

# Michele Fumagalli

*Professor*  
*University of Milano Bicocca*  
*Department of Physics*  
*Piazza della Scienza 3, 20126 Milano (MI), Italy*  
*Email: michele.fumagalli@unimib.it*

## 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

- 2020- **Professor**, *University of Milano Bicocca*.
- 2020- **Associate**, *INAF - Osservatorio Astronomico di Trieste*.
- 2020- **Visiting Professor**, *Durham University*.
- 2018-2020 **Professor**, *Durham University*.
- 2017-2018 **Associate Professor (Reader)**, *Durham University*.
- 2014-2017 **Assistant Professor (Lecturer)**, *Durham University*.
- 2013-2014 **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

- 2020 **Durham Astronomy Consolidated Grant**, STFC, (Project co-PI).
- 2019 **NASA grant**, HST-GO-15637, (Science Co-PI).
- 2018 **ERC Attrattività**, 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., 2020 **KIAA Forum on Gas in Galaxies for Early Career Scientists**, *Kavli Institute for Astronomy and Astrophysics*, invited.  
Flows around galaxies: advancements, challenges and opportunities
- May., 2021 **Multi-object Spectroscopy for Statistical Measures of Galaxy Evolution Workshop**, *Space Telescope Science Institute*, invited review.  
Studying gas flows around galaxies with multi object spectroscopy
- May., 2021 **Extragalactic Seminar Series**, *University of Victoria*, invited.  
Shedding light on gas around galaxies across cosmic times
- Apr., 2021 **Astronomy Colloquium**, *University of California, Santa Cruz*, invited.  
Shedding light on gas around galaxies across cosmic times
- Mar., 2021 **Physics Colloquium**, *North Carolina State University*, invited.  
Shedding light on gas around galaxies across cosmic times
- Nov., 2020 **Kapteyn Institute Colloquium**, *University of Groningen*, invited.  
Shedding light on gas around galaxies across cosmic times
- Jun., 2020 **EAS 2020**, *Leiden*, invited review.  
Flows around galaxies in 2020: advancements, challenges and opportunities
- Jun., 2020 **Insights into the CGM and ICM**, *IAP, France*, invited.  
MUSE observations of the CGM of distant galaxies
- Apr., 2020 **Astronomy Colloquium**, *Royal Observatory/Edinburgh*, invited.  
Shedding light on gas around galaxies across cosmic times

- Mar., 2020 **Astronomy Colloquium, INAF/Arcetri**, invited.  
Shedding light on gas around galaxies across cosmic times
- Dec., 2019 **Joint Astronomy Colloquium, MPA-MPE-ESO**, invited.  
Shedding light on gas around galaxies across cosmic times
- Oct., 2019 **CGM in Berlin 2019, Max Planck Society**, invited.  
Gas around galaxies at  $z \sim 2 - 3$ : linking emission and absorption with large surveys
- 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 **Exploiting VST ATLAS... and its sister surveys, Durham University**, 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 **DEX meeting, Durham University**.  
Investigations on the gaseous environment of distant galaxies.
- Dec., 2013 **TAPIR seminar, Caltech**, invited.  
Investigations on the gaseous environment of distant galaxies.
- Oct., 2013 **Metal Production and Distribution in a Hierarchical Universe, Rencontres de l'Observatoire de Paris 2013 - ESO Workshop**, 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 **ENIGMA workshop, MPIA**, 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 **Hubble Fellows Symposium, STScI, 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 **UT Astronomy Colloquium, Austin**, 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 **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

## Proposal History (principal investigator or primary co-investigator)

- 2021 ALMA; 9 hours, cycle 8.
- 2019 ESO/VLT; 25 hours, P105.
- 2019 Hubble Space Telescope; 8 orbits, cycle 27.
- 2019 JCMT/SCUBA-2; 30 hours, 2019B.
- 2018 Hubble Space Telescope; 90 orbits, cycle 26 (LP).
- 2017 ESO/VLT; 250 hours, P101 (LP).
- 2018 JCMT/SCUBA-2; 16 hours, 2018A.
- 2017 ESO/VLT; 36 hours, P100.
- 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).
- 2016 JCMT/SCUBA-2; 9 hours, 2016B.
- 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

