy simulations (2016-).

Dr. Daniel Anglés-Alcázar (CIERA Fellow), Northwestern University, the cosmic baryon cycle and cosmological simulations with black holes (2014-).

Ph.D. students: Mr. Alexander Gurvich, Northwestern University, the physics of supernova feedback and galactic winds (2016-).

Mr. Zachary Hafen, Northwestern University, Lyman limit systems in cosmological simulations (2014-).

Ms. Niharika Sravan, Northwestern University, emission from the circum-galactic medium (2013-2015). First prize, Northwestern University Computational Research Day poster competition (2014).

Mr. Jesse Nims, UC Berkeley, emission from AGN blast waves (2013-2014).

Undergraduate students: Mr. Yulun Wu, Northwestern University, Monte Carlo radiative transfer (2014-2015).

Mr. Shyam Bharadwaj, Northwestern University, feedback from star clusters (2014-2015). Illinois Space Grant awardee (2014).

High-school students: Ms. Nora Linzer, Evanston Township High School, galactic winds in the FIRE simulations (2016)

Ph.D. thesis committees: Cody Dirks (Northwestern), Peter Ashton (Northwestern)

SERVICE TO
UNIVERSITIES

- Member, Physics & Astronomy faculty search committee, Northwestern University (2015-2016)
- Member, Physics & Astronomy graduate curriculum committee, Northwestern University (2015-)
- Member, Physics & Astronomy computer committee, Northwestern University (2015-)
- Member, Physics & Astronomy colloquium committee, Northwestern University (2014-2015)
- Member, Physics & Astronomy graduate admissions committee, Northwestern University (2013-2015)
- Member, CIERA postdoc selection committee, Northwestern University (2013-)
- Chair, CIERA astrophysics seminars committee, Northwestern University (2013-2016)
- Member, Miller Interdisciplinary Symposium committee, UC Berkeley (2013)
- Organizer, Theoretical Astrophysics Center seminars, UC Berkeley (2011-2013)

SERVICE TO THE
PROFESSIONAL
COMMUNITY

- Member, scientific organizing committee, “Fellows at the Frontiers 2016” CIERA conference (2015-2016)
- Member, scientific organizing committee, Shanghai conference on “Black Hole Accretion and AGN Feedback” (2014-2015)
- Reviewer for various national and international grant programs, including the National Science Foundation, NASA, the Chandra X-ray Observatory, the Swiss Na-

tional Science Foundation, the Netherlands Organisation for Scientific Research, the UK Science & Technology Facilities Council, and Scuola Normale Superiore (Italy) (2012-)

· Referee for *The Astrophysical Journal*, *The Astrophysical Journal Letters*, *The Astronomical Journal*, *Monthly Notices of the Royal Astronomical Society*, *Astronomy & Astrophysics* and *Nature* (2006-)

