

ANDREI MESINGER

Associate Professor

Scuola Normale Superiore

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RESEARCH INTERESTS

- **First Light:** The dawn of the first astrophysical structures: What were they? In what numbers? When? How did they interact with their surroundings through feedback processes (radiative, chemical, mechanical)? How can we observe this epoch? How can we learn about cosmology and astrophysics from the redshifted 21cm line?
- **Reionization:** How can the reionization history be probed? How did it proceed? What was responsible? What can we learn about the underlying structures?
- **High-Redshift Sources:** What were the properties and abundances of quasars and galaxies?
- **The Nature of Dark Matter:** What is its mass? Is Dark Matter “Warm”? How can we constrain the properties of Dark Matter using high-redshift observations?
- **Modeling Techniques and Data Mining:** How do we best exploit upcoming large data sets? How do we develop efficient modeling tools and appropriately match these to a given scientific inquiry?

EDUCATION

Ph. D. in Astronomy, Columbia University, <i>With Distinction</i>	2006
M. Phil. in Astronomy, Columbia University	2005
M. A. in Astronomy, Columbia University	2005
B.S. in Astronomy, Univ. of Maryland at College Park, <i>Cum Laude</i>	2002
B.S. in Computer Engineering, Univ. of Maryland at College Park, <i>Magna Cum Laude</i>	2002

DOCTORAL THESIS

Probing Reionization and Early Structure Formation	<i>Advisor:</i> Zoltan Haiman	2006
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HONORS

European Research Council (ERC) Consolidator Grant finalist (stage 2: grade A)	2019
National Science Habilitation (ASN), rank: full professor	2016
ERC Starting Grant Award (StG)	2015 – 2021
ASN, rank: associate professor	2014
Hubble Prize Fellowship	2008 – 2011
Doctoral Thesis Distinction	2006
NASA Graduate Student Research Program (GSRP) Fellowship	2005 – 2006
Dean's List, UMCP	1997 – 2002
Banneker/Key Scholarship, UMCP	1997 – 2001
Maryland Distinguished Scholar	1997 – 2001
National Merit Finalist Award	1997 – 2001

RESEARCH

ASSOCIATE PROFESSOR, Scuola Normale Superiore (SNS), Pisa	2020 –
SENIOR RESEARCH PROFESSOR (RTD-B; chiamata diretta ERC StG), SNS, Pisa	2017 – 2020
JUNIOR RESEARCH PROFESSOR (JRP), SNS, Pisa	2011 – 2017
HUBBLE FELLOW, Department of Astrophysical Sciences, Princeton Univ.	2008 – 2011
POSTDOCTORAL FELLOW, Physics Department, Yale Univ. and UCLA	2006 – 2008
GRADUATE RESEARCH FELLOW, Astronomy Department, Columbia Univ.	2002 – 2006
RESEARCH ASSISTANT, Small Bodies Node, Astronomy Department, UMCP	2001 – 2002

TEACHING

PROFESSOR, “ <i>Structure Formation in the Early Universe</i> ”, Scuola Normale Superiore di Pisa - Teaching a graduate level course on the first galaxies and IGM structures	2011 -
PROFESSOR, “ <i>Frontiers of Cosmology</i> ”, Scuola Normale Superiore di Pisa - Co-organizing and teaching a PhD seminar course on the latest advances in cosmology	2015 -
INVITED LECTURER, “ <i>International School on Physics of the Universe – Multi-Messenger Astrophysics</i> ”, Astronomical Observatory in Asiago	2020
- Taught a series of invited lectures on 21-cm cosmology for a winter school for graduate students	
INVITED LECTURER, “ <i>Cosmological Applications from First Stars, Reionization and 21-cm Observations</i> ”, Univ. of Barcelona	2018
- Taught a series of invited lectures on reionization and the IGM for a summer school for graduate students	
STUDENT RESEARCH ADVISOR, Princeton Univ, SNS	2008 – 2011
- Designed and supervised projects for graduate and undergraduate students (see below)	
TEACHING FELLOW, Astronomy Department, Columbia Univ.	2003 – 2005
- Independently taught and graded undergraduate students in astronomy courses	
TEACHING ASSISTANT, Astronomy Department, Columbia Univ.	2004
- Designed and graded problem sets for a graduate course in cosmology	
PUBLIC OBSERVING VOLUNTEER, Rutherford Observatory, Columbia Univ.	2005
- Designed and led public observing events	

INSTITUTIONAL SERVICE

Steering committee member for High-Performance Computing (HPC) center, SNS	2020 -
Commission member for the “European Universities (Erasmus+)” working group, SNS	2020
Physics commission member for the SNS undergraduate and Masters admissions exams	2019
Commission member for the “Department of Excellence” GPU cluster specifications design, SNS	2019
Technical commission member for the “Department of Excellence” PB storage, SNS	2019
Physics commission member for the SNS undergraduate and Masters admissions exams	2018
Thesis defense commission member	2013 –
Postdoctoral fellowship award commission member	2013 - 2020
Founder and organizer of the <i>Cosmology Journal Club</i>	2011 –
Founder and organizer of the <i>Reionization arXiv discussion group</i>	2017 –
Founder and organizer of the <i>Machine Learning arXiv discussion group</i>	2019 –
Student supervisor	
Ivan Nikolic, <i>PhD</i> , SNS	2020 –
David Prelogovic, <i>PhD</i> , SNS	2019 –
Harman Kaur, <i>PhD</i> , SNS	2017 –
Aaron Ewall-Wice, <i>PhD</i> , MIT (co-supervisor with Prof. J. Hewitt)	2011 – 2017
Emanuele Sobacchi, <i>PhD</i> , SNS 60/60+	2012 – 2015
Fabio Pacucci, <i>PhD</i> , SNS 60/60+ (co-supervisor with Prof. A. Ferrara)	2012 – 2015
Joshua Schroeder, <i>PhD</i> , Columbia Univ. (co-supervisor with Prof. Z. Haiman)	2007 – 2014
Emanuele Sobacchi, <i>Masters (Laurea magistrale)</i> , SNS	2011 – 2012
Keri Dixon, <i>PhD</i> , UCLA (co-supervisor with Prof. S. Furlanetto)	2009 – 2012
Daniela Crociani, <i>PhD</i> , Bologna Univ. (co-supervisor with Prof. L. Moscardini)	2008 – 2012
Postdoctoral supervisor, SNS	
Dr. Bella Nasirudin	2020 –
Dr. Yuxiang Qin	2018 – 2021
Dr. Caroline Heneka	2018 – 2019
Dr. Nicolas Gillet	2016 – 2019
Dr. Jaehong Park	2016 – 2020
Dr. Bradley Greig	2013 – 2017