- 2019- Astrophysics Laboratory; MSc at University of Milano-Bicocca.
  - 2018-2019 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.
  - 2016-2017 PHYS2651: Physics in Society, BSc at Durham University.
  - 2014-2019 PHYS1081: Introduction to Astronomy, BSc at Durham University.
  - 2014-2018 PHYS1101: Discovery Skills in Physics, BSc at Durham University.
  - 2009 Ay2: Overview of the Universe, BSc at UCSC.
- PhD Students
- Mr. Georg Herzog (2020-), University of Milano-Bicocca.
  - Mr. Calvin Sykes (2017-2021), Durham University (PhD, 2021).
  - 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. Alejandro Benitez Llambay (2021-), University of Milano-Bicocca.
  - Dr. Alessia Longobardi (2021-), University of Milano-Bicocca.
  - Dr. Rajeshwari Dutta (2019-), Durham University, University of Milano-Bicocca.
  - Dr. Matteo Fossati (2018-2021), Durham University, University of Milano-Bicocca.
  - Dr. Emma Lofthouse (2018-), Durham University, University of Milano-Bicocca.
  - Dr. Elisabeta Lusso (2017-2019), Junior Research Fellow, Durham University.
  - Dr. Richard Bielby (2017-2019), Durham University.

## Membership and Activities

- 2021- Member of the Euclid Consortium
- 2021- Member of the MOSAIC/ELT Science working groups “First Light” and “Inventory of matter”
- 2021- Member of the Science Working Group, WEAVE survey
- 2020- Coordinator of Absorption Line Studies in the Quasar Working Group, WEAVE survey
- 2020 Chair of PhD Admission Committee, Physics Department, University of Milano-Bicocca
- 2020 Panel Member, USA National Science Foundation
- 2018- Peer reviewer, Nature
- 2018- Peer reviewer, European Research Council
- 2017- Peer reviewer, Nature Astronomy
- 2016-2018 Member of Van Mildert College Council, Durham University
- 2016- HIRES/ELT 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. Lehner, N. et al. 2022, ApJ submitted (arXiv:2112.03304). *KODIAQ-Z: Metals and Baryons in the Cool Intergalactic and Circumgalactic Gas at  $2.2 < z < 3.6$* .
2. Nowotka, M. et al. 2022, A&A in press (arXiv:2111.15374). *A Multiwavelength Study of ELAN Environments (AMUSE<sup>2</sup>): Ubiquitous dusty star-forming galaxies associated with enormous Ly $\alpha$  nebulae on megaparsec scales*.
3. Arrigoni Battaia, F. et al. 2022, ApJ submitted (arXiv:2111.15392). *A Multiwavelength Study of ELAN Environments (AMUSE<sup>2</sup>): Mass budget, satellites spin alignment and gas infall in a massive  $z \sim 3$  quasar host halo*.
4. Orozco-Duarte, R. et al. 2022, MNRAS, 509, 522. *Synthetic photometry of OB star clusters with stochastically sampled IMFs: analysis of models and HST observations*.
5. Benitez-Llambay, A., **Fumagalli, M.** 2021, ApJL, 921, 9. *The Tail of Late-Forming Dwarf Galaxies in  $\Lambda$ CDM*.
6. Dutta, R., **Fumagalli, M.**, Fossati, M. et al. 2021, MNRAS, 508, 4573. *Metal-enriched halo gas across galaxy overdensities over the last 10 billion years*.
7. Dalton, T., Morris, S.L., **Fumagalli, M.**, Gattuzz, E. 2021, MNRAS, 508, 1701. *Probing the physical properties of the intergalactic medium using blazars*.
8. Menon, S.H. et al. 2021, MNRAS, 507, 5542. *The Dependence of the Hierarchical Distribution of Star Clusters on Galactic Environment*.
9. Beckett, A., Morris, S.L., **Fumagalli, M.** et al. 2021, MNRAS, 506, 2574. *The relationship between gas and galaxies at  $z < 1$  using the Q0107 quasar triplet*.
10. Della Bruna, L. et al., 2021, A&A, 650, 103. *Studying the ISM at  $\sim 10$  pc scale in NGC 7793 with MUSE – II. Constraints on the oxygen abundance and ionising radiation escape*.
11. Fossati, M., **Fumagalli, M.**, Lofthouse, E.K. et al. 2021, MNRAS, 503, 3044. *MUSE Analysis of Gas around Galaxies (MAGG) - III: The gas and galaxy environment of  $z = 3 - 4.5$  quasars*.
12. Dalton, T., Morris, S.L., **Fumagalli, M.** 2021, MNRAS, 502, 5981. *Probing the physical properties of the intergalactic medium using gamma-ray bursts*.
13. Berg, T.A.M., **Fumagalli, M.**, D’Odorico, V. et al. 2021, MNRAS, 502, 4009. *Sub-damped Lyman alpha systems in the XQ-100 survey II – Chemical evolution at  $2.4 < z < 4.3$* .
14. Joshi, R., **Fumagalli, M.**, Srianand, R. et al. 2021, ApJ, 908, 129. *Discovery of a damped Ly $\alpha$  galaxy at  $z \sim 3$  towards the quasar SDSS J011852+040644*.
15. Welsh, L., Cooke, R., **Fumagalli, M.** 2021, MNRAS, 500, 5214. *The stochastic enrichment of Population II stars*.
16. Dutta, R., **Fumagalli, M.**, Fossati, M. et al. 2020, MNRAS, 499, 5022. *MUSE Analysis of Gas around Galaxies (MAGG) - II: Metal-enriched halo gas around  $z \sim 1$  galaxies*.