REFEREED
PUBLICATIONS

51. Stewart, K., Maller, A., Oñorbe, J., Bullock, J., Joung, M. R., Devriendt, J., Ceverino, D., Kereš, D., Hopkins, P. F. & **Faucher-Giguère, C.-A.**, “High Angular Momentum Halo Gas: a Feedback and Code-Independent Prediction of LCDM,” submitted to *ApJ* [arXiv:1606.08542].
50. Su, K.-Y., Hopkins P. F., Hayward, C. C., **Faucher-Giguère, C.-A.**, Kereš, D., Ma, X., & Robles, V., “Feedback First: the Surprisingly Weak Effects of Magnetic Fields, Viscosity, Conduction, and Metal Diffusion on Galaxy Formation,” submitted to *MNRAS* [arXiv:1607.05274].
49. Muratov, A., Kereš, D., **Faucher-Giguère, C.-A.**, Hopkins, P. F., Ma, X., Anglés-Alcázar, D., Chan, T. K., Torrey, P., Hafen, Z. H., Quataert, E., & Murray, N., “Metal Flows of the Circumgalactic Medium, and the Metal Budget in Galactic Halos,” submitted to *MNRAS* [arXiv:1606.09252].
48. van de Voort, F., Quataert, E., Hopkins, P. F., **Faucher-Giguère, C.-A.**, Feldmann, R., Kereš, D., Chan, T. K., & Hafen, Z. H., “The Impact of Stellar Feedback on Hot Gas in Galaxy Haloes: the Sunyaev-Zel’dovich Effect and Soft X-ray Emission,” submitted to *MNRAS* [arXiv:1604.01397].
47. Anglés-Alcázar, D., Davé, R., **Faucher-Giguère, C.-A.**, Özel, F., & Hopkins, P. F., “Gravitational Torque-Driven Black Hole Growth and Feedback in Cosmological Simulations,” submitted to *MNRAS* [arXiv:1603.08007].
46. Torrey, P., Hopkins, P. F., **Faucher-Giguère, C.-A.**, Vogelsberger, M., Quataert, E., Kereš, D., & Murray, N., “An Instability of Feedback Regulated Star Formation in Galactic Nuclei,” submitted to *MNRAS* [arXiv:1601.07186].
45. Oklopčić, A., Hopkins, P. F., Feldmann, R., Kereš, D., **Faucher-Giguère, C.-A.**, & Murray, N., “Giant Clumps in the FIRE Simulations: a Case Study of a Massive High-Redshift Galaxy,” submitted to *MNRAS* [arXiv:1603.03778].
44. Sparre, M., Hayward, C. C., Feldmann, R., **Faucher-Giguère, C.-A.**, Muratov, A. L., Kereš, D., & Hopkins, P. F., “(Star)bursts of FIRE: Observational Signatures of Bursty Star Formation in Galaxies,” submitted to *MNRAS* [arXiv:1510.03869].
43. Sravan, N., **Faucher-Giguère, C.-A.**, van de Voort, F., Kereš, D., Muratov, A. L., Hopkins, P. F., Feldmann, R., Quataert, E., & Murray, N., “Strongly Time-Variable Ultra-Violet Metal Line Emission from the Circum-Galactic Medium of High-Redshift Galaxies,” to appear in *MNRAS* [arXiv:1510.06410].

42. Wetzel, A. R., Hopkins, P. F., Kim, J.-H., **Faucher-Giguère, C.-A.**, Kereš, D., & Quataert, E., “Reconciling Dwarf Galaxies with Λ CDM Cosmology: Simulating a Realistic Population of Satellites Around a Milky Way-Mass Galaxy,” to appear in *MNRAS Letters* [arXiv:1602.05957].
41. **Faucher-Giguère, C.-A.**, Feldmann, R., Quataert, E., Kereš, D., Hopkins, P. F., & Murray, N., “A Stellar Feedback Origin for Neutral Hydrogen in High-Redshift Quasar-Mass Halos,” *MNRAS Letters*, 461, 32.
40. Martizzi, D., Fielding, D., **Faucher-Giguère, C.-A.**, & Quataert, E. 2016, “Supernova Feedback in a Local Vertically Stratified Medium: Interstellar Turbulence and Galactic Winds,” *MNRAS*, 459, 2311.
39. Ma, X., Kasen, D., Hopkins, P. F., Quataert, E., **Faucher-Giguère, C.-A.**, Kereš, D., & Murray, N. 2016, “Binary Stars Can Provide the ‘Missing Photons’ Needed for Reionization,” *MNRAS*, 459, 3614.
38. El-Badry, K., Wetzel, A., Geha, M., Hopkins, P. F., Kereš, D., Chan, T. K., & **Faucher-Giguère, C.-A.** 2016, “Breathing FIRE: How Stellar Feedback Drives Radial Migration, Rapid Size Fluctuations, and Population Gradients in Low-Mass Galaxies,” *ApJ*, 820, 131.
37. Feldmann, R., Hopkins, P. F., Quataert, E., **Faucher-Giguère, C.-A.**, & Kereš, D. 2016, “The Formation of Massive, Quiescent Galaxies at Cosmic Noon,” *MNRAS Letters*, 458, 14.
36. Stern, J., **Faucher-Giguère, C.-A.**, Zakamska, N., & Hennawi, J. 2016, “Constraining the Dynamical Importance of Hot Gas and Radiation Pressure in Quasar Outflows Using Emission Line Ratios,” *ApJ*, 819, 130.
35. Li, C., de Grijs, R., Deng, L., Geller, A. M., Xin, Y., Hu, Y. & **Faucher-Giguère, C.-A.** 2016, “Massive Young Star Clusters Can Form New Stellar Populations from Accreted Gas,” *Nature*, 529, 502.
34. Hopkins, P. F., Torrey, P., **Faucher-Giguère, C.-A.**, Quataert, E. 2016, & Murray, N., “Stellar and Quasar Feedback in Concert: Effects on AGN Accretion, Obscuration, and Outflows,” *MNRAS*, 458, 816.
33. Ma, X., Hopkins, P. F., **Faucher-Giguère, C.-A.**, Zolman, N., Muratov, A. L., Kereš, D. & Quataert, E. 2016, “The Origin and Evolution of the Galaxy Mass-Metallicity Relation,” *MNRAS*, 456, 2140.
32. Chan, T. K., Kereš, D., Oñorbe, J., Hopkins, P. F., Muratov, A. L., **Faucher-Giguère, C.-A.**, & Quataert, E. 2015, “The Impact of Baryonic Physics on the Structure of Dark Matter Halos: the View from the FIRE Cosmological Simulations,” *MNRAS*, 454, 2691.
31. Muratov, A., Kereš, D., **Faucher-Giguère, C.-A.**, Hopkins, P. F., Quataert, E., & Murray, N. 2015, “Gusty, Gaseous Flows of FIRE: Galactic Winds in Cosmological Simulations with Explicit Stellar Feedback,” *MNRAS*, 454, 2691.