OTHER PROFESSIONAL ACTIVITIES

EXECUTIVE BOARD MEMBER

- Hydrogen Epoch of Reionization Array (HERA)* 2015 –
Square Kilometre Array (SKA) Epoch of Reionization and Cosmic Dawn Science Team 2015 –

WORKING GROUP CHAIR

- SKA Reionization and Cosmic Dawn Science Working Group* 2019 –

WORKING GROUP MEMBER

- Advanced Telescope for High Energy Astrophysics (ATHENA) SWG3 - Observatory* 2016 –
SKA Reionization and Cosmic Dawn SWG 2013 –

GRANT PANELIST

- Fundacao para a Ciencia e a Tecnologia (FCT), Individual Support Grants, *Physics Panel* 2020
FCT, Individual Support Grants, *Physics Panel* 2019
FCT, Individual Support Grants, *Physics Panel* 2018
National Science Foundation (NSF), *Cosmology Simulations Panel* 2013
FCT, Exact Sciences and Engineering Grants, *Physics Panel* 2012
NSF, *Cosmology Panel* 2011

EXPERT REVIEWER for funding schemes

2008 –

- Australian Research Council, l'Agence Nationale de la Recherche, NSF, Partnership for Advanced Computing in Europe, Croatian Science Foundation, Netherlands Organization for Scientific Research, Swiss National Science Foundation, MIUR, ERC

EDITORIAL BOARD MEMBER, *Journal of Astrophysics*, Hindawi Pub. Corp.

2013 – 2017

MEMBER of *Lunar University Network for Astrophysics Research (LUNAR)*

2009 – 2013

JOURNAL REFEREE, ApJ, Univ. of Chicago Press; MNRAS, Blackwell Pub.; JCAP, SISSA, IOP

2004 –

DESIGNER and CREATOR of DexM and 21cmFAST (<http://homepage.sns.it/mesinger/Sim>)

2007 –

- public, semi-numerical codes simulating the early Universe; used by researchers in over 25 countries

SCIENTIFIC ORGANISING COMMITTEES

- Role: *Member*; Title: *The Precursor View of the SKA Sky (remote conference)* 2021
Role: *Chair*; Title: *Next-Gen. Cosmology with Next-Gen. Radio Telescopes II (Sexten CfA)* 2020
Role: *Chair*; Title: *International 21cmFAST development workshop (Pisa)* 2019
Role: *Chair*; Title: *Next-Gen. Cosmology with Next-Gen. Radio Telescopes (Sexten CfA)* 2018
Role: *Chair*; Title: *The SKA Epoch of Reionization Working Group meeting (Pisa)* 2017
Role: *Chair*; Title: *The Dawn of Galaxies (Obergl Research Conference Series)* 2017
Role: *Co-Chair*; Title: *HI 21cm Cosmology (Kavli Workshop)* 2016
Role: *Co-Chair*; Title: *Physics of Reionization and the Cosmic Dawn in the SKA Era (Sexten CfA)* 2016
Role: *Member*; Title: *Cosmological Structures from Reionization to Galaxies (ICTP, Trieste)* 2015
Role: *Member*; Title: *European Week of Astronomy and Space Sciences (Rome)* 2012

INVITED TALKS, REVIEWS, LECTURES

“Modeling the 21-cm signal from the Cosmic Dawn”, invited review, *Fundamental Physics at 21-cm*, Trieste IFPU, Italy (delayed due to COVID; new date TBD)

“Reionization theory and 21-cm cosmology”, invited lecture series, *International School on Physics of the Universe – Multi-Messenger Astrophysics*, Asiago, Italy (2020)

“Cosmic Reionization of Hydrogen”, invited review, *Barefoot EoR: The first billion years of the Universe*, Queensland, Australia (2019)

“Learning about the first galaxies from the cosmic 21-cm signal”, invited talk, *Lines in the Large Scale Structure*, Marseille, France (2019)

“The Epoch of Reionization: ongoing activities towards the SKA”, invited talk, *The Second National Workshop of SKA Science and Technology*, Bologna, Italy (2018)

“Modeling Reionization Observables”, invited review, *IGM2018: Revealing Cosmology and Reionization History with the Intergalactic Medium*, IPMU Kashiwa, Japan (2018)

“Reionization theory and simulations / IGM recombinations / 21-cm cosmology”, invited lecture series, *Cosmological Applications from First Stars, Reionization and 21-cm Observations*, Barcelona, Spain (2018)

“The Cosmic Dawn and Epoch of Reionization: Theory and Simulations”, invited review, *Peering towards Cosmic Dawn, IAU Symposium 333*, Dubrovnik, Croatia (2017)

“Illuminating the Cosmic Dawn”, invited talk, *13th Conference of the Hellenic Astronomical Society*, Heraklion, Greece (2017)