17. Decataldo, D., Lupi, A., Ferrara, A., Pallottini, A. **Fumagalli, M.** 2020, MNRAS, 497, 4718. *Shaping the structure of a GMC with radiation and winds.*
18. **Fumagalli, M.**, Fotopoulou, S., Thomson, L. 2020, MNRAS, 498, 1951. *Detecting neutral hydrogen at  $z > 3$  in large spectroscopic surveys of quasars.*
19. Stott, J.P. et al. 2020, MNRAS, 497, 3083. *Quasar Sightline and Galaxy Evolution (QSAGE) survey – II. Galaxy overdensities around UV luminous quasars at  $z = 1 - 2$ .*
20. Bielby, R., **Fumagalli, M.**, Fossati, M. et al. 2020, MNRAS, 493, 5336. *Into the Ly $\alpha$  jungle: exploring the circumgalactic medium of galaxies at  $z \sim 4 - 5$  with MUSE.*
21. Cooke, R., Welsh, L., **Fumagalli, M.**, Pettini, M. 2020, MNRAS, 494, 4884. *A limit on Planck-scale froth with ESPRESSO.*
22. Welsh, L., Cooke, R., **Fumagalli, M.**, Pettini, M. 2020, MNRAS, 494, 1411. *A bound on the  $^{12}\text{C}/^{13}\text{C}$  ratio in near-pristine gas with ESPRESSO.*
23. Della Bruna, L., Adamo, A., Bik A., **Fumagalli M.** et al. 2020, A&A, 635, 134. *Studying the ISM at 10 pc scale in NGC 7793 with MUSE – I. Data description and properties of the ionised gas.*
23. Buie, E., **Fumagalli, M.**, Scannapieco, E. 2020, 890, 33. *Interpreting Observations of Absorption Lines in the Circumgalactic Medium with a Turbulent Medium.*
24. Lofthouse, E.K., **Fumagalli, M.**, Fossati, M. et al. 2020, MNRAS, 491, 2057. *MUSE Analysis of Gas around Galaxies (MAGG) – I: Survey design and the environment of a near pristine gas cloud at  $z \sim 3.5$ .*
25. Sykes, C., **Fumagalli, M.**, Cooke, R., Theuns, T. 2020, MNRAS, 492, 2151. *Determining the primordial helium abundance and UV background using fluorescent emission in star-free dark matter haloes.*
26. Fossati, M., **Fumagalli, M.**, Lofthouse, E.K. et al. 2019, MNRAS, 490, 1451. *The MUSE Ultra Deep Field (MUDF). II. Survey design and the gaseous properties of galaxy groups at  $0.5 < z < 1.5$ .*
27. Umehata, H., **Fumagalli, M.**, Smail, I. et al. 2019, Science, 366, 97. *Gas filaments of the cosmic web located around active galaxies in a proto-cluster.*
28. Becker, G.D. et al. 2019, ApJ, 883, 163. *The Evolution of OI over  $3.2 < z < 6.5$ : Reionization of the Circumgalactic Medium.*
29. Jachym, P. et al. 2019, ApJ, 883, 145. *ALMA unveils widespread molecular gas clumps in the ram pressure stripped tail of the Norma jellyfish galaxy.*
30. **Fumagalli, M.** 2019, Nature Astronomy, 3, 796. *Thirsty galaxies thriving on gas streams.*
31. Sykes, C., **Fumagalli, M.**, Cooke, R., Theuns, T., Benitez-Llambay, A. 2019, MNRAS, 487, 609. *Fluorescent rings in star-free dark matter haloes.*
32. 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  $z \sim 3$ .*
33. 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.*
34. 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.*