30. Oñorbe, J., Boylan-Kolchin, M., Bullock, J. S., Hopkins, P. F., Kerès, D., **Faucher-Giguère, C.-A.**, Quataert, E., & Murray, N. 2015, “Forged in FIRE: Cusps, Cores, and Baryons in Low-Mass Dwarf Galaxies”, *MNRAS*, 454, 2092.
29. Narayanan, D., Turk, M., Feldmann, R., Robitaille, T., Hopkins, P. F., Thompson, R., Hayward, C., Ball, D., & **Faucher-Giguère, C.-A.**, & Kereš, D. 2015, “The Formation of Submillimetre-Bright Galaxies from Gas Infall over a Billion Years,” *Nature*, 525, 496.
28. Ma, X., Kasen, D., Hopkins, P. F., **Faucher-Giguère, C.-A.**, Quataert, E., Kereš, D. & Murray, N. 2015, “The Difficulty Getting High Escape Fractions of Ionizing Photons from High-redshift Galaxies: a View from the FIRE Cosmological Simulations,” *MNRAS*, 453, 960.
27. van de Voort, F., Davis, T. A., Kereš, D., Quataert, E., **Faucher-Giguère, C.-A.**, & Hopkins, P. F. 2015, “The Creation and Persistence of a Misaligned Gas Disc in a Simulated Early-Type Galaxy,” *MNRAS*, 451, 3269.
26. Martizzi, D., **Faucher-Giguère, C.-A.**, & Quataert, E. 2015, “Supernova Feedback in an Inhomogeneous Interstellar Medium,” *MNRAS*, 450, 504.
25. **Faucher-Giguère, C.-A.**, Hopkins, P. F., Kereš, D., Muratov, A., Quataert, E., & Murray, N. 2015, “Neutral Hydrogen in Galaxy Halos at the Peak of the Cosmic Star Formation History,” *MNRAS*, 449, 987.
24. Nims, J., Quataert, E., & **Faucher-Giguère, C.-A.** 2015, “Observational Signatures of Galactic Winds Powered by Active Galactic Nuclei,” *MNRAS*, 447, 3612.
23. van de Voort, F., Quataert, E., Hopkins, P. F., Kereš, D., & **Faucher-Giguère, C.-A.** 2015, “Galactic r-process Enrichment by Neutron Star Mergers in Cosmological Simulations of a Milky Way-Mass Galaxy,” *MNRAS*, 447, 140.
22. Hopkins, P. F., Kereš, D., Oñorbe, J., **Faucher-Giguère, C.-A.**, Quataert, E., Murray, N., & Bullock, J. S. 2014, “Galaxies on FIRE (Feedback In Realistic Environments): Stellar Feedback Explains Cosmologically Inefficient Star Formation,” *MNRAS*, 445, 581.
21. **Faucher-Giguère, C.-A.**, Quataert, E., & Hopkins, P. F. 2013, “Feedback-Regulated Star Formation in Molecular Clouds and Galactic Discs,” *MNRAS*, 433, 1970.
20. **Faucher-Giguère, C.-A.** & Quataert, E. 2012, “The Physics of Galactic Winds Driven by Active Galactic Nuclei,” *MNRAS*, 425, 605.
19. Kuhlen, M. & **Faucher-Giguère, C.-A.** 2012, “Concordance Models of Reionization: Implications for Faint Galaxies and Escape Fraction Evolution,” *MNRAS*, 423, 862.
18. **Faucher-Giguère, C.-A.**, Quataert, E., & Murray, N. 2012, “A Physical Model of FeLoBALs: Implications for Quasar Feedback,” *MNRAS*, 420, 1347.
17. **Faucher-Giguère, C.-A.**, Kereš, D., & Ma, C.-P. 2011, “The Baryonic Assembly of Dark Matter Halos,” *MNRAS*, 417, 2982.