“SKA Epoch of Reionization and Cosmic Dawn Key Science Project Summary”, invited review, *Science for the SKA Generation*, Goa, India (2016)

“EoR/CD parameter estimation from the cosmic 21-cm signal”, invited talk, *HI 21cm Cosmology*, Cambridge, UK (2016)

“Cosmic Dawn and Reionization from Next Generation Interferometers”, invited talk, *Cosmology with Next Generation Radio Surveys*, ICTP, Trieste, Italy (2016)

“Studying the first X-ray sources in our Universe with the redshifted 21-cm line”, invited talk, *Feedback from accreting binaries in cosmological scales*, AAS HEAD meeting, Naples, USA (2016)

“Lyman alpha emitting galaxies as a probe of reionization”, invited talk, *Cosmology and First Light*, IAP, Paris, France (2015)

“State of the art in 21-cm theory and simulations”, invited review, *Preparing for the 21-cm revolution*, UCI, Irvine, USA (2015)

“Semi-numerical models of Reionization and the Cosmic Dawn”, invited review, *Cosmological Structures from Reionization to Galaxies*, ICTP, Trieste, Italy (2015)

“Modeling Reionization and the Cosmic Dawn”, invited talk, *Cosmology from Baryons at High-Redshift*, ICTP, Trieste, Italy (2014)

“Constraining Cosmic Dawn and Reionization Physics with HI Data”, invited talk, *Advancing Astrophysics with the Square Kilometre Array*, Giardini Naxos, Italy (2014)

“The imprint of Warm Dark Matter on the cosmological 21cm line”, invited lecturer, *Chalonge Meudon Workshop*, Paris at Meudon, France (2014)

“The imprint of inhomogeneous reionization on the Lyman alpha line”, invited talk, *Lyman Alpha as an Astrophysical Tool*, Stockholm, Sweden (2013)

“The Dark Ages and Reionization”, invited lecturer, *Petnica School of Cosmology*, Petnica, Serbia (2013)

“What can the kinetic Sunyaev-Zel’dovich signal tell us about reionization”, invited talk, *Reionization in the Red Center*, Uluru, Australia (2013)

“Reionization: a theoretical perspective”, invited review talk, *Cosmic Reionization: Updating Physical Scenarios*, Rome, Italy (2012)

“Enabling parameter space exploration of the 21cm signal: next generation tools for the early Universe”, invited talk, *First National Meeting on Science and Technology with SKA*, Rome, Italy (2012)

“Illuminating the early Universe with the 21cm line”, invited review, *LUNAR lecture series*, http://lunar.colorado.edu/webinar/mesinger_details.php (2010)

PEER-REVIEWED GRANTS/FELLOWSHIPS

PRACE Tier-0, “Artificial intelligence for 21cm cosmology (AIfor21CM)” role: PI; amount: 20.000.000 core hours	2019 – 2020
Chandra TAC, “A local characterization of the $z \sim 10$ X-ray field and its effects on the IGM” role: co-PI; PI: Prof. Bret Lehmer; amount: 509ks, Chandra cycle 21	2020 – 2021
ESO, “XQR-30: the ultimate XSHOOTER legacy survey of quasars at $z \simeq 5.8 - 6.6$ ” role: co-I; PI: Dr. Valentina D’Odorico; amount: 248h, XSHOOTER	2019 – 2020
NVIDIA GPU Grant Program, “AI for 21CM” role: PI; amount: Titan V GPU	2018
NSF, “HERA: Unveiling the Cosmic Dawn” role: co-I; PI: Prof. Aaron Parsons; amount: US\$ 7.173.107	2018 – 2023
PRACE Tier-0, “Galaxy Formation For the Epoch of Reionization (GAFFER)” role: PI; amount: 30.000.000 core hours	2017 – 2018

NASA, “ <i>The ionizing photon budget and the decline of Lyman-α emission in $z>6$ dropouts</i> ” role: co-I; PI: Dr. Anson D’Aloisio; amount: US\$ 159.915	2017 – 2018
ESO, “ <i>Piercing through the reionization era with high-quality spectra of 4 quasars at $z\sim 6.5$</i> ” role: co-I; PI: Dr. Valentina D’Odorico; amount: 35h, XSHOOTER	2017 – 2018
NSF, “ <i>Illuminating our Early Universe with HERA, the Hydrogen Epoch of Reionization Array</i> ” role: co-I; PI: Prof. Aaron Parsons; amount: US\$ 9.900.000	2016 – 2020
ERC StG, “ <i>An Illumination of the Dark Ages: modeling reionization & interpreting observations</i> ” role: PI; amount: 1.468.750 euros	2015 – 2021
MIUR-SNS-fondi di Ateneo, “ <i>Next Generation Simulations of Reionization and the Cosmic Dawn</i> ” role: PI; amount: 70.000 euros	2014 – 2016
NSF, “ <i>Hydrogen Epoch of Reionization Arrays (HERA): Illuminating our Early Universe</i> ” role: collaborator; PI: Prof. Aaron Parsons; amount: US\$ 2.144.113	2014 – 2016
NSF, “ <i>Modeling the Reionization of the Intergalactic Medium</i> ” role: collaborator; PI: Prof. Scott Anderson; amount: US\$ 374.140	2013 – 2016
MWA TAC “ <i>Constraining Xray and Dark Matter Heating Before the Epoch of Reionization</i> ” role: co-PI ; amount: 16.2 hours	2013 – 2014
MIUR-SNS-fondi di Ateneo, “ <i>Interpreting the Cosmological 21cm Signal</i> ” role: PI; amount: 24.000 euros	2013 – 2014
CINECA, “ <i>Statistics of High-Redshift Lyman Alpha Emitters</i> ” (LAE-STAT) role: PI ; amount: 400.000 CPU hours	2012 – 2013
NASA, “ <i>The convergence of Lyα forest simulations and the response of cosmic gas to reionization</i> ” role: co-I ; PI: Dr. Matthew McQuinn; amount: 400.000 CPU hours	2012 – 2013
MIUR-SNS-fondi di Ateneo, “ <i>Illuminating Reionization with Quasars</i> ” role: PI; amount: 34.000 euros	2012 – 2013
ERC REGPOT, “ <i>BELISSIMA</i> ” role: collaborator; PI: Dr. Srdjan Samurovic; amount: 1.298.427 euros	2010 – 2013
NASA Lunar Science Institute, “ <i>LUNAR: Exploring the Cosmos From the Moon</i> ” role: collaborator; PI: Dr. Jack Burns; amount: ~US\$ 6.500.000	2009 – 2013
NASA Hubble Fellowship, “ <i>Simulating Reionization</i> ” role: PI; amount: US\$ 363.831	2008 – 2011
NASA GSRP Fellowship, “ <i>Probing Reionization History</i> ” role: PI; advisors: Prof. Z. Haiman & Dr. J. Mather; amount: ~US\$ 60.000/yr (renewable for 3yrs)	2005 – 2006