35. 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.*
36. Furniss, A., Worseck, G., **Fumagalli, M.** et al. 2019, AJ, 157, 41. *Spectroscopic Redshift of the Gamma-Ray Blazar B2 1215+30 from Ly $\alpha$  Emission.*
37. Cook, D.O. et al. 2019, MNRAS, 484, 4897. *Star Cluster Catalogs for the LEGUS Dwarf Galaxies.*
38. 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.*
39. Grasha, K. et al. 2019, 483, 4707. *The Spatial Relation between Young Star Clusters and Molecular Clouds in M 51 with LEGUS.*
40. P. Frédéric Robert et al. 2019, MNRAS, 483, 2736. *Exploring the origins of a new, apparently metal-free gas cloud at  $z = 4.4$ .*
41. Jauzac, M. et al. 2019, MNRAS, 483, 3082. *The core of the massive cluster merger MACS J0417.5-1154 as seen by VLT/MUSE.*
42. Arrigoni Battaia, F., Chen, C.-C., **Fumagalli, M.** et al. 2018, A&A, 620, 202. *Over-density of submillimeter galaxies around the  $z=2.3$  MAMMOTH-1 nebula.*
43. 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.*
44. 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.*
45. 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.*
46. Cooke, R. & **Fumagalli, M.** 2018, Nature Astronomy, 2, 957. *Measurement of the primordial helium abundance from the intergalactic medium.*
47. Krogager, J.-K. et al. 2018, A&A, 619, 142. *Dissecting cold gas in a high-redshift galaxy using a lensed background quasar.*
48. Grasha, K. et al. 2018, MNRAS, 481, 1016. *Connecting Young Star Clusters to CO Molecular Gas in NGC 7793 with ALMA-LEGUS.*
49. Ashworth, G., **Fumagalli, M.**, Adamo, A., Krumholz, M.R. 2018, MNRAS, 480, 3091A. *Theoretical predictions for IMF diagnostics in UV spectroscopy of star clusters.*
50. 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.*
51. 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.*
52. Chehade, B. et al. 2018, MNRAS, 478, 1649. *Two more, bright,  $z > 6$  quasars from VST ATLAS and WISE .*
53. Boselli, A. et al. 2018, A&A, 614, 56. *A Virgo Environmental Survey Tracing Ionised Gas Emission (VESTIGE).I. Introduction to the Survey.*
54. 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.*