16. McQuinn, M., Oh, S. P., & **Faucher-Giguère, C.-A.** 2011, “On the Evolution of the Intergalactic Ionizing Background,” *ApJ*, 743, 82.
15. **Faucher-Giguère, C.-A.** & Loeb 2011, “Pulsar-Black Hole Binaries at the Galactic Center,” *MNRAS*, 415, 3951.
14. **Faucher-Giguère, C.-A.** & Kereš, D. 2011, “The Small Covering Factor of Cold Accretion Streams,” *MNRAS Letters*, 412, 118.
13. D’Onghia, E., Vogelsberger, M., **Faucher-Giguère, C.-A.**, & Hernquist, L. 2010, “Quasi-Resonant Theory of Tidal Interactions,” *ApJ*, 725, 353.
12. **Faucher-Giguère, C.-A.**, Kereš, D., Dijkstra, M., Hernquist, L., & Zaldarriaga, M. 2010, “Lyman- α Cooling Emission from Galaxy Formation,” *ApJ*, 725, 633.
11. Lidz, A., **Faucher-Giguère, C.-A.**, Dall’Aglio, A., McQuinn, M., Fechner, C., Zaldarriaga, M., Hernquist, L., & Dutta, S. 2010, “A Measurement of Small Scale Structure in the $2.2 \leq z \leq 4.2$ Lyman- α Forest,” *ApJ*, 718, 199.
10. **Faucher-Giguère, C.-A.** & Loeb, A. 2010, “The Pulsar Contribution to the Gamma-Ray Background,” *JCAP*, 1, 5.
9. **Faucher-Giguère, C.-A.**, Lidz, A., Zaldarriaga, M., & Hernquist, L. 2009, “A New Calculation of the Ionizing Background Spectrum and the Effects of HeII Reionization,” *ApJ*, 703, 1416.
8. McQuinn, M., Lidz, A., Zaldarriaga, M., Hernquist, L., Hopkins, P. F., Dutta, S., & **Faucher-Giguère, C.-A.** 2009, “HeII Reionization and its Effects on the IGM,” *ApJ*, 694, 842.
7. **Faucher-Giguère, C.-A.**, Lidz, A., Hernquist, L., & Zaldarriaga, M. 2008, “Evolution of the Intergalactic Opacity: Implications for the Ionizing Background, Cosmic Star Formation, and Quasar Activity,” *ApJ*, 688, 85.
6. **Faucher-Giguère, C.-A.**, Lidz, A., Hernquist, L., & Zaldarriaga, M. 2008, “A Flat Photoionization Rate a $2 \leq z \leq 4.2$: Evidence for a Stellar-Dominated UV Background and Against a Steep Decline of Star Formation Beyond $z \sim 3$,” *ApJL*, 682, 9.
5. **Faucher-Giguère, C.-A.**, Prochaska, J. X., Lidz, A., Hernquist, L., & Zaldarriaga, M. 2008, “A Direct Precision Measurement of the Intergalactic Lyman- α Opacity at $2 \leq z \leq 4.2$,” *ApJ*, 681, 831.
4. Champion, D. J., Ransom, S. M., Lazarus, P., Camilo, F., Kaspi, V. M., Nice, D. J., Freire, P. C. C., Cordes, J. M., Hessels, J. W. T., Bassa, C., Lorimer, D. R., Stairs, I. H., van Leeuwen, J., Arzoumanian, Z., Backer, D. C., Bhat, N. D. R., Chatterjee, S., Crawford, F., Deneva, J. S., **Faucher-Giguère, C.-A.**, Gaensler, B. M., Han, J. L., Jenet, F. A., Kasian, L., Kondratiev, V. I., Kramer, M., Lazio, J., McLaughlin, M. A., Stappers, B. W., Venkataraman, A., & Vlemmings, W. 2008, “Arecibo Discovery of an Eccentric Binary Millisecond Pulsar,” *Science*, 320, 1309.