BOOKS

“*Understanding the Epoch of Cosmic Reionization: Challenges and Progress*”,
Astrophysics and Space Science Library, Springer Publishing, (2016) ISBN 978-3-319-21957-8

“*The Cosmic 21-cm Revolution: charting the first billion years of our Universe*”,
Institute of Physics (IOP) publishing (2019) ISBN 9780750322348

“*The Growth of Cosmic Structures During the First Billion Years*”,
in-prep., expected 2021-2022

PEER-REVIEWED PUBLICATION SUMMARY (last updated April. 2021)

>**120** peer-reviewed publications (**20** first author; **41** second author; **3** submitted) since **2004**
>**6500** citations; >**1800** citations normalized by author number; (*source*: NASA ADS Database)
h-factor of **48**; *i10* index of **101**; *i100* index (>100 citations) of **17** (*source*: NASA ADS Database)
See full publication list on the NASA ADS Database from <http://homepage.sns.it/mesinger/Publications.html>

122. A. Rudakovskiy, **A. Mesinger**, D. Savchenko, N. Gillet, “Constraints on warm dark matter from UV luminosity functions of high- z galaxies with Bayesian model comparison”, *MNRAS submitted*, (2021)
121. J. Tan **et al.**, “Methods of error estimation for delay power spectra for 21cm cosmology”, *MNRAS submitted*, arXiv:2103.09941, (2021)
120. C. Watkinson, B. Greig, **A. Mesinger**, “Epoch of reionization parameter estimation with the 21-cm bispectrum”, *MNRAS submitted*, arXiv:2102.02310, (2021)
119. Y. Qin, **A. Mesinger**, S. Bosman, M. Viel, “Reionization and galaxy inference from the high-redshift Ly alpha forest”, *MNRAS submitted*, arXiv:2101.09033, (2021)
118. N. Fagnoni **et al.**, “Understanding the HERA Phase I receiver system with simulations and its impact on the detectability of the EoR delay power spectrum”, *MNRAS*, 550, pp. 1232 -1242 (2021)
117. Y. Qin, **A. Mesinger**, B. Greig, & P. Jaehong, “A tale of two sites -- II: Inferring the properties of minihalo-hosted galaxies with upcoming 21-cm interferometers”, *MNRAS*, 501, pp. 4748-4758 (2021)
116. Y. Qin, V. Poulin, **A. Mesinger**, B. Greig, S. Murray, & P. Jaehong, “Reionization inference from the CMB optical depth and E-mode polarization power spectra”, *MNRAS*, 499, pp. 550-558 (2020)
115. S. Murray, B. Greig, **A. Mesinger**, J. Munos, Y. Qin, J. Park, C. Watkinson, “21cmFAST v3: A Python-integrated C code for generating 3D realizations of the cosmic 21cm signal”, *JOSS*, 54 (2020)
114. N. Thyagarajan, **et al.**, “Measuring HERA’s Primary Beam in Situ: Methodology and First Results”, *ApJ*, 897, 1, 5, (2020)
113. C. D. Nunhokee, **et al.**, “Detection of cosmic structures using the bispectrum phase. II. First results from application to cosmic reionization using the Hydrogen Epoch of Reionization Array”, *PhRvD*, 102, 2, (2020)
112. B. Greig, **A. Mesinger**, et al., “Interpreting LOFAR 21-cm signal upper limits at $z \approx 9.1$ in the context of high- z galaxy and reionisation observations”, *MNRAS*, 501, pp. 1-13 (2020)
111. C. Heneka & **A. Mesinger**, “The spin-temperature dependence of the 21cm – LAE cross-correlation”, *MNRAS*, 496, pp. 581-589 (2020)
110. H. D. Kaur, N. Gillet, & **A. Mesinger**, “Minimum size of cosmological 21-cm simulations”, *MNRAS*, 495, pp. 2354-2362 (2020)
109. Y. Qin, **A. Mesinger**, J. Park, B. Greig, J.B. Munoz, “A tale of two sites -- I: Inferring the properties of minihalo-hosted galaxies from current observations”, *MNRAS*, 495, pp. 123 – 140 (2020)
108. C. Carilli **et al.**, “Imaging and Modeling Data from the Hydrogen Epoch of Reionization Array”, *ApJS*, 247 (2020)
107. A. Ghosh **et al.**, “Foreground modelling via Gaussian process regression: an application to HERA data”, *MNRAS*, 495, pp. 2813-2826 (2020)
106. E. Zackrisson **et al.**, “Bubble mapping with the Square Kilometre Array - I. Detecting galaxies with Euclid, JWST, WFIRST, and ELT within ionized bubbles in the intergalactic medium at $z > 6$ ”, *MNRAS*, 493, pp. 855-870 (2020)
105. J. Dillon **et al.**, “Redundant-Baseline Calibration of the Hydrogen Epoch of Reionization Array”, *MNRAS*, 499, pp. 5840-5861 (2020)

