

Michele Fumagalli

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Scientific interests

Gas accretion and galaxy formation, absorption line systems, physics of the interstellar medium, star formation, stellar initial mass function, blazar redshifts.

Academic history

- 2012 **Ph.D. in astrophysics**, *University of California, Santa Cruz*, expected June 2012.
- 2010 **Master in astrophysics**, *University of California, Santa Cruz*.
- 2008 **Laurea specialistica (MSc)**, *Milano Bicocca University*, 110/110 with highest honor.
- 2006 **Laurea triennale (BSc)**, *Milano Bicocca University*, 110/110 with highest honor.

Awards and fellowships

- 2012 **Lyman Spitzer Fellowship**, Princeton University.
Postdoctoral fellowship in theoretical astrophysics.
- 2012 **Carnegie-Princeton Fellowship**, The Carnegie Observatories, Princeton University.
Postdoctoral fellowship in observational astrophysics.
- 2012 **Hubble Fellowship**, The Carnegie Observatories.
Awarded to highly qualified recent postdoctoral scientists to conduct independent research.
- 2012 **CfA Fellowship**, (declined), The Harvard-Smithsonian Center for Astrophysics.
Awarded to an outstanding researcher displaying significant promise in theory or observation.
- 2012 **Miller Research Fellowship**, (declined), University of California, Berkeley.
Awarded to exceptional young scientists of great promise.
- 2011 **Price Prize in Cosmology and AstroParticle Physics**, CCAPP, Ohio State University.
Awarded in recognition of research excellence in cosmology and astro-particle physics.
- 2011 **Chancellor's Dissertation Year Fellowship**, UCSC.
Awarded based on the academic achievement of the nominee.
- 2010 **HIPACC grant**, University California.
Awarded to promote collaborations within the UC system.
- 2010 **Whitford Prize**, Department of Astronomy, UCSC.
Awarded for outstanding performance during the first and second years.
- 2008 **Regents' fellowship**, UCSC.
Awarded to promising first-year graduate students.

Talks and Seminars

- Mar., 2012 **Turbulence in Cosmic Structure Formation**, *Arizona State University*.
Detection of pristine gas two billion years after the Big Bang
- Jan., 2012 **DARK Cake Meeting**, *DARK Cosmology Centre*.
Detecting cold accretion and metal poor gas around galaxies
- Jan., 2012 **219th AAS Meeting**, *Austin, TX*.
Exploring the gas cycle in high-redshift galaxies: a joint effort of theory and observations
- Dec., 2011 **Theory meeting of the Galaxy and Cosmology group**, *MPIA Heidelberg*.
Probing inflow in high-redshift galaxies
- Oct., 2011 **Theoretical Astrophysics Center seminar**, *UC Berkeley*, invited.
Exploring the gas cycle in high-redshift galaxies: a joint effort of theory and observations
- Oct., 2011 **Lunch Talk**, *Carnegie Observatories*.
Exploring the gas cycle in high-redshift galaxies: a joint effort of theory and observations
- Oct., 2011 **Astronomy Tea Talk**, *Caltech*.
Exploring the gas cycle in high-redshift galaxies: a joint effort of theory and observations
- Aug., 2011 **Santa Cruz galaxy workshop**, *Santa Cruz*.
Cold streams and primordial gas at high redshift
- Jul., 2011 **Celebrating the career of A. Wolfe**, *Schloss Ringberg*, invited.
Detecting cold streams with absorption line systems
- Jul., 2011 **MPIA**, *Heidelberg*.
Stochastic star formation and IMF (non) variation
- Jun., 2011 **Odyssey of cosmic baryons**, *Marseille*.
Detecting cold streams with absorption line systems
- Jun., 2011 **Gas in galaxies**, *Kloster Seeon, Germany*.
Detecting cold streams with absorption line systems
- Dec., 2010 **CASS, UCSD**, *San Diego*.
Gas in and around galaxies
- Aug., 2010 **Santa Cruz galaxy workshop**, *Santa Cruz*.
Gas in simulations of $z > 2$ galaxies
- May, 2010 **Como+Milano+Heidelberg+Marseille**.
Images and simulations to connect gas and stars in $z > 2$ galaxies
- Apr., 2010 **UCSC**, *Santa Cruz*.
Hunting gas and stars in galaxies across the Universe
- Aug., 2009 **Santa Cruz Galaxy Workshop**, *Santa Cruz*.
A shot in the dark: probing galaxies giving rise to DLAs at $z > 2$
- Aug., 2009 **UCSC Friday Lunch Talk**, *Santa Cruz*.
Molecular gas deficiency in HI poor galaxies
- Jun., 2009 **University of Chicago**, *Chicago*.
A shot in the dark: imaging of DLAs
- Mar., 2009 **Università dell'Insubria**, *Como, Italy*.
Star formation $z = 0 - 3$
- Dec., 2008 **CASS, UCSD**, *San Diego*.
The star formation rate and gas content in local spiral galaxies
- Jul., 2008 **Università di Milano-Bicocca**, *Milano, Italy*.
The relationship between gas content and star formation rate in spiral galaxies

Poster presentations

- 2011 **Victoria, BC**, *Spectroscopy 2011 - Extending the limit of astrophysical spectroscopy*.
Imaging the neutral medium of $z > 1.5$ galaxies via [CII] 158 μm .
- 2010 **Sedona, AZ**, *UP2010: a Variable Upper End of the Initial Mass Function*.
SLUG: A new way to Stochastically Light Up Galaxies.
- 2009 **Firenze, Italy**, *SFR@50: Filling the Cosmos with Stars*.
Molecular hydrogen deficiency in perturbed galaxies.