3. **Faucher-Giguère, C.-A.**, Lidz, A., Zaldarriaga, M., & Hernquist, L. 2008, “The Line-of-Sight Proximity Effect and the Mass of Quasar Host Halos,” *ApJ*, 673, 39.
2. **Faucher-Giguère, C.-A.** & Kaspi, V. M. 2006, “Birth and Evolution of Isolated Radio Pulsars,” *ApJ*, 643, 332.
1. Cordes, J. M., Freire, P. C. C., Lorimer, D. R., Camilo, F., Champion, D. J., Nice, D. J., Ramachandran, R., Hessels, J. W. T., Vlemmings, W., van Leeuwen, J., Ransom, S. M., Bhat, N. D. R., Arzoumanian, Z., McLaughlin, M. A., Kaspi, V. M., Kasian, L., Deneva, J. S., Reid, B., Chatterjee, S., Han, J. L., Backer, D. C., Stairs, I. H., Deshpande, A. A., **Faucher-Giguère, C.-A.** 2006, “Arecibo Pulsar Survey Using ALFA. I. Survey Strategy and First Discoveries,” *ApJ*, 637, 446.

REVIEW
ARTICLE

1. **Faucher-Giguère, C.-A.**, Lidz, A., & Hernquist, L. 2008 “Numerical Simulations Unravel the Cosmic Web,” *Science*, 319, 52.

CONFERENCE
PROCEEDINGS

5. **Faucher-Giguère, C.-A.** 2012, “Quasar Absorption Lines from Radiative Shocks: Implications for Multiphase Outflows and Feedback,” in *Proceedings of AGN Winds in Charleston*, ed. G. Chartas, K. Leighly, and F. Hamann (Charleston: ASP), 460.
4. **Faucher-Giguère, C.-A.**, Lidz, A., Hernquist, L., & Zaldarriaga, M. 2008, “Evolution of the IGM at $2 \leq z \leq 4.2$: Implications for Cosmic Star Formation and Quasar Activity,” in *Proceedings of the 1st Subaru International Conference: Panoramic Views of Galaxy Formation and Evolution*, ed. T. Kodama, T. Yamada, and K. Aoki (Hayama: ASP), 399.
3. **Faucher-Giguère, C.-A.**, Prochaska, J. X., Lidz, A., Hernquist, L., & Zaldarriaga, M. 2007, “A Direct Precision Measurement of the Intergalactic Lyman- α Opacity at $2 \leq z \leq 4.2$,” in *Proceedings of A Century of Cosmology: Past, Present, and Future*, ed. G. Chincarini, P. Saracco, and M. Bolzonella (Venice: Nuovo Cim.), 122B.
2. **Faucher-Giguère, C.-A.** & Kaspi, V. M. 2008, “Birth and Evolution of Isolated Radio Pulsars,” in *40 Years of Pulsars: Millisecond Pulsars, Magnetars, and More*, ed. C. Bassa, Z. Wang, A. Cumming, and V. M. Kaspi (Montréal: AIP), 607.
1. van Leeuwen, J., Cordes, J. M., Lorimer, D. R., Freire, P. C. C., Camilo, F., Stairs, I. H., Nice, D. J., Champion, D. J., Ramachandran, R., Faulkner, A. J., Lyne, A. G., Ransom, S. M., Arzoumanian, Z., Manchester, R. N., McLaughlin, M. A., Hessels, J. W. T., Vlemmings, W., Deshpande, A. A., Bhat, N. D. R., Chatterjee, S., Han, J. L., Gaensler, B. M., Kasian, L., Deneva, J. S., Reid, B., Lazio, T. J. W., Kaspi, V. M., Crawford, F., Lommen, A. N., Backer, D. C., Kramer, M., Stappers, B. W., Hobbs, G. B., Possenti, A., D’Amico, N., **Faucher-Giguère, C.-A.**, Burgay, M. 2005, “Arecibo and the ALFA Pulsar

Survey,” in *Proceedings of the 2005 Lake Hanas International Pulsar Symposium*, ed. N. Wang, R. N. Manchester, B. J. Rickett and A. Esamdin (Lake Hanas: ChJAA), 311.

SCIENTIFIC
MEMOS

1. **Faucher-Giguère, C.-A.** & Kaspi, V. M. 2005, “Updated Simulations of Pulsar Surveys: Optimizing ALFA,” <http://astrosun2.astro.cornell.edu/~cordes/PALFA/>.

