# Michele Fumagalli

Professor
Institute for Computational Cosmology
Centre for Extragalactic Astronomy
Durham University
South Road, Durham DH1 3LE, UK
Email: michele.fumagalli@durham.ac.uk
Office: +44(0)191 3343789

#### Scientific Interests

Gas flows around galaxies, galaxy formation and evolution, the role of environment, absorption line systems, physics of the interstellar medium, star formation, stellar initial mass function.

# **Academic History**

- 2018 **Professor**, Durham University.
- 2017 **Associate Professor (Reader)**, Durham University.
- 2014 Assistant Professor (Lecturer), Durham University.
- 2013 **Postdoctoral Fellow**, Carnegie Observatories, Princeton University.

# Education

- 2016 Postgraduate Certificate in Academic Practice, Durham University, UK.
- 2012 **Ph.D. in astrophysics**, *University of California, Santa Cruz, USA*.
- 2010 Master in astrophysics, University of California, Santa Cruz, USA.
- 2008 Laurea specialistica (MSc), University of Milano Bicocca, Italy.
- 2006 Laurea triennale (BSc), University of Milano Bicocca, Italy.

#### Selected Awards and Fellowships

- 2017 **Abilitazione Nazionale Italiana**, *Professore Associato e Ordinario*.
- 2015 Fellow of the Higher Education Academy.
- 2014-2015 **Carnegie Visiting Associate**, Carnegie Observatories. Visiting fellowship at Carnegie Observatories.
  - 2012 **Lyman Spitzer Fellowship**, Princeton University. Postdoctoral fellowship in theoretical astrophysics.
  - 2012 **Carnegie-Princeton Fellowship**, Carnegie Observatories, Princeton University. Postdoctoral fellowship in observational astrophysics.
  - 2012 **Hubble Fellowship**, 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 **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.

# **Grant History**

- 2019 NASA grant, HST-GO-15637, (Science Co-PI).
- 2018 ERC Attratività, Fondazione Cariplo, (PI).
- 2017 **ERC Starting Grant**, ERC, (PI).
- 2017 **Durham Astronomy Consolidated Grant**, STFC, (Project PI).
- 2015 NASA grant, HST-GO-14127, (Science PI).
- 2012 NASA Hubble Fellowship, grant HF-51305.01-A, (PI).
- 2010 **HIPACC grant**, University California, (PI).

#### Talks and Seminars

- Jun., 2019 What Matter(s) Between Galaxies, Abbazia di Spineto, SOC.
  Gas around galaxies: connecting emission and absorption with large surveys
- Mar., 2019 **Astronomy Seminar**, *Nottingham University*, invited. Shedding light on gas around galaxies across cosmic time
- Dec., 2018 Twenty years of science at Bicocca, Milano-Bicocca University, invited review. Astrophysics  $\pm 20$ : Deeper, Sharper, and Bigger
- Nov., 2018 **CASTOR UV space observatory**, *The Royal Observatory Edinburgh*, invited review. The galaxy-IGM connection
- Jun., 2017 What Matter(s) Around Galaxies, *Durham University*, SOC/LOC co-chair. Probing the gaseous environment of star-forming galaxies in absorption and emission
- Apr., 2017 **Seminar, Department of Physics**, *University of Milano-Bicocca*, invited. MUS(E)ing over gas flows as drivers of galaxy evolution
- May., 2016 **Cavendish Astrophysics Seminar**, *University of Cambridge*, invited. Gas flows as fuel for star formation: a spotlight on strong absorption line systems
- Apr., 2016 **Astronomy Seminar**, *ETH Zurich*, invited.

  Gas flows as fuel for star formation: a spotlight on strong absorption line systems
- Mar., 2016 **Astronomy Seminar**, *Stockholm University*, invited.

  Gas flows as fuel for star formation: a spotlight on strong absorption line systems
- Sep., 2015 **Astronomy Seminar**, *INAF/Trieste*, invited.

  Gas flows as fuel for star formation: a spotlight on strong absorption line systems
- Jun., 2015 **IGM@50**, *INAF/Firenze*, invited.

