ANDREI MESINGER

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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 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, *With Distinction*	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, *Cum Laude*	2002
B.S. in Computer Engineering, Univ. of Maryland at College Park, *Magna Cum Laude*	2002

DOCTORAL THESIS

Probing Reionization and Early Structure Formation	*Advisor:* Zoltan Haiman	2006

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, *"Structure Formation in the Early Universe"*, Scuola Normale Superiore di Pisa   2011 -
  - Teaching a graduate level course on the first galaxies and IGM structures

PROFESSOR, *"Frontiers of Cosmology"*, Scuola Normale Superiore di Pisa   2015 -
  - Co-organizing and teaching a PhD seminar course on the latest advances in cosmology

INVITED LECTURER, "*International School on Physics of the Universe – Multi-Messenger Astrophysics*",
Astronomical Observatory in Asiago   2020
  - Taught a series of invited lectures on 21-cm cosmology for a winter school for graduate students

INVITED LECTURER, "*Cosmological Applications from First Stars, Reionization and 21-cm Observations*",
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

Commission member for evaluating institutional research sites, SNS	2021 –
Steering committee member for High-Performance Computing (HPC) center, SNS	2020 -
Commission member for the "European Universities (Erastmus+)" working group, SNS	2020
Physics commission member for the SNS undergraduate and Masters admissions exams	2018, 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
Thesis defense commission member	2013 –
Postdoctoral fellowship award commission member	2013 - 2020
Founder and organizer of the *Cosmology Journal Club*	2011 –
Founder and organizer of the *Reionization arXiv discussion group*	2017 –
Founder and organizer of the *Machine Learning arXiv discussion group*	2019 –

Student supervisor

Daniela Breitman, *PhD, SNS*	2021 –
Ivan Nikolic, *PhD, SNS*	2020 –
David Prelogovic, *PhD, SNS*	2019 –
Harman Kaur, *PhD, SNS*	2017 – 2022
Aaron Ewall-Wice, *PhD, MIT* (co-supervisor with Prof. J. Hewitt)	2011 – 2017
Emanuele Sobacchi, *PhD, SNS* 60/60+	2012 – 2015
Fabio Pacucci, *PhD, SNS* 60/60+ (co-supervisor with Prof. A. Ferrara)	2012 – 2015
Joshua Schroeder, *PhD, Columbia Univ.* (co-supervisor with Prof. Z. Haiman)	2007 – 2014
Emanuele Sobacchi, *Masters (Laurea magistrale)*, SNS	2011 – 2012
Keri Dixon, *PhD, UCLA* (co-supervisor with Prof. S. Furlanetto)	2009 – 2012
Daniela Crociani, *PhD, Bologna Univ.* (co-supervisor with Prof. L. Moscardini)	2008 – 2012

Postdoctoral supervisor, *SNS*

Dr. James Davies	2021 –
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
MOSAIC ELT SWG1 – First Light Galaxies and the Reionization of the Universe   2021 –
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*   2018, 2019, 2020
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: *Learning the High Redshift Universe (remote conference; SAZARAC SIP)*   2022
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 (Obergurgl 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
"Learning about unseen galaxies from 21-cm", invited talk, *Linking galaxy physics from ISM to IGM scales*, Sesto, Italy (2022)

"Reionization completed at 5.0<z<5.6", invited talk, *The growth of galaxies in the early Universe: shaping the JWST strategy*, Sesto, Italy (2022)

"Learning about the first billion years with the HERA telescope", invited review, *Meeting of the Royal Astronomical Society*, online (2021)

"Deciphering redshifted 21-cm signals from the Cosmic Dawn", interview featured in *PRACE Digest 2021*, https://prace-ri.eu/wp-content/uploads/PRACE_Digest_2021.pdf (2021)

"Modeling the 21-cm signal from the Cosmic Dawn", invited review, *Fundamental Physics at 21-cm*, Trieste IFPU, Italy (2002 delayed due to COVID; new date TDB)

"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

MUR PRO3, *"Data Science methods for Multi-Messenger Astrophysics and Cosmology"*   2022 – 2024
    role: co-I; *amount:* 232.500 euros

PRACE Tier-0, *"Artificial intelligence for 21cm cosmology (AIfor21CM)"*   2019 – 2020
    role: PI; *amount:* 20.000.000 core hours

Chandra TAC, *"A local characterization of the z~10 X-ray field and its effects on the IGM"*   2020 – 2021

role: co-I; *PI: Prof. Bret Lehmer; amount:* 509ks, Chandra cycle 21

ESO, *"XQR-30: the ultimate XSHOOTER legacy survey of quasars at z $\simeq$ 5.8 – 6.6"* 2019 – 2020
    role: co-I; *PI:* Dr. Valentina D'Odorico; *amount:* 248h, XSHOOTER

NVIDIA GPU Grant Program, *"AI for 21CM"* 2018
    role: PI; *amount:* Titan V GPU

NSF, *"HERA: Unveiling the Cosmic Dawn"* 2018 – 2023
    role: co-I; *PI:* Prof. Aaron Parsons; *amount:* US$ 7.173.107