INVITED
COLLOQUIA AND
SEMINARS

35. *Cosmological Simulations of Galaxy Formation with Explicit Stellar Feedback: Results from the FIRE Project*, Astronomy Colloquium University of Wisconsin, Madison March 2016.
34. *Toward a Physically-Predictive Theory of Galaxy Formation: Resolved Stellar and Black Hole Feedback*, Astrophysics Seminar, Princeton University, September 2015.
33. *Cosmological Simulations of Galaxy Formation with Resolved ISM and Stellar Feedback: Results from the FIRE Project*, Astrophysics Seminar, Michigan State University, September 2015.
32. *Cosmological Simulations of Galaxy Formation with Resolved ISM and Stellar Feedback: Results from the FIRE Project*, Astrophysics Seminar, University of Pittsburgh, April 2015.
31. *Feedback-Regulated Star Formation on Galactic and Cosmological Scales*, KICP Seminar, University of Chicago, October 2014.
30. *Feedback-Regulated Star Formation on Galactic and Cosmological Scales*, Astrophysics Colloquium, Space Telescope Science Institute, Baltimore, September 2014.
29. *Feedback-Regulated Star Formation on Galactic and Cosmological Scales*, Astrophysics Seminar, Rutgers University, September 2014.
28. *Feedback-Regulated Star Formation on Galactic and Cosmological Scales*, Physics Colloquium, University of Wisconsin, Milwaukee, March 2014.
27. *Feedback-Regulated Star Formation on Galactic and Cosmological Scales*, Astronomy Colloquium, Indiana University, Bloomington, February 2014.
26. *Feedback-Regulated Star Formation on Galactic and Cosmological Scales*, Astronomy Colloquium, University of Notre Dame, February 2014.
25. *Feedback-Regulated Star Formation on Galactic and Cosmological Scales*, Astronomy Colloquium, University of California, Berkeley, January 2014.
24. *Feedback-Regulated Star Formation on Galactic and Cosmological Scales*, Physics Colloquium, Argonne National Laboratory, November 2013.
23. *Feedback-Regulated Star Formation on Galactic and Cosmological Scales*, Astronomy Seminar, University of Waterloo, November 2013.

22. *Feedback-Regulated Star Formation on Galactic and Cosmological Scales*, Cosmology Seminar, Perimeter Institute, November 2013.
21. *Feedback-Regulated Star Formation on Galactic and Cosmological Scales*, Astrophysics Colloquium, Stanford University, October 2013.
20. *Feedback-Regulated Star Formation on Galactic and Cosmological Scales*, Astronomy Colloquium, University of Illinois, Urbana-Champaign, September 2013.
19. *Feedback-Regulated Star Formation and the FIRE Simulation Project*, Astrophysics Seminar, University of Zurich, July 2013.
18. *The Physics of Galaxy Formation: Gas, Stars, and Black Holes*, Astronomy Colloquium, UC San Diego, May 2013.
17. *The Physics of Galaxy Formation: Gas, Stars, and Black Holes*, Astronomy Colloquium, University of Maryland, March 2013.
16. *The Physics of Galaxy Formation: Gas, Stars, and Black Holes*, Astronomy Colloquium, University of Arizona, February 2013.
15. *The Physics of Galaxy Formation: Gas, Stars, and Black Holes*, Special Astrophysics Colloquium, Massachusetts Institute of Technology, February 2013.
14. *The Physics of Galaxy Formation: Gas, Stars, and Black Holes*, Special Astrophysics Colloquium, Northwestern University, January 2013.
13. *Inflows, Outflows, and the Physics of Galaxy formation*, Astronomy Colloquium, Caltech, February 2012.
12. *Inflows, Outflows, and the Physics of Galaxy formation*, Theoretical Astrophysics Seminar, UC Berkeley, February 2012.
11. *Probing the Accretion of Gas onto Galaxies: Opportunities and Pitfalls*, Astrophysics Colloquium, UN Las Vegas, February 2011.
10. *Probing the Accretion of Gas onto Galaxies: Opportunities and Pitfalls*, Astrophysics Seminar, Canadian Institute for Theoretical Astrophysics, February 2011.
9. *Probing the Accretion of Gas onto Galaxies: Opportunities and Pitfalls*, Joint Astrophysics Seminar, McGill University, February 2011.
8. *Probing the Accretion of Gas onto Galaxies: Opportunities and Pitfalls*, FLASH Talk, UC Santa Cruz, November 2010.
7. *Lyman- α Emission from Galaxy Formation*, Cosmology Talk, UC Santa Cruz, November 2009.
6. *Lyman- α Emission from Galaxy Formation*, Theoretical Astrophysics Seminar, UC Berkeley, November 2009.
5. *Lyman- α Emission from Galaxy Formation*, Astronomy Lunch Talk, Carnegie Observatories, November 2009.
4. *Lyman- α Emission from Galaxy Formation*, Astronomy Tea Talk, California Institute of Technology, November 2009.