  Probing gas flows near galaxies: a spotlight on Lyman Limit Systems

Jun., 2014	Intergalactic Matters, MPIA, Heidelberg, invited. A shot in the dark: the star formation rates of DLAs at $z\sim 2-3$
Apr., 2014	Colorful galaxies: a conference for Peppo Gavazzi's birthday, $Como$ , $Italy$ , invited. Can we use H $\alpha$ to trace star formation rates?
Apr., 2014	<b>Exploiting VST ATLAS</b> and its sister surveys, <i>Durham University</i> , invited. ATLAS search for Lyman Limit Systems in quasar pairs.
Mar., 2014	Astronomy Friday Lunch Talks, Durham University.  The importance of stochastic effects in stellar population synthesis.
Jan., 2014	<b>DEX meeting</b> , <i>Durham University</i> .  Investigations on the gaseous environment of distant galaxies.
Dec., 2013	<b>TAPIR seminar</b> , <i>Caltech</i> , invited.  Investigations on the gaseous environment of distant galaxies.
Oct., 2013	<b>Metal Production and Distribution in a Hierarchical Universe</b> , <i>Rencontres de l'Observatoire de Paris 2013 - ESO Workshop</i> , invited review. IGM abundances in the high-redshift universe.
Aug., 2013	Santa Cruz Galaxy Workshop, $UCSC$ . Lyman limit systems and the circumgalactic medium at $z\sim 2-3$ .
Jun., 2013	Intergalactic Interactions, Higgs Centre, Edinburgh, invited. Lyman limit systems and the circumgalactic medium at $z\sim 2-3$ .
Jun., 2013	<b>ENIGMA workshop</b> , <i>MPIA</i> , invited. Lyman limit systems and the circumgalactic medium at $z\sim 2-3$ .
Apr., 2013	Lunch Talk, Carnegie Observatories.  Beyond the disk: The role of halo gas in galaxy formation.
Mar., 2013	<b>Hubble Fellows Symposium</b> , STScl, Baltimore. Optically-thick hydrogen in the z=3 universe
Dec., 2012	University of Milano-Bicocca, Milan, invited.  The gaseous environment of distant galaxies
Nov., 2012	<b>UT Astronomy Colloquium</b> , <i>Austin</i> , invited.  The gaseous environment of distant galaxies
Sep., 2012	Keck Science Meeting, San Diego.  Pristine gas two billion years after the Big Bang
Jun., 2012	Metals in Tuscany, INAF/Firenze, invited.  Pristine gas two billion years after the Big Bang
May., 2012	Price Prize lecture, CCAPP Ohio State University, invited. Cosmology with absorption line systems
Apr., 2012	Astronomy Colloquium, Osservatorio Astronomico di Brera, invited. Cosmology with absorption line systems
Mar., 2012	<b>Turbulence in Cosmic Structure Formation</b> , <i>Arizona State University</i> .  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	<b>219th AAS Meeting</b> , <i>Austin</i> , <i>TX</i> .  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	<b>Theoretical Astrophysics Center seminar</b> , <i>UC Berkeley</i> , invited. Exploring the gas cycle in high-redshift galaxies: a joint effort of theory and observations

Oct., 2011	<b>Lunch Talk</b> , <i>Carnegie Observatories</i> .  Exploring the gas cycle in high-redshift galaxies: a joint effort of theory and observations
Oct., 2011	<b>Astronomy Tea Talk</b> , <i>Caltech</i> . 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	<b>Celebrating the career of A. Wolfe</b> , <i>Schloss Ringberg</i> , 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	<b>Como+Milano+Heidelberg+Marseille</b> . 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
	Proposal History (principal investigator or primary co-investigator
	ICAT (COURA O COL

# or)

- 2019 JCMT/SCUBA-2; 30 hours, 2019B.
- 2018 Hubble Space Telescope; 90 orbits, cycle 26 (LP).
- 2017 ESO/VLT; 164 hours, P101 (LP).
- JCMT/SCUBA-2; 16 hours, 2018A. 2018
- ESO/VLT; 36 hours, P100. 2017
- 2017 JCMT/SCUBA-2; 9 hours, 2017B.
- 2016 ESO/VLT; 18 hours, P99.
- 2016 Keck Telescope; 2 nights, 2016B.
- 2016 Hubble Space Telescope; 96 orbits, cycle 24 (LP).
- JCMT/SCUBA-2; 9 hours, 2016B. 2016

- 2016 Keck Telescope; 1 night, 2016A.
- 2016 WHT; 12 nights, 2016A.
- 2016 ESO/VLT; 106 hours, P97-100 (LP).
- 2015 WHT; 9 nights, 2015B.
- 2015 ESO/VLT; 9 hours, P96.
- 2015 Hubble Space Telescope; 55 orbits, cycle 23.
- 2014 ESO/VLT; 28 hours, P95.
- 2014 ESO/VLT; 5 hours, P94.
- 2014 Gemini-S Telescope; 30 hours, 2014A.
- 2014 Magellan Telescope; 4 nights, 2014A.
- 2013 Magellan Telescope; 5 nights, 2013B.
- 2013 Keck Telescope; 1 night, 2013B.
- 2012 Keck Telescope; 1 night, 2013A.
- 2012 Magellan Telescope; 4 nights, 2013A.
- 2012 Magellan Telescope; 4 nights, 2012B.
- 2011 IRAM 30m Telescope; 64 hours, 2011B.