55. 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.*
56. Findlay, J.R. et al. 2018, ApJS, 236, 44. *Quasars probing quasars X: The quasar pair spectral database.*
57. Messa, M. et al. 2018, MNRAS, 477, 1683. *The Young Star Cluster population of M51 with LEGUS: II. Testing environmental dependencies.*
58. Kahre, L. et al. 2018, ApJ, 855, 133. *Extinction Maps and Dust-to-Gas Ratios in Nearby Galaxies.*
59. 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.*
60. Hunter, D. et al. 2018, ApJ, 855, 7. *A study of two dwarf irregular galaxies with asymmetrical star formation distributions.*
61. Sabbi, E. et al. 2018, ApJS, 235, 23. *The resolved stellar populations in the LEGUS galaxies.*
62. 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.*
63. 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.*
64. **Fumagalli, M.**, Mackenzie, R., Trayford, J. et al. 2017, MNRAS, 471, 3686. *Witnessing galaxy assembly in an extended  $z \approx 3$  structure.*
65. Grasha, K. et al. 2017, ApJ, 842, 25. *Hierarchical Star Formation in Turbulent Media: Evidence from Young Star Clusters.*
66. 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.*
67. Ryon, J.E. et al. 2017, ApJ, 841, 92. *Effective Radii of Young, Massive Star Clusters in Two LEGUS Galaxies.*
68. 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.*
69. Grasha, K. et al. 2017, ApJ, 840, 113. *The Hierarchical Distribution of the Young Stellar Clusters in Six Local Star Forming Galaxies.*
70. 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.*
71. 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  $z = 0.3 - 1.7$ .*
72. **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.*
73. Prochaska et al. 2017, ApJ, 837, 169. *The COS-Halos Survey: Metallicities in the Low-Redshift Circumgalactic Medium.*

74. 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.*
75. Toy, V.L. et al. 2016, ApJ, 832, 175. *Exploring Damped Lyman- $\alpha$  System Host Galaxies using Gamma-ray Bursts.*
76. **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.*
77. 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  $z \sim 3$ .*
78. 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.*
79. 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  $z < 1$ .*
80. Archambault, S. et al. 2016, AJ, 151, 142. *Upper limits from five years of blazar observations with the VERITAS Cherenkov telescopes.*
81. Boselli, A. et al. 2016, A&A, 587, 68. *Spectacular tails of ionised gas in the Virgo cluster galaxy NGC 4569*
82. Grasha, K. et al. 2015, ApJ, 815, 93. *The Spatial Distribution of the Young Stellar Clusters in the Star Forming Galaxy NGC 628.*
83. **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.*
84. 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.*
85. Farina, E., **Fumagalli, M.**, Decarli, R. et al. 2016, MNRAS, 455, 618. *The Cluster-Scale Environment of PKS 2155-304.*
86. 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.*
87. Calzetti, D. et al. 2015, ApJ, 811, 75. *The Brightest Young Star Clusters in NGC 5253.*
88. Prochaska, J.X. et al. 2015, ApJS, 221, 2. *The Keck+Magellan Survey for Lyman Limit Absorption III: Sample Definition and Column Density Measurements.*
89. Crighton, N. et al. 2015, MNRAS, 452, 217. *The Neutral Hydrogen Cosmological Mass Density at  $z = 5$ .*
90. 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.*
91. Gavazzi, G. et al. 2015, A&A, 580, 116. *Halpa3: an Halpa imaging survey of HI selected galaxies from ALFALFA . VI. The role of bars in quenching star formation from  $z = 3$  to the present epoch.*

92. 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.*
93. 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.*
94. Gavazzi, G. et al. 2015, A&A, 576, 16. *Halpa3: an Halpa imaging survey of HI selected galaxies from ALFALFA . V. The Coma supercluster survey completion.*
95. Calzetti, D. et al. 2015, AJ, 149, 51. *Legacy ExtraGalactic UV Survey (LEGUS) with The Hubble Space Telescope. I. Survey Description.*
96. **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  $z \sim 2.7$ .*
97. 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.*
98. **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.*
99. Aliu, E. et al. 2014, ApJ, 797, 89. *Investigating Broadband Variability of the TeV Blazar 1ES 1959+650.*
100. 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*
101. 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.*
102. 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.*
103. **Fumagalli, M.**, O'Meara, J.M., Prochaska, J.X., Kanekar, N., Wolfe, A. 2014, MNRAS, 444, 1282. *Directly imaging damped Ly $\alpha$  galaxies at  $z > 2$ . II: Imaging and spectroscopic observations of 32 quasar fields.*
104. Lusso, E. et al. 2014, MNRAS, 441, 316. *The nature of massive black hole binary candidates: II. Spectral energy distribution atlas.*
105. 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.*
106. da Silva, R.L., Krumholz, M., **Fumagalli, M.**, Fall, M. 2014, MNRAS, 438, 2355. *An Analytic Method to Compute Star Cluster Luminosity Statistics.*
107. Wright, E. et al., 2014, AJ, 147, 61. *The First AllWISE Proper Motion Discovery: WISEA J070720.50+170532.7.*
108. 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  $z \sim 5$ .*
109. 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  $z \sim 2.5$ .*
110. **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  $z = 2 - 3$ .*