3. *Lyman- α Emission from Galaxy Formation*, Informal Seminar, Institute for Advanced Study, October 2009.
2. *Galaxies and the IGM, the Cosmic UV Background, and HeII Reionization*, Cosmology Seminar, Max Planck Institute for Astrophysics, October 2008.
1. *Birth and Evolution of Isolated Radio Pulsars*, Joint Harvard / MIT Pulsar / Supernova Remnant Seminar, March 2006.

INVITED
CONFERENCE
TALKS

20. *The Physics of Massive Galaxy Evolution: Stellar Feedback, AGN Feedback, and the Cosmic Baryon Cycle*, Massive Beasts of the Cosmos, Kruger Park, July 2016.
19. *Cosmological Simulations of Galaxy Formation with Explicit Stellar Feedback: Results from the FIRE Project*, Banff International Research Station for Mathematical Innovation and Discovery workshop on stellar and AGN processes in galaxy evolution, Oaxaca, June 2016.
18. *The Mechanisms and Effects of Stellar Feedback in Cosmological Simulations of Galaxy Formation*, 2016 Meeting of the High-Energy Astrophysics Division of the American Astronomical Society, Naples, March 2016.
17. *Physics, Observational Signatures, and Consequences of AGN-Driven Galactic Winds*, Sweeping Galaxies Clean: Cold Molecular Outflows as Drivers of Galaxy Evolution, Sexten, February 2016.
16. *Physics, Observational Signatures, and Consequences of AGN-Driven Galactic Winds*, JSI conference on the Physics of Supermassive Black Hole Formation and Feedback, Annapolis, October 2015.
15. *Inflows and Outflows in the FIRE Cosmological Simulations: Observational Diagnostics and Physical Implications*, The Physics of Accretion and Feedback in the Circum-Galactic Medium workshop, Aspen, July 2015.
14. *Inflows and Outflows in the FIRE Cosmological Simulations: Observational Diagnostics and Physical Implications*, IGM@50: Is the Intergalactic Medium Driving Star Formation?, Spineto, June 2015.
13. *The Physics and Observational Signatures of Galactic Winds Driven by Active Galactic Nuclei*, Black Hole Accretion and AGN Feedback conference, Shanghai, June 2015.
12. *The Universe on a Computer: Cosmological Simulations of Galaxy Formation*, XXVI IUPAP Conference on Computational Physics, Boston, August 2014.
11. *The Multiphase Circum-Galactic Medium in Cosmological Simulations with Resolved Stellar Feedback*, Ringberg Workshop on Gas In and Around Galaxies, Ringberg, May 2014.
10. *The Universe on a Computer: Cosmological Simulations of Galaxy Formation*, Northwestern Computational Research Day, Evanston, April 2014.

9. *Star Formation, Stellar Feedback, and their Effects on the Circum-Galactic Medium*, KITP Conference on Star Formation: Fire Down Below, Santa Barbara, April 2014.
8. *Modeling Star Formation and Stellar Feedback Predictively in Cosmological Simulations: FIRE*, CGM@ND: The Impact of Gas Fueling, Quenching, and Feedback on the Growth of Galaxies, University of Notre Dame, February 2014.
7. *Black Hole-Driven Galactic Winds*, Einstein Fellows Symposium, Cambridge, MA, October 2013.
6. *Galactic Winds (on FIRE) and their Observational Signatures*, Outflows @ UCSB, UC Santa Barbara, August 2013.
5. *Challenges for Predictive Cosmological Simulations*, The Dynamic Nature of Baryons in Halos, Lorentz Center for Physics, August 2012.
4. *A Physical Model of FeLoBALs: Implications for Quasar Feedback*, Santa Cruz Workshop on Galaxy Formation, UC Santa Cruz, August 2011.
3. *Modeling the Signatures of Galaxy Assembly*, The Future of AstroComputing Conference, San Diego Supercomputing Center, December 2010.
2. *The UV Background Spectrum and the Effects of HeII Reionization*, Cosmological Reionization Conference, Harish-Chandra Research Institute, February 2010.
1. *A New Calculation of the Ionizing Background Spectrum*, Napa Galaxy Assembly Workshop 2009, February 2009.