# Teaching and Advising

- 2018- Radiative processes in astrophysics; PhD lecture series at Durham University.
- 2018 The role of baryonic process in galaxy formation and evolution; PhD lecture series at University of Milano-Bicocca.
- 2016- PHYS2651: Physics in Society, Durham University.
- 2014- PHYS1081: Introduction to Astronomy, Durham University.
- 2014- PHYS1101: Discovery Skills in Physics, Durham University.
- 2009 Ay2: Overview of the Universe, UCSC.
- PhD Students Mr. Calvin Sykes (2017-), Durham University.
  - Ms. Louise Welsh (2017-), Durham University.
  - Mr. Ruari Mackenzie (2014-2018), Durham University (PhD, 2018).
  - Mr. Greg Ashworth (2014-2018), Durham University (PhD, 2018).
  - PDRAs Dr. Matteo Fossati (2018-), Durham University.
    - Dr. Emma Lofthouse (2018-), Durham University.
    - Dr. Elisabeta Lusso (2017-), Junior Research Fellow, Durham University.
    - Dr. Richard Bielby (2017-), Durham University.

## Membership and Activities

- 2018- Peer reviewer, Nature
- 2018- Peer reviewer, European Research Council
- 2017- Peer reviewer, Nature Astronomy
- 2016- Member of Van Mildert College Council, Durham University

- 2016- E-ELT HIRES Galaxy and IGM Working Group
- 2012- Peer reviewer, Astrophysical Journal
- 2012- Peer reviewer, Monthly Notices of the Royal Astronomical Society
- 2012- Peer reviewer, Astronomy and Astrophysics
- 2011-2012 Graduate Student Mentor, UCSC Astronomy & Astrophysics Department
- 2011-2015 Member, European Physical Society
- 2011-2012 Member, American Astronomical Society
- 2008-2015 Member, Società Italiana di Fisica

### Refereed publications

- 1. Becker, G.D. et al. 2019, ApJ in press (arXiv:1907.02983). The Evolution of OI over 3.2 < z < 6.5: Reionization of the Circumgalactic Medium.
- 2. Jachym, P. et al. 2019, ApJ in press (arXiv:1905.13249). ALMA unveils widespread molecular gas clumps in the ram pressure stripped tail of the Norma jellyfish galaxy.
- 3. **Fumagalli, M.** 2019, Nature Astronomy. *Thirsty galaxies thriving on gas streams.*
- 4. Sykes, C., **Fumagalli, M.**, Cooke, R., Theuns, T., Benitez-Llambay, A. 2019, MNRAS, 487, 609. *Fluorescent rings in star-free dark matter haloes.*
- 5. Mackenzie, R., **Fumagalli, M.**, Theuns, T. et al. 2019, MNRAS, 487, 5070. Linking gas and galaxies at high redshift: MUSE surveys the environments of six damped  $Ly\alpha$  galaxies at  $z\sim3$ .
- 6. Welsh, L., Cooke, R., **Fumagalli, M.** 2019, MNRAS, 487, 3363. *Modelling the chemical enrichment of Population III supernovae: The origin of the metals in near-pristine gas clouds.*
- 7. Bielby, R.M. et al. 2019, MNRAS, 86, 21. Quasar Sightline and Galaxy Evolution (QSAGE) Survey I. The Galaxy Environment of OVI Absorbers up to z=1.4 around PKS 0232-04.
- 8. Lusso, E., **Fumagalli, M.**, Fossati, M., et al. 2019, MNRAS, 485, 62. The MUSE Ultra Deep Field (MUDF). I. Discovery of a group of Ly $\alpha$  nebulae associated with a bright  $z \approx 3.23$  quasar pair.
- 9. Furniss, A., Worseck, G., **Fumagalli, M.** et al. 2019, AJ, 157, 41. *Spectroscopic Redshift of the Gamma-Ray Blazar B2 1215+30 from Lyα Emission.*
- 10. Cook, D.O. et al. 2019, MNRAS, 484, 4897. Star Cluster Catalogs for the LEGUS Dwarf Galaxies.
- 11. Fossati, M., **Fumagalli, M.**, Gavazzi, G. et al. 2019, MNRAS, 484, 2212. *MUSE sneaks* a peek at extreme ram-pressure stripping events *IV. Hydrodynamic and gravitational* interactions in the Blue Infalling Group.
- 12. Grasha, K. et al. 2019, 483, 4707. The Spatial Relation between Young Star Clusters and Molecular Clouds in M 51 with LEGUS.
- 13. P. Frédéric Robert et al. 2019, MNRAS, 483, 2736. Exploring the origins of a new, apparently metal-free gas cloud at z=4.4.
- 14. Jauzac, M. et al. 2019, MNRAS, 483, 3082. The core of the massive cluster merger MACS J0417.5-1154 as seen by VLT/MUSE.
- 15. Arrigoni Battaia, F., Chen, C.-C., **Fumagalli, M.** et al. 2018, A&A, 620, 202. *Overdensity of submillimeter galaxies around the z=2.3 MAMMOTH-1 nebula.*