Observations

- Keck 17 nights of optical and infrared imaging and spectroscopy.
- LBT 4 nights of optical imaging.
- IRAM-30m 64 hours of molecular spectroscopy.
- Lick-3m 17 nights of optical spectroscopy.
- SPM-2m 20 nights of optical imaging.
- Loiano-1m 5 nights of optical imaging.

Teaching

- 2009 Ay2: Overview of the Universe.
- Students advised Francesco Grossetti (MSc at Milano-Bicocca), Enzo Galardo (MSc at Milano-Bicocca),
Fabrizio Arrigoni Battaia (MSc at Milano-Bicocca), Kyle Kaplan (BSc at UCSC),
Matthew Hogan (UCSC)

Membership and activities

- 2012- Peer reviewer, Monthly Notices of the Royal Astronomical Society
- 2011-2012 Graduate Student Mentor, UCSC Astronomy & Astrophysics Department
- 2011- Member, American Astronomical Society
- 2011- Member, European Physical Society
- 2008- Member, Società Italiana di Fisica

Non academic experience

- 2006- **Public lecturer in astronomy**, Italy.
I regularly promote and present in public lectures and in schools.
- 2002-2007 **Youth worker**, Milano, Italy.
I volunteered in youth centers to promote the personal and social development of young people.

Refereed publications

1. **Fumagalli, M.**, O'Meara, J.M., & Prochaska, J.X. 2011, *Science*, 334, 1245. *Detection of pristine gas two billion years after the Big Bang*.
2. Barth, A. et al. 2011, *ApJ*, 743, L4. *The Lick AGN monitoring project 2011: reverberation mapping of Markarian 50*.
3. **Fumagalli, M.**, da Silva, R.L., & Krumholz, M. 2011, *ApJ*, 741, L26. *Stochastic star formation and a (nearly) uniform stellar initial mass function*.
4. Aliu, E. et al. 2011, *ApJ*, 742, 127. *Multiwavelength Observations of the Previously Unidentified Blazar RX J0648.7+1516*.

5. da Silva, R.L., **Fumagalli, M.**, & Krumholz, M. 2011, ApJ accepted, arXiv:1106.3072. *SLUG - Stochastically Lighting Up Galaxies I: Methods and Validating Tests.*
6. Cucchiara, A. et al. 2011, ApJ, 743, 154. *Constraining GRB Emission Physics with Extensive Early-Time, Multiband Follow-up.*
7. **Fumagalli, M.**, Prochaska, J.X., Kasen, D., Dekel, A., Ceverino, D., & Primack, J.R. 2011, MNRAS, 418, 1796. *Absorption line systems in simulated galaxies fed by cold streams.*
8. Barth, A. et al. 2011, ApJ, 732, 121. *Broad-line Reverberation in the Kepler-field Seyfert Galaxy Zw 229-015.*
9. Abdo, A.A. et al. 2011, ApJ, 726, 43. *Multi-wavelength Observations of the Flaring Gamma-ray Blazar 3C 66A in 2008 October.*
10. **Fumagalli, M.**, O'Meara, J.M., Prochaska, J.X., & Kanekar, N. 2010, MNRAS, 408, 362. *Directly imaging damped Lyman- α galaxies at $z > 2$ - I. Methodology and first results.*
11. **Fumagalli, M.**, Krumholz, M.R., & Hunt, L.K. 2010, ApJ, 722, 919. *Testing models for molecular gas formation in galaxies: hydrostatic pressure or gas and dust shielding?*
12. **Fumagalli, M.**, Krumholz, M.R., Prochaska, J.X., Gavazzi, G., & Boselli, A. 2009, ApJ, 697, 1811 *Molecular hydrogen deficiency in HI-poor galaxies and its implications for star formation.*
13. **Fumagalli, M.**, & Gavazzi, G. 2008, A&A, 490, 571. *The relationship between gas content and star formation rate in spiral galaxies. Comparing the local field with the Virgo cluster.*
14. Gavazzi, G. et al. 2008, A&A, 482, 43. *HI content and other structural properties of galaxies in the Virgo cluster from the Arecibo Legacy Fast ALFA Survey.*

Non-refereed publications

1. **Fumagalli, M.**, da Silva, R., Krumholz, M., & Bigiel, F. 2011, Astronomical Society of the Pacific Conference Series, 440, 155. *SLUG: A New Way to Stochastically Light Up Galaxies.*
2. **Fumagalli, M.** 2008, MSc thesis. *High resolution multifrequency analysis of gas behavior and star formation in spiral galaxies.*
3. **Fumagalli, M.** 2006, BSc thesis. *Impact of low frequencies measurements on the knowledge of spectral distortions expected for Cosmic Microwave Background Radiation.*