PRACE Tier-0, *"Galaxy Formation For the Epoch of Reionization (GAFFER)"* 2017 – 2018
    role: PI; *amount:* 30.000.000 core hours

NASA, *"The ionizing photon budget and the decline of Lyman-a emission in z>6 dropouts"* 2017 – 2018
    role: co-I; *PI:* Dr. Anson D'Aloisio; *amount:* US$ 159.915

ESO, *"Piercing through the reionization era with high-quality spectra of 4 quasars at z~6.5"* 2017 – 2018
    role: co-I; *PI:* Dr. Valentina D'Odorico; *amount:* 35h, XSHOOTER

NSF, *"Illuminating our Early Universe with HERA, the Hydrogen Epoch of Reionization Array"* 2016 – 2020
    role: co-I; *PI:* Prof. Aaron Parsons; *amount:* US$ 9.900.000

ERC StG, *"An Illumination of the Dark Ages: modeling reionization & interpreting observations"* 2015 – 2021
    role: PI; *amount:* 1.468.750 euros

MIUR-SNS-fondi di Ateneo, *"Next Generation Simulations of Reionization and the Cosmic Dawn"* 2014 – 2016
    role: PI; *amount:* 70.000 euros

NSF, *"Hydrogen Epoch of Reionization Arrays (HERA): Illuminating our Early Universe"* 2014 – 2016
    role: collaborator; *PI:* Prof. Aaron Parsons; *amount:* US$ 2.144.113

NSF, *"Modeling the Reionization of the Intergalactic Medium"* 2013 – 2016
    role: collaborator; *PI*: Prof. Scott Anderson; *amount:* US$ 374.140

MWA TAC *"Constraining Xray and Dark Matter Heating Before the Epoch of Reionization"* 2013 – 2014
    role: co-PI ; *amount:* 16.2 hours

MIUR-SNS-fondi di Ateneo, *"Interpreting the Cosmological 21cm Signal"* 2013 – 2014
    role: PI; *amount:* 24.000 euros

CINECA, *"Statistics of High-Redshift Lyman Alpha Emitters"* (LAE-STAT) 2012 – 2013
    role: PI ; *amount:* 400.000 CPU hours

NASA, *"The convergence of Lya forest simulations and the response of cosmic gas to reionization"* 2012 – 2013
    role: co-I ; *PI*: Dr. Matthew McQuinn; *amount:* 400.000 CPU hours

MIUR-SNS-fondi di Ateneo, *"Illuminating Reionization with Quasars"* 2012 – 2013
    role: PI; *amount:* 34.000 euros

ERC REGPOT, *"BELISSIMA"* 2010 – 2013
    role: collaborator; *PI*: Dr. Srdjan Samurovic; *amount:* 1.298.427 euros

NASA Lunar Science Institute, *"LUNAR: Exploring the Cosmos from the Moon"* 2009 – 2013
    role: collaborator; *PI*: Dr. Jack Burns; *amount:* ~US$ 6.500.000

NASA Hubble Fellowship, *"Simulating Reionization"* 2008 – 2011
    role: PI; *amount:* US$ 363.831

NASA GSRP Fellowship, *"Probing Reionization History"* 2005 – 2006
    role: PI; *advisors*: Prof. Z. Haiman & Dr. J. Mather; *amount:* ~US$ 60.000/yr (renewable for 3yrs)

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

PEER-REVIEWED PUBLICATION SUMMARY (last updated March 2022)

>**140** peer-reviewed publications since **2004**
>**7700** citations; >**2100** citations normalized by author number; (*source:* NASA ADS Database)
h-index of **51**; *i10* index of **116**; *i100* index (>100 citations) of **21** (*source:* NASA ADS Database)
See full publication list on the NASA ADS Database from http://homepage.sns.it/mesinger/Publications.html

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

124. A. Rudakovskyi, **A. Mesinger,** D. Savchenko, N. Gillet, "Constraints on warm dark matter from UV luminosity functions of high-z galaxies with Bayesian model comparison", *MNRAS in-press doi: 10.1093/mnras/stab2333*, (2021)

123. La Plante **et al.**, "A Real Time Processing system for big data in astronomy: Applications to HERA", *A&C*, *36, id 100489*, (2021)

122. J. Tan **et al.**, "Methods of error estimation for delay power spectra for 21cm cosmology", *ApJS*, 225, 26 pp., (2021)

121. B. Gehlot **et al.**, "Effects of model incompleteness on the drift-scan calibration of radio telescopes", *MNRAS*, 506, pp. 4578-4592, (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*, 506, pp. 2390-2407, (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 ≈ 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 a 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. Fagnomi **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 Lyalpha from UV bright galaxies at z ∼ 7", *MNRAS*, 857, 6 pp. (2018)

83. C. Mason, T. Treu, M. Dijkstra, **A. Mesinger**, et al., "The Universe is reionizing at z~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, "Lyalpha emission line reconstruction for high-z QSOs", *MNRAS*, 466, pp. 1814-1838 (2017)

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