104. A. D’Aloisio, M. McQuinn, H. Trac, C. Cain, & **A. Mesinger**, “Hydrodynamic Response of the Intergalactic Medium to Reionization”, *ApJ*, 898, p 149 (2020)
103. L. Whitler, C. Mason, K. Ren, M. Dijkstra, **A. Mesinger**, L. Pentericci, M. Trenti, T. Treu, “The Impact of Scatter in the Galaxy UV Luminosity to Halo Mass Relation on Ly α Visibility During the Epoch of Reionization”, *MNRAS*, 495, pp. 3602-3613 (2020)
102. J. Park, N. Gillet, **A. Mesinger**, & B. Greig, “Properties of reionization-era galaxies from JWST luminosity functions and 21-cm interferometry”, *MNRAS*, 491, pp. 3891-3899 (2020)
101. N. Fagnoni **et al**, “Electrical and electromagnetic co-simulations of the HERA Phase I receiver system including the effects of mutual coupling and impact on the EoR window”, *MNRAS submitted*, arXiv:1908.02383, (2019)
100. N. Kern **et al**, “Absolute Calibration Strategies for the Hydrogen Epoch of Reionization Array and Their Impact on the 21 cm Power Spectrum”, *ApJ*, 890, (2020)
99. N. Kern **et al**, “Mitigating Internal Instrument Coupling for 21 cm Cosmology. II. A Method Demonstration with the Hydrogen Epoch of Reionization Array”, *ApJ*, 888, (2020)
97. B. Greig, **A. Mesinger**, & L. Koopmans, “Reionisation & Cosmic Dawn Astrophysics from the Square Kilometre Array: Impact of Observing Strategies”, *MNRAS*, 491, pp. 1398-1407 (2020)
96. N. Gillet, **A. Mesinger**, & J. Park, “Combining high- z galaxy luminosity functions with Bayesian evidence”, *MNRAS*, 491, pp. 1980-1997 (2020)
95. J. Davies **et al**, “Dark-ages reionization and galaxy formation simulations – XVI The thermal memory of reionization”, *MNRAS*, 489, pp. 977 - 992 (2019)
94. J. Kerrigan **et al.**, “Optimizing sparse RFI prediction using deep learning”, *MNRAS*, 488, pp 2605-2615 (2019)
93. J. Park, **A. Mesinger**, B. Greig, & N. Gillet, “Inferring the astrophysics of reionization and cosmic dawn from galaxy luminosity functions and the 21-cm signal”, *MNRAS*, 484, pp 933-949 (2019)
92. Y. Qin **et al.**, “Dark-ages Reionization and Galaxy Formation Simulation –XV Stellar evolution and feedback in dwarf galaxies at high redshift”, *MNRAS*, 487, pp 1946-1963 (2019)
91. B. Greig, **A. Mesinger**, & E. Banados, “Constraints on reionisation from the $z=7.5$ QSO ULASJ1342+0928”, *MNRAS*, 484, pp 5094-5101 (2019)
90. N. Gillet, **A. Mesinger**, B. Greig, A. Liu, & G. Ucci, “Deep learning from 21-cm images of the Cosmic Dawn”, *MNRAS*, 484, pp. 282-293, (2019)
89. R. Monsalve **et al.**, “Results from the EDGES High-band II Constraints on Parameters of Early Galaxies”, *ApJ*, 863, 11 pp. (2018)
88. N. Patra **et al.**, “The hydrogen epoch of reionization array dish III: measuring chromaticity of prototype element with reflectometry”, *ExA*, 45, pp. 177-199 (2018)
87. S. Kohn **et al.**, “The HERA-19 Commissioning Array: Direction-dependent Effects”, *ApJ*, 882, 14pp. (2019)
86. Y. Qin **et al.**, “Dark-ages Reionization and Galaxy Formation Simulation - XIV. Gas accretion, cooling and star formation in dwarf galaxies at high redshift”, *MNRAS* 477, pp. 1318 – 1335 (2018)
85. B. Greig & **A. Mesinger**, “21CMMC with a 3D light-cone: the impact of the co-evolution approximation on the astrophysics of reionisation and cosmic dawn”, *MNRAS*, 477, pp. 3217 – 3229 (2018)