111. VERITAS collaboration et al., 2013, ApJ, 779, 92. *Long term observations of B2 1215+30 with VERITAS.*
112. **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.*
113. 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.*
114. Furniss, A., **Fumagalli, M.**, Falcone, A., Williams, D. A. 2013, ApJ, 770, 109. *The Blazar Emission Environment: Insight from Soft X-ray Absorption.*
115. Furniss, A. et al. 2013, ApJ, 768, L31. *The Firm Redshift Lower Limit of the Most Distant TeV-Detected Blazar PKS 1424+240.*
116. Fossati, M. et al. 2013, A&A, 553, 91. *Halpa3: an Halpa imaging survey of HI selected galaxies from ALFALFA. IV. The structure of galaxies in the Local and Coma Superclusters.*
117. Gavazzi, G. et al. 2013, A&A, 553, 90. *Halpa3: an Halpa imaging survey of HI selected galaxies from ALFALFA. III. Nurture shapes up the Hubble sequence in the Great Wall.*
118. Gavazzi, G., **Fumagalli, M.**, Fossati, M. et al. 2013, A&A, 553, 89. *Halpa3: an Halpa imaging survey of HI selected galaxies from ALFALFA. II. The star formation properties of galaxies in the Virgo cluster and surroundings.*
119. Furniss, A., **Fumagalli, M.**, Danforth, C., Williams, D., & Prochaska, X. 2013, ApJ, 766, 35. *On the Redshift of the Very High Energy Blazar 3C66A.*
120. Farina, E., Montuori, C., Decarli, R., **Fumagalli, M.** 2013, MNRAS, 431, 1019. *Caught in the Act: Discovery of a Physical Quasar Triplet.*
121. Aliu, E. et. al 2012, ApJ, 759, 102. *VERITAS Observations of Six Bright, Hard-Spectrum Fermi-LAT Blazars.*
122. **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.*
123. 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.*
124. Gavazzi, G., **Fumagalli, M.**, Galardo, V., et al. 2012, A&A, 545, 16. *H $\alpha$ <sup>3</sup>: H $\alpha$  imaging survey of HI selected galaxies from ALFALFA. I. Catalogue in the local supercluster.*
125. **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.*
126. 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.*
127. da Silva, R.L., **Fumagalli, M.**, & Krumholz, M. 2012, ApJ, 745, 145. *SLUG - Stochastically Lighting Up Galaxies I: Methods and Validating Tests.*
128. **Fumagalli, M.**, O'Meara, J.M., & Prochaska, J.X. 2011, Science, 334, 1245. *Detection of pristine gas two billion years after the Big Bang.*
129. Barth, A. et al. 2011, ApJ, 743, L4. *The Lick AGN monitoring project 2011: reverberation mapping of Markarian 50.*

130. **Fumagalli, M.**, da Silva, R.L., & Krumholz, M. 2011, ApJ, 741, L26. *Stochastic star formation and a (nearly) uniform stellar initial mass function.*
131. Aliu, E. et al. 2011, ApJ, 742, 127. *Multiwavelength Observations of the Previously Unidentified Blazar RX J0648.7+1516.*
132. Cucchiara, A. et al. 2011, ApJ, 743, 154. *Constraining GRB Emission Physics with Extensive Early-Time, Multiband Follow-up.*
133. **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.*
134. Barth, A. et al. 2011, ApJ, 732, 121. *Broad-line Reverberation in the Kepler-field Seyfert Galaxy Zw 229-015.*
135. Abdo, A.A. et al. 2011, ApJ, 726, 43. *Multi-wavelength Observations of the Flaring Gamma-ray Blazar 3C 66A in 2008 October.*
136. **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.*
137. **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?*
138. **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.*
139. **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.*
140. 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.*