CONTRIBUTED
CONFERENCE
TALKS

16. *The Physics and Observational Signatures of Black Hole-Driven Galactic Winds*, Powerful AGN Across Cosmic Time, Port Douglas, June 2014.
15. *Feedback-Regulated Star Formation*, Physical Processes of Galaxy Formation: Consensus and Challenges, Aix-en-Provence, July 2013.
14. *Feedback-Regulated Star Formation*, Mind the Gap: From Microphysics to Large-Scale Structure in the Universe, Cambridge University, July 2013.
13. *The Physics of Galactic Winds Driven by AGN*, Black Hole Feedback 2012, Dartmouth College, July 2012.
12. *The Physics of Galactic Winds Driven by AGN*, UV Astronomy: HST and Beyond, Kaua'i, June 2012.
11. *The Physics of Galactic Winds Driven by AGN*, Center for Galaxy Evolution Baryon Cycle Workshop, Irvine, June 2012.
10. *Modeling Galaxy-Scale AGN Outflows: Implications for Feedback and Driving*, ALMA/ NAASC 2012 Workshop: Outflows, Winds and Jets, Charlottesville, March 2012.
9. *Modeling AGN Outflows: Implications for Feedback Efficiency*, AGN Winds in Charleston, Charleston, October 2011.

8. *Modeling AGN Outflows: Implications for Feedback Efficiency*, Through the Infrared Looking Glass: A Dusty View of Galaxy and AGN Evolution, Pasadena, October 2011.
7. *Probing the Accretion of Gas onto Galaxies: Opportunities and Pitfalls*, VIIIth Marseille International Cosmology Conference, Marseille, June 2011.
6. *Probing the Accretion of Gas onto Galaxies: Opportunities and Pitfalls*, AAS Dissertation Talk, Boston, May 2011.
5. *Modeling the Signatures of Galaxy Assembly*, Essential Cosmology for the Next Generation 2011, January 2011.
4. *A New Calculation of the Ionizing Background Spectrum: Prescriptions for Simulations*, NOVICOSMO Workshop on Numerical Simulations in Cosmology and Galaxy Formation, October 2008.
3. *Evolution of the IGM Opacity: Implications for the Ionizing Background, Cosmic Star Formation, and Quasar Activity*, CASCA Annual Meeting, May 2008.
2. *Evolution of the IGM Opacity: Implications for the Ionizing Background, Cosmic Star Formation, and Quasar Activity*, 4th UC Irvine Center for Cosmology Workshop: Galaxy Formation as Seen Through Cosmic Gas, April 2008.
1. *Evolution of the IGM at $2 \leq z \leq 4.2$: Implications for Cosmic Star Formation and Quasar Activity*, 1st Subaru International Conference: Panoramic Views of Galaxy Formation and Evolution, December 2007.

EDUCATION AND
OUTREACH
TALKS

6. *Gravity, Feedback, and Self-Regulation in Galaxy Formation*, REU Lunch Talk, Northwestern University, June 2016.
5. *Bringing Galaxy Research to K-12*, STEM Summit, Northwestern University, November 2014.
4. *From the Big Bang to Stars, Galaxies, and Black Holes*, Astronomy Lectures Series, City College of San Francisco, September 2011.
3. *Geometry of the Universe with Cosmic Radiation*, Canadian Undergraduate Mathematics Conference, July 2006.
2. *Algebraic Topology and the Fundamental Group*, Canadian Undergraduate Mathematics Conference, July 2005.
1. *Monte Carlo Simulations of Radio Pulsars*, Canadian Undergraduate Mathematics Conference, June 2004.

POSTERS

4. *A Direct Precision Measurement of the Intergalactic Lyman- α Opacity at $2 \leq z \leq 4.2$* (with J. X. Prochaska, A. Lidz, L. Hernquist, & M. Zaldarriaga), "A Century of Cosmology," Venice, August 2007.
3. *Birth and Evolution of Isolated Radio Pulsars* (with V. M. Kaspi), "40 Years of Pulsars," Montréal, August 2007.

2. *Measuring the Mass of Quasar Host Halos with the Lyman- α forest* (with A. Lidz, M. Zaldarriaga, & L. Hernquist), Texas Symposium on Relativistic Astrophysics 2006, Melbourne, December 2006.
1. *Monte Carlo Simulations of the Galactic Population of Radio Pulsars* (with V. M. Kaspi), CASCA Annual Meeting, Montréal, May 2005.