84. C. Mason, T. Treu, S. deBaros, M. Dijkstra, A. Fontana, **A. Mesinger** et al., “Beacons into the Cosmic Dark Ages: Boosted transmission of Ly α from UV bright galaxies at $z \sim 7$ ”, *MNRAS*, 857, 6 pp. (2018)
83. C. Mason, T. Treu, M. Dijkstra, **A. Mesinger**, et al., “The Universe is reionizing at $z \sim 7$: Bayesian inference of the IGM neutral fraction using Lyman alpha emission from galaxies”, *ApJ*, 856, 16 pp. (2018)
82. N. Kern, A. Liu, A. Parsons, **A. Mesinger**, & B. Greig, “Emulating Simulations of Cosmic Dawn for 21cm Power Spectrum Constraints on Cosmology, Reionization, and X-ray Heating”, *ApJ*, 848, pp. 23-42 (2017)
81. Y. Qin et al., “Dark-ages Reionization and Galaxy Formation Simulation - XIII. AGN quenching of high redshift star formation in ZF-COSMOS-20115”, *MNRAS*, 471, pp. 4345 - 4354 (2017)
80. B. Greig & **A. Mesinger**, “Simultaneously constraining the astrophysics of reionisation and the epoch of heating with 21CMMC”, *MNRAS*, 472, pp. 2651 - 2669 (2017)
79. P. Geil et al., “Dark ages reionization & galaxy formation simulation XII: Bubbles at dawn”, *MNRAS*, 472, pp. 1324 - 1335, (2017)
78. J. Park et al., “Dark-ages reionization and galaxy formation simulation XI: Clustering and halo masses of high redshift galaxies”, *MNRAS*, 472, pp. 1995 – 2008 (2017)
77. A. Das, **A. Mesinger**, A. Pallottini, A. Ferrara, J.H. Wise, “High Mass X-ray Binaries and the Cosmic 21-cm Signal: Impact of Host Galaxy Absorption”, *MNRAS*, 469, pp. 1166-1174 (2017)
76. Y. Qin et al., “Dark-ages Reionization and Galaxy Formation Simulation X. The small contribution of quasars to reionization”, *MNRAS*, 472, pp. 2009 – 2027 (2017)
75. A. Duffy et al., “Dark-ages reionization and galaxy formation simulation – IX. Economics of reionizing galaxies”, *MNRAS*, 470, pp. 3300-3315 (2017)
74. B. Greig & **A. Mesinger**, “The Global History of Reionisation”, *MNRAS*, 465, pp. 4838-4852 (2017)
73. B. Greig, **A. Mesinger**, Z. Haiman, R. Simcoe, “Are we witnessing the epoch of reionisation at $z=7.1$ from the spectrum of J1120+0641?”, *MNRAS*, 466, pp. 4239-4249 (2017)
72. B. Greig, **A. Mesinger**, I. McGreer, S. Gallerani, & Z. Haiman, “Ly α emission line reconstruction for high- z QSOs”, *MNRAS*, 466, pp. 1814-1838 (2017)
71. D. DeBoer et al., “Hydrogen Epoch of Reionization Array (HERA)”, *PASP*, 129, pp. 045001, (2017)
70. G. Bernardi et al., “Bayesian constraints on the global 21-cm signal from the Cosmic Dawn”, *MNRAS*, 461, pp. 2847-2855, (2016)
69. J. Pober, B. Greig, & **A. Mesinger**, “Upper limits on the 21 cm power spectrum at $z=5.9$ from quasar absorption line spectroscopy”, *MNRAS letters*, 463, L56-L60, (2016)
68. C. Liu et al., “Dark-ages reionization and galaxy-formation simulation-VII: The sizes of high-redshift galaxies”, *MNRAS*, 465, pp.3134-3142 (2017)
67. S. Mutch et al., “Dark-ages reionization and galaxy-formation simulation-VI: The origins and fate of the highest known redshift galaxy”, *MNRAS*, 463, pp. 3556-3562, (2016)
66. Y. Qin et al., “Dark-ages reionization & galaxy formation simulation VIII: Suppressed growth of dark matter halos during the Epoch of Reionization”, *MNRAS*, 467, pp. 1678-1693, (2017)
65. A. Ewall-Wice et al., “First Limits on the 21 cm Power Spectrum During the Epoch of X-ray Heating”, *MNRAS*, 460, pp. 4320-4347, (2016)

64. **A. Mesinger**, B. Greig, & E. Sobacchi, “The Evolution of 21-cm Structure (EOS): public, large-scale simulations of Cosmic Dawn and Reionization”, *MNRAS*, 459, pp. 2342-2353 (2016)
63. E. Sobacchi, **A. Mesinger**, & B. Greig, “Cross-correlation of the cosmic 21-cm signal and Lyman Alpha Emitters during reionization”, *MNRAS*, 459, pp. 2741-2750 (2016)
62. P. Geil **et al.**, “Dark-ages reionization & galaxy formation simulation V: morphology and statistical signatures of reionization”, *MNRAS*, 462, pp. 804-817 (2016)
61. C. Liu **et al.**, “Dark-ages reionization & galaxy formation simulation IV: UV luminosity functions of high-redshift galaxies”, *MNRAS*, 462, pp. 235-249 (2016)
60. S. Mutch **et al.**, “Dark-ages reionization and galaxy formation simulation III: Modelling galaxy formation and the Epoch of Reionization”, *MNRAS*, 462, pp. 250-276 (2016)
59. P. Angel **et al.**, “Dark-ages Reionization & Galaxy Formation Simulation II: Spin and concentration parameters for dark matter haloes during the Epoch of Reionization”, *MNRAS*, 459, pp. 2106-2117 (2016)
58. G. Poole **et al.**, “Dark-ages Reionization & Galaxy Formation Simulation I: The dynamical lives of high redshift galaxies”, *MNRAS*, 459, pp. 3025-3039 (2016)
57. A. Ewall-Wice, J. Hewitt, **A. Mesinger**, J. Dillon, A. Liu & J. Pober, “Constraining high redshift X-ray sources with next generation 21cm power spectrum measurements”, *MNRAS*, 458, pp. 2710-2724 (2016)
56. B. Greig, **A. Mesinger**, & J. Pober, “Constraints on the temperature of the intergalactic medium at $z=8.4$ with 21-cm observations”, *MNRAS*, 455, pp. 4295-4300 (2016)
55. E. Sobacchi & **A. Mesinger**, “The clustering of Lyman alpha emitters at $z=7$: implications for reionization and host halo masses”, *MNRAS*, 453, pp. 1843-1854 (2015)
54. L. Koopmans **et al.**, “The cosmic dawn and epoch of reionization with the Square Kilometre Array”, *PoS inpress*, arXiv:1505.07568 (2015)
53. J. Pober **et al.**, “PAPER-64 Constraints On Reionization II: The Temperature Of The $z=8.4$ Intergalactic Medium”, *ApJ*, 809, pp. 62-73 (2015)
52. B. Greig & **A. Mesinger**, “21CMMC: an MCMC analysis tool enabling astrophysical parameter studies of the cosmic 21cm signal”, *MNRAS*, 449, pp. 4246-4263 (2015)
51. C. Watkinson, **A. Mesinger**, J. Pritchard & E. Sobacchi, “21-cm signatures of residual HI inside cosmic HII regions during reionization”, *MNRAS*, 449, pp. 3202-3211 (2015)
50. K. Ahn, **A. Mesinger**, M. Alvarez, & X. Chen, “Probing the first galaxies and their impact on the intergalactic medium through the 21cm observation of the Cosmic Dawn with the SKA”, *PoS inpress*, arXiv:1501.04141 (2015)
49. **A. Mesinger**, A. Ferrara, B. Greig, I. Iliev, G. Mellema, J. Pritchard, M. Santos, “Constraining the Astrophysics of the Cosmic Dawn and the Epoch of Reionization with the SKA”, *PoS inpress*, arXiv:1501.04106 (2015)
48. G. Mellema, L. Koopmans, H. Shukla, K. Datta, **A. Mesinger**, S. Majumdar, “HI tomographic imaging of the Cosmic Dawn and Epoch of Reionization with SKA”, *PoS inpress*, arXiv:1501.04203 (2015)
47. I. Iliev, M. Santos, **A. Mesinger**, S. Majumdar, & G. Mellema, “Epoch of Reionization modeling and simulations for SKA”, *PoS inpress*, arXiv:1501.04213 (2015)
46. J. Pritchard, K. Ichiki, **A. Mesinger**, et al., “Cosmology from the EoR/Cosmic Dawn with the SKA”, *PoS in-*