- 16. Boselli, A. et al. 2018, A&A, 620, 164. A Virgo Environmental Survey Tracing Ionised Gas Emission (VESTIGE).IV. A tail of Ionised Gas in the Merger Remnant NGC 4424.
- 17. Krumholz, M. R., Adamo, A., **Fumagalli, M.**, Calzetti, D. 2019, MNRAS, 482, 3550. SLUG IV: A Novel Forward-Modelling Method to Derive the Demographics of Star Clusters.
- 18. Caruso, D., Haardt, F., **Fumagalli, M.**, Cantalupo, S. 2019, MNRAS, 482, 2833. *MCMC determination of the cosmic UV background at*  $z \approx 0$  *from H* $\alpha$  *fluorescence.*
- 19. Cooke, R. & **Fumagalli, M.** 2018, Nature Astronomy, 2, 957. *Measurement of the primordial helium abundance from the intergalactic medium.*
- 20. Krogager, J.-K. et al. 2018, A&A, 619, 142. Dissecting cold gas in a high-redshift galaxy using a lensed background quasar.
- 21. Grasha, K. et al. 2018, MNRAS, 481, 1016. Connecting Young Star Clusters to CO Molecular Gas in NGC 7793 with ALMA-LEGUS.
- 22. Ashworth, G., **Fumagalli, M.**, Adamo, A., Krumholz, M.R. 2018, MNRAS, 480, 3091A. *Theoretical predictions for IMF diagnostics in UV spectroscopy of star clusters.*
- 23. Hunter, D. et al. 2018, AJ, 156, 21. A comparison of young star properties with local galactic environment for LEGUS/LITTLE THINGS dwarf irregular galaxies.
- 24. Boselli, A. et al. 2018, A&A, 615, 114. A Virgo Environmental Survey Tracing Ionised Gas Emission (VESTIGE).III. Star formation in the stripped gas of NGC 4254.
- 25. Chehade, B. et al. 2018, MNRAS, 478, 1649. Two more, bright, z>6 quasars from VST ATLAS and WISE .
- 26. Boselli, A. et al. 2018, A&A, 614, 56. A Virgo Environmental Survey Tracing Ionised Gas Emission (VESTIGE).I. Introduction to the Survey.
- 27. Fossati, M. et al. 2018, A&A, 614, 57. A Virgo Environmental Survey Tracing Ionised Gas Emission (VESTIGE). III. Constraining the quenching time in the stripped galaxy NGC 4330.
- 28. Lusso, E., **Fumagalli, M.**, Rafelski, M. et al. 2018, ApJ, 860, 41. The spectral and environment properties of  $z \sim 2.0 2.5$  quasar pairs.
- 29. Findlay, J.R. et al. 2018, ApJS, 236, 44. Quasars probing quasars X: The quasar pair spectral database.
- 30. Messa, M. et al. 2018, MNRAS, 477, 1683. The Young Star Cluster population of M51 with LEGUS: II. Testing environmental dependencies.
- 31. Kahre, L. et al. 2018, ApJ, 855, 133. Extinction Maps and Dust-to-Gas Ratios in Nearby Galaxies.
- 32. Gavazzi, G., Consolandi, G., Pedraglio, S., Fossati, M., **Fumagalli, M.**, Boselli, A. 2018, A&A, 611, 28.  $H\alpha$  imaging observations of early-type galaxies from the ATLAS3D survey.
- 33. Hunter, D. et al. 2018, ApJ, 855, 7. A study of two dwarf irregular galaxies with asymmetrical star formation distributions.
- 34. Sabbi, E. et al. 2018, ApJS, 235, 23. The resolved stellar populations in the LEGUS galaxies.
- 35. Messa, M. et al. 2018, MNRAS, 473, 996. The Young Star Cluster population of M51 with LEGUS: I. A comprehensive study of cluster formation and evolution.