press, arXiv:1501.04291 (2015)

45. I. McGreer, **A. Mesinger**, & V. D’Odorico, “Model-independent evidence in favor of an end to reionization by $z=6$ ”, *MNRAS*, 447, pp. 499-505 (2015)

44. P. Dayal, **A. Mesinger**, & F. Pacucci, “Early galaxy formation in warm dark matter cosmologies”, *ApJ in press*, arXiv:1408.1102 (2014)

43. **A. Mesinger**, A. Aykutaalp, E. Vanzella, L. Pentericci, A. Ferrara, & M. Dijkstra, “Can the intergalactic medium cause a rapid drop in Lyman alpha emission at $z>6$?”, *MNRAS*, 446, pp. 566-577 (2015)

42. E. Carmelo, **A. Mesinger**, & A. Ferrara, “Unveiling the nature of dark matter with high redshift 21 cm line experiments”, *JCAP*, 11, pp. 24-42 (2014)

41. F. Pacucci, **A. Mesinger**, S. Mineo, & A. Ferrara, “The X-ray spectra of the first galaxies: 21cm signatures”, *MNRAS*, 443, pp. 678-686 (2014)

40. L. Pentericci, E. Vanzella, A. Fontana, M. Castellano, T. Treu, **A. Mesinger**, et al., “New observations of $z\sim 7$ galaxies: evidence for a patchy reionization”, *ApJ*, 793, pp. 10 (2014)

39. M. Dijkstra, A. Ferrara, & **A. Mesinger**, “Feedback-regulated supermassive black hole seed formation”, *MNRAS*, 442, pp. 2036-2047 (2014)

38. M. Dijkstra, S. Wyithe, Z. Haiman, **A. Mesinger**, & L. Pentericci, “Evolution in the escape fraction of ionizing photons and the decline in the strong Ly alpha emission from $z>6$ galaxies”, *MNRAS*, 440, pp. 3309-3316 (2014)

37. E. Sobacchi, & **A. Mesinger**, “Inhomogeneous recombinations during cosmic reionization”, *MNRAS*, 440, pp. 1662-1673 (2014)

36. A. Ewall-Wice, J. Dillon, **A. Mesinger**, & J. Hewitt, “Detecting the 21cm forest in the 21cm power spectrum”, *MNRAS*, 441, pp. 2476-2496 (2014)

35. **A. Mesinger**, A. Ewall-Wice, & J. Hewitt, “Reionization and Beyond: detecting the peaks of the cosmological 21cm signal”, *MNRAS*, 439, pp. 3262-3274 (2014)

34. M. Sitwell, **A. Mesinger**, Y-Z. Ma, K. Sigurdson, “The imprint of Warm Dark Matter on the cosmological 21-cm signal”, *MNRAS*, 438, pp. 2664-2671 (2014)

33. K. Dixon, S. Furlanetto, & **A. Mesinger**, “Semi-numeric simulations of helium reionization and the fluctuating radiation background”, *MNRAS*, 440, pp. 987-1001 (2014)

32. R. de Souza, E. Ishida, J.L. Johnson, D.J. Whalen, **A. Mesinger**, “Detectability of the First Cosmic Explosions”, *MNRAS*, 436, pp. 1555-1563 (2013)

31. F. Pacucci, **A. Mesinger**, & Z. Haiman, “Focusing on Warm Dark Matter with Lensed High-redshift Galaxies”, *MNRAS*, 435, pp. L53-L57 (2013)

30. R. de Souza, **A. Mesinger**, A. Ferrara, Z. Haiman, R. Perna, & N. Yoshida “Constraints on Warm Dark Matter models from high-redshift long gamma-ray bursts”, *MNRAS*, 432, pp. 3218-3227 (2013)

29. E. Sobacchi & **A. Mesinger**, “How does radiative feedback from a UV background impact reionization?”, *MNRAS*, 432, pp. 3340-3348 (2013)

28. E. Sobacchi & **A. Mesinger**, “The depletion of gas in high-redshift galaxies from an inhomogeneous reionization”, *MNRAS*, 432, L51-L56 (2013)