- 36. Consolandi, G., Gavazzi, G., Fossati, M., **Fumagalli, M.**, Boselli, A., Yagi, M., Yoshida, M. et al. 2017, A&A, 606, 83. *MUSE sneaks a peek at extreme ram-pressure events III. Tomography of UGC 6697, a massive galaxy falling into Abell 1367.*
- 37. **Fumagalli, M.**, Mackenzie, R., Trayford, J. et al. 2017, MNRAS, 471, 3686. Witnessing galaxy assembly in an extended  $z \approx 3$  structure.
- 38. Grasha, K. et al. 2017, ApJ, 842, 25. Hierarchical Star Formation in Turbulent Media: Evidence from Young Star Clusters.
- 39. Ashworth, G., **Fumagalli, M.**, Krumholz, M.R. et al. 2017, MNRAS, 469, 2464. *Exploring the IMF of star clusters: a joint SLUG and LEGUS effort.*
- 40. Ryon, J.E. et al. 2017, ApJ, 841, 92. Effective Radii of Young, Massive Star Clusters in Two LEGUS Galaxies.
- 41. Adamo, A. et al. 2017, ApJ, 841, 131. Legacy ExtraGalactic UV Survey with The Hubble Space Telescope. Stellar cluster catalogues and first insights into cluster formation and evolution in NGC 628.
- 42. Grasha, K. et al. 2017, ApJ, 840, 113. The Hierarchical Distribution of the Young Stellar Clusters in Six Local Star Forming Galaxies.
- 43. Bielby, R., Crighton, N.H.M, **Fumagalli, M.** et al. 2017, MNRAS, 468, 1373. *Probing the intra-group medium of a* z=0.28 *galaxy group.*
- 44. Swinbank, M. et al. 2017, MNRAS, 467, 3140. Angular momentum evolution of galaxies over the past 10 Gyr: A MUSE and KMOS dynamical survey of 400 star-forming galaxies from z=0.3-1.7.
- 45. **Fumagalli, M.**, Haardt, F., Theuns, T., Morris, S.L., Cantalupo, S., Madau, P., Fossati, M. 2017, MNRAS, 467, 4802. *A measurement of the* z=0 *UV background from*  $H\alpha$  *fluorescence.*
- 46. Prochaska et al. 2017, ApJ, 837, 169. The COS-Halos Survey: Metallicities in the Low-Redshift Circumgalactic Medium.
- 47. Lehner, N., O'Meara, J.M., Howk, J.C., Prochaska, J.X., **Fumagalli, M.** 2016, ApJ, 833, 283. *The Cosmic Evolution of the Metallicity Distribution of Ionized Gas Traced by Lyman Limit Systems*.
- 48. Toy, V.L. et al. 2016, ApJ, 832, 175. Exploring Damped Lyman- $\alpha$  System Host Galaxies using Gamma-ray Bursts.
- 49. **Fumagalli, M.**, Cantalupo, S., Dekel, A., Morris, S.L., O'Meara, J.M, Prochaska, J.X., Theuns, T. 2016, MNRAS, 462, 1978. *MUSE searches for galaxies near very metal-poor gas clouds at*  $z \sim 3$ : new constraints for cold accretion models.
- 50. Rafelski, M., Gardner, J.P., **Fumagalli, M.** et al. 2016, ApJ, 825, 87. The Star Formation Rate Efficiency of Neutral Atomic-dominated Hydrogen Gas in the Outskirts of Star Forming Galaxies from  $z\sim 1$  to  $z\sim 3$ .
- 51. Consolandi, G., Gavazzi, G., **Fumagalli, M.** et al. 2016, A&A, 591, 38. Robust automatic photometry of local galaxies from SDSS. Dissecting the color magnitude relation with color profiles.
- 52. Finn, C. et al. 2016, MNRAS, 460, 590. On the connection between the metal-enriched intergalactic medium and galaxies: an OVI-galaxy cross-correlation study at z < 1.
- 53. Archambault, S. et al. 2016, AJ, 151, 142. Upper limits from five years of blazar observations with the VERITAS Cherenkov telescopes.
- 54. Boselli, A. et al. 2016, A&A, 587, 68. Spectacular tails of ionised gas in the Virgo cluster galaxy NGC 4569

- 55. Grasha, K. et al. 2015, ApJ, 815, 93. The Spatial Distribution of the Young Stellar Clusters in the Star Forming Galaxy NGC 628.
- 56. **Fumagalli, M.**, O'Meara, J.M., Prochaska, J.X. 2016, MNRAS, 455, 4100. The physical properties of z>2 Lyman limit systems: new constraints for feedback and accretion models.
- 57. Fossati, M., **Fumagalli, M.**, Boselli, A. et al. 2016, MNRAS, 455, 2028. *MUSE sneaks* a peek at extreme ram-pressure stripping events. *II. The physical properties of the gas tail of ESO137-001*.
- 58. Farina, E., **Fumagalli, M.**, Decarli, R. et al. 2016, MNRAS, 455, 618. *The Cluster-Scale Environment of PKS 2155-304*.
- 59. Krumholz, M. R., Adamo, A., **Fumagalli, M.**, et al. 2015, ApJ, 812, 147. *Star Cluster Properties in Two LEGUS Galaxies Computed with Stochastic Stellar Population Synthesis Models*.
- 60. Calzetti, D. et al. 2015, ApJ, 811, 75. The Brightest Young Star Clusters in NGC 5253.
- 61. Prochaska, J.X. et al. 2015, ApJS, 221, 2. The Keck+Magellan Survey for Lyman Limit Absorption III: Sample Definition and Column Density Measurements.
- 62. Crighton, N. et al. 2015, MNRAS, 452, 217. The Neutral Hydrogen Cosmological Mass Density at z=5.
- 63. Krumholz, M., **Fumagalli, M.**, da Silva, R., Rendahl, T., Parra, J. 2015, MNRAS, 452, 1447.*SLUG Stochastically Lighting Up Galaxies. III: A Suite of Tools for Simulated Photometry, Spectroscopy, and Bayesian Inference with Stochastic Stellar Populations.*
- 64. Gavazzi, G. et al. 2015, A&A, 580, 116. Halpha3: an Halpha imaging survey of HI selected galaxies from ALFALFA. VI. The role of bars in quenching star formation from z=3 to the present epoch.
- 65. Carnall, A. C. et al. 2015, MNRAS, 451, 16. Two bright z > 6 quasars from VST ATLAS and a new method of optical plus mid-infra-red colour selection.
- 66. Cucchiara, A., **Fumagalli, M.**, Rafelski, M., Kocevski, D., Prochaska, J.X., Cooke, R.J., Becker, G.D. 2015, ApJ, 804, 51. *Unveiling the Secrets of Metallicity and Massive Star Formation Using DLAs along Gamma-ray Bursts*.
- 67. Gavazzi, G. et al. 2015, A&A, 576, 16. Halpha3: an Halpha imaging survey of HI selected galaxies from ALFALFA . V. The Coma supercluster survey completion.
- 68. Calzetti, D. et al. 2015, AJ, 149, 51. Legacy ExtraGalactic UV Survey (LEGUS) with The Hubble Space Telescope. I. Survey Description.
- 69. **Fumagalli, M.**, O'Meara, J.M., Prochaska, J.X., Rafelski, M., Kanekar, N. 2015, MNRAS, 446, 3178. Directly imaging damped Ly $\alpha$  galaxies at z>2. III: The star formation rates of neutral gas reservoirs at  $z\sim2.7$ .
- 70. Crighton, N. et al. 2015, MNRAS, 446, 18. Metal-enriched, sub-kiloparsec gas clumps in the circumgalactic medium of a faint z=2.5 galaxy.
- 71. **Fumagalli, M.**, Fossati, M., Hau, G. et al. 2014, MNRAS, 445, 4335.*MUSE sneaks a peek at extreme ram-pressure stripping events. I. A kinematic study of the archetypal galaxy ESO137-001*.
- 72. Aliu, E. et al. 2014, ApJ, 797, 89. *Investigating Broadband Variability of the TeV Blazar 1ES 1959+650*.