27. G. Mellema **et al.**, “Reionization and the Cosmic Dawn with the Square Kilometre Array”, *Experimental Astronomy*, 36, pp. 235-318 (2013)
26. **A. Mesinger**, A. Ferrara, & D. Spiegel, “Signatures of X-rays in the early Universe”, *MNRAS*, 431, pp. 621-637 (2013)
25. M. Valdes, C. Evoli, **A. Mesinger**, A. Ferrara, & N. Yoshida, “The nature of dark matter from the global high redshift HI 21 cm signal”, *MNRAS*, 429, pp. 1705-1716 (2013)
24. J. Schroeder, **A. Mesinger**, & Z. Haiman, “Evidence of Gunn-Peterson damping wings in high-z quasar spectra: strengthening the case for incomplete reionization”, *MNRAS*, 428, pp. 3058-3071 (2013)
23. **A. Mesinger**, M. McQuinn, & D. Spergel, “The kinetic Sunyaev-Zel'dovich signal from inhomogeneous reionization: a parameter space study”, *MNRAS*, 422, pp. 1403-1417 (2012)
22. I. McGreer, **A. Mesinger**, & X. Fan, “The first (nearly) model-independent constraint on the neutral hydrogen fraction at $z \sim 5-6$ ”, *MNRAS*, 415, pp. 3237-3246 (2011)
21. M. Dijkstra, **A. Mesinger**, & S. Wyithe, “The detectability of Lyman-alpha emission from galaxies during the epoch of reionization”, *MNRAS*, 414, pp. 2139-2147 (2011)
20. D. Crociani, **A. Mesinger**, L. Moscardini & S. Furlanetto, “The distribution of Lyman-limit absorption systems during and after reionization”, *MNRAS*, 411, pp. 289-300 (2011)
19. **A. Mesinger**, S. Furlanetto, & R. Cen, “21cmFAST: A Fast, Semi-Numerical Simulation of the High-Redshift 21-cm Signal”, *MNRAS*, 411, pp. 955-972 (2011)
18. O. Zahn, **A. Mesinger**, M. McQuinn, H. Trac, R. Cen, & L. Hernquist, “Comparison Of Reionization Models: Radiative Transfer Simulations And Approximate, Semi-Numeric Models”, *MNRAS*, 414, pp. 727-738 (2011)
17. **A. Mesinger**, “Was Reionization Complete by $z \sim 5-6$?”, *MNRAS*, 407, pp. 1328-1337 (2010)
16. **A. Mesinger** & S. Furlanetto, “The Inhomogeneous Ionizing Background Following Reionization”, *MNRAS*, 400, pp. 1461-1471 (2009)
15. **A. Mesinger**, G.L. Bryan, & Z. Haiman, “Radiative Feedback and Relic HII Regions at High-Redshift”, *MNRAS*, 399, pp. 1650-1662 (2009)
14. S. Naoz, R. Barkana, & **A. Mesinger**, “Gas in Simulations of High Redshift Galaxies and Minihalos”, *MNRAS*, 399, pp. 369-376 (2009)
13. S. Furlanetto & **A. Mesinger**, “The Ionizing Background at the End of Reionization”, *MNRAS*, 394, pp. 1667-1673 (2009)
12. M. Dijkstra, Z. Haiman, **A. Mesinger**, & S. Wyithe, “Fluctuations in the High-Redshift Lyman-Werner Background: Close Halo Pairs as the Origin of Supermassive Black Holes”, *MNRAS*, 391, pp. 1961-1972 (2008)
11. **A. Mesinger** & M. Dijkstra, “Ultraviolet Radiative Feedback During the Advanced Stages of Reionization”, *MNRAS*, 390, pp. 1071-1080 (2008)
10. **A. Mesinger** & S. Furlanetto, “Lyman-alpha Emitters During the Early Stages of Reionization”, *MNRAS*, 386, pp. 1990-2002 (2008)
9. **A. Mesinger** & S. Furlanetto, “Lyman-alpha Damping Wing Constraints on Inhomogeneous Reionization”, *MNRAS*, 385, pp. 1348-1358 (2008)

8. **A. Mesinger** & S. Furlanetto, “Efficient Simulations of Early Structure Formation and Reionization”, *Ap. J.*, 669, pp. 663-675 (2007)
7. **A. Mesinger** & Z. Haiman, “Constraints on Reionization and Source Properties from the Absorption Spectra of $z > 6.2$ Quasars”, *Ap. J.*, 660, pp. 923-932 (2007)
6. **A. Mesinger**, G. L. Bryan, & Z. Haiman, “Ultraviolet Radiative Feedback on High-Redshift Protogalaxies”, *Ap. J.*, 648, pp. 835-851 (2006)
5. **A. Mesinger**, B. D. Johnson, & Z. Haiman, “The Redshift Distribution of Distant Supernovae and its Use in Probing Reionization”, *Ap. J.*, 637, pp. 80-90 (2006)
4. **A. Mesinger**, R. Perna, & Z. Haiman, “Constraints on the Small-Scale Power Spectrum of Density Fluctuations from High-Redshift Gamma-Ray Bursts”, *Ap. J.*, 623, pp. 1-10 (2005)
3. R. Cen, Z. Haiman, & **A. Mesinger**, “Implications of the Lyman alpha Emission Line from a Candidate $z=10$ Galaxy”, *Ap. J.*, 621, pp. 89-94 (2004)
2. **A. Mesinger**, Z. Haiman, & R. Cen, “Probing the Reionization History Using the Spectra of High-Redshift Sources”, *Ap. J.*, 613, pp. 23-35 (2004)
1. **A. Mesinger** & Z. Haiman, “Evidence of a Cosmological Strömngren Surface and of Significant Neutral Hydrogen Surrounding the Quasar SDSS J1030+0524”, *Ap. J. (Lett.)*, 611, pp. 69-72 (2004)