- 73. Boselli, A. et al. 2014, A&A, 570, 69. The GALEX Ultraviolet Virgo Cluster Survey (GUViCS). IV: The role of the cluster environment on galaxy evolution
- 74. Worseck, G. et al. 2014, MNRAS, 445, 1745. The Giant Gemini GMOS survey of z>4.4 quasars. I: Measuring the mean free path across cosmic time.
- 75. da Silva, R.L., **Fumagalli, M.**, Krumholz, M. 2014, MNRAS, 444, 3275. *SLUG Stochastically Lighting Up Galaxies. II: Quantifying the Effects of Stochasticity on Star Formation Rate Indicators.*
- 76. **Fumagalli, M.**, O'Meara, J.M., Prochaska, J.X., Kanekar, N., Wolfe, A. 2014, MN-RAS, 444, 1282. *Directly imaging damped Ly\alpha galaxies at z>2. <i>II: Imaging and spectroscopic observations of 32 quasar fields*.
- 77. Lusso, E. et al. 2014, MNRAS, 441, 316. The nature of massive black hole binary candidates: II. Spectral energy distribution atlas.
- 78. Finn, C. et al. 2014, MNRAS, 440, 3317. A compact, metal-rich, kpc-scale outflow in FBQS J0209-0438: Detailed diagnostics from HST/COS extreme UV observations.
- 79. da Silva, R.L., Krumholz, M., **Fumagalli, M.**, Fall, M. 2014, MNRAS, 438, 2355. *An Analytic Method to Compute Star Cluster Luminosity Statistics*.
- 80. Wright, E. et al., 2014, AJ, 147, 61. *The First AllWISE Proper Motion Discovery:* WISEA J070720.50+170532.7.
- 81. Rafelski, M., Neeleman, M., **Fumagalli, M.**, Wolfe, A.M., Prochaska, J.X. 2014, ApJL, 782, 29. *The Rapid Decline in Metallicity of Damped Ly-\alpha Systems at z \sim 5.*
- 82. Prochaska, J.X., Madau, P., O'Meara, J.M., **Fumagalli, M.** 2014, MNRAS, 438, 476. Towards a Unified Description of the Intergalactic Medium at Redshift  $z \sim 2.5$ .
- 83. **Fumagalli, M.**, Hennawi, J., Prochaska, J.X., Kasen, D., Dekel, A., Ceverino, D., Primack, J. 2014, ApJ, 780, 74. *Confronting Simulations of Optically Thick Gas in Massive Halos with Observations at* z=2-3.
- 84. VERITAS collaboration et al., 2013, ApJ, 779, 92. Long term observations of B2 1215+30 with VERITAS.
- 85. **Fumagalli, M.**, O'Meara, J.M., Prochaska, J.X., Worseck, G. 2013, ApJ, 775, 78. Dissecting the properties of optically-thick hydrogen at the peak of cosmic star formation history.
- 86. Decarli, R., Dotti, M., **Fumagalli, M.**, et al. 2013, MNRAS, 433, 1492. *The nature of massive black hole binary candidates: I. Spectral properties and evolution.*
- 87. Furniss, A., **Fumagalli, M.**, Falcone, A., Williams, D. A. 2013, ApJ, 770, 109. *The Blazar Emission Environment: Insight from Soft X-ray Absorption*.
- 88. Furniss, A. et al. 2013, ApJ, 768, L31. The Firm Redshift Lower Limit of the Most Distant TeV-Detected Blazar PKS 1424+240.
- 89. Fossati, M. et al. 2013, A&A, 553, 91. Halpha3: an Halpha imaging survey of HI selected galaxies from ALFALFA. IV. The structure of galaxies in the Local and Coma Superclusters.
- 90. Gavazzi, G. et al. 2013, A&A, 553, 90. Halpha3: an Halpha imaging survey of HI selected galaxies from ALFALFA. III. Nurture shapes up the Hubble sequence in the Great Wall.
- 91. Gavazzi, G., **Fumagalli, M.**, Fossati, M. et al. 2013, A&A, 553, 89. *Halpha3: an Halpha imaging survey of HI selected galaxies from ALFALFA. II. The star formation properties of galaxies in the Virgo cluster and surroundings.*

- 92. Furniss, A., **Fumagalli, M.**, Danforth, C., Williams, D., & Prochaska, X. 2013, ApJ, 766, 35. *On the Redshift of the Very High Energy Blazar 3C66A*.
- 93. Farina, E., Montuori, C., Decarli, R., **Fumagalli, M.** 2013, MNRAS, 431, 1019. *Caught in the Act: Discovery of a Physical Quasar Triplet*.
- 94. Aliu, E. et. al 2012, ApJ, 759, 102. VERITAS Observations of Six Bright, Hard-Spectrum Fermi-LAT Blazars.
- 95. **Fumagalli, M.**, Furniss, A., O'Meara, J., Prochaska, X., Williams, D., Farina, E. 2012, A&A, 545, 68. *On the redshift of the blazar PKS0447-439*.
- 96. Fossati, M., Gavazzi, G., Boselli, A., **Fumagalli, M.** 2012, A&A, 544, A128. 65 kpc of ionized gas trailing behind NGC 4848 during its first crossing of the Coma cluster.
- 97. Gavazzi, G., **Fumagalli, M.**, Galardo, V., et al. 2012, A&A, 545, 16.  $H\alpha^3$ :  $H\alpha$  imaging survey of HI selected galaxies from ALFALFA. I. Catalogue in the local supercluster.
- 98. **Fumagalli, M.**, Dessauges-Zavadsky, M., Furniss, A., et al. 2012, MNRAS, 424, 2276. A search of CO emission lines in blazars: the low molecular gas content of BL Lac objects compared to quasars.
- 99. Arrigoni Battaia, F. et al. 2012, A&A, 543 A112. Stripped gas as fuel for newly formed HII regions in the encounter between VCC1249 and M49: a unified picture from NGVS and GUViCS.
- 100. da Silva, R.L., **Fumagalli, M.**, & Krumholz, M. 2012, ApJ, 745, 145. *SLUG Stochastically Lighting Up Galaxies I: Methods and Validating Tests*.
- 101. **Fumagalli, M.**, O'Meara, J.M., & Prochaska, J.X. 2011, Science, 334, 1245. *Detection of pristine gas two billion years after the Big Bang*.
- 102. Barth, A. et al. 2011, ApJ, 743, L4. The Lick AGN monitoring project 2011: reverberation mapping of Markarian 50.
- 103. **Fumagalli, M.**, da Silva, R.L., & Krumholz, M. 2011, ApJ, 741, L26. *Stochastic star formation and a (nearly) uniform stellar initial mass function*.
- 104. Aliu, E. et al. 2011, ApJ, 742, 127. Multiwavelength Observations of the Previously Unidentified Blazar RX J0648.7+1516.
- 105. Cucchiara, A. et al. 2011, ApJ, 743, 154. Constraining GRB Emission Physics with Extensive Early-Time, Multiband Follow-up.
- 106. **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*.
- 107. Barth, A. et al. 2011, ApJ, 732, 121. Broad-line Reverberation in the Kepler-field Seyfert Galaxy Zw 229-015.
- 108. Abdo, A.A. et al. 2011, ApJ, 726, 43. *Multi-wavelength Observations of the Flaring Gamma-ray Blazar 3C 66A in 2008 October.*
- 109. **Fumagalli, M.**, O'Meara, J.M., Prochaska, J.X., & Kanekar, N. 2010, MNRAS, 408, 362. Directly imaging damped Lyman- $\alpha$  galaxies at z>2 I. Methodology and first results.
- 110. **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?*

- 111. **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*.
- 112. **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.
- 113. 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. Richard, J. et al. 2019, arXiv:1906.01657. BlueMUSE: Project Overview and Science Cases
- 2. **DESI collaboration** 2016, arXiv:1611.00037. *The DESI Experiment Part II: Instrument Design*.
- 3. **DESI collaboration** 2016, arXiv:1611.00036. The DESI Experiment Part I: Science, Targeting, and Survey Design.
- 4. Pieri, M. et al. 2016, Proceedings of the SF2A conference, Lyon, 2016. WEAVE-QSO: A Massive Intergalactic Medium Survey for the William Herschel Telescope.
- 5. **Fumagalli, M.** 2014, MmSAI, 85, 355. *Metal abundances in the high-redshift intergalactic medium.*
- 6. **Fumagalli, M.** 2012, Ph.D. dissertation, University of California, Santa Cruz. *Food for stars: the role of hydrogen in the formation and evolution of galaxies.*
- 7. **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*.
- 8. **Fumagalli, M.** 2008, MSc thesis, Università Milano-Bicocca. *High resolution multifrequency analysis of gas behavior and star formation in spiral galaxies*.
- 9. **Fumagalli, M.** 2006, BSc thesis, Università Milano-Bicocca. *Impact of low frequencies measurements on the knowledge of spectral distortions expected for Cosmic Microwave Background Radiation*.