

Jasleen Matharu

Max-Planck-Institut für Astronomie, Königstuhl 17, D-69117 Heidelberg, Germany
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Research Interests

GALAXY EVOLUTION • SPACE-BASED SLITLESS SPECTROSCOPY • GALAXY CLUSTERS • HIGH-REDSHIFT GALAXIES • STAR FORMATION • QUENCHING • GALAXY GROWTH • COSMIC REIONISATION

Computer Languages

PYTHON • OBJECT ORIENTED PROGRAMMING • BASH • GIT • L^AT_EX • HTML • MARKDOWN • RESTRUCTUREDTEXT

Specialised Skills

GRISM REDSHIFT & LINE ANALYSIS SOFTWARE (GRIZLI)

- Creator, Author and Editor of “Grizli for Dummies”, a guide to using Grizli (part of official Grizli documentation).

GALFIT

- Experienced in two-dimensional model fitting of galaxy light profiles with GALFIT.

Professional Appointments

MPIA Prize Fellow

*Max Planck Institute for Astronomy,
Heidelberg, Germany*

HOW DID THE EARLIEST GALAXIES EVOLVE INTO TODAY'S DIVERSE POPULATION?

Sep 2025 - present

DAWN Fellow

*Cosmic Dawn Center, Niels Bohr
Institute, University of Copenhagen*

THE FIRST HIGH RESOLUTION VIEW OF GALAXY EVOLUTION IN THE EARLIEST GALAXIES WITH JWST SLITLESS SPECTROSCOPY

Sep 2022 - August 2025

Postdoctoral Research Associate

*Department of Physics & Astronomy,
Texas A&M University*

FORMATION AND EVOLUTION OF GALAXIES AND COSMIC REIONISATION

Sep 2019 - August 2022

- Supervisors: Prof. Casey Papovich & Prof. Robert Kennicutt

Education

Institute of Astronomy, University of Cambridge

Cambridgeshire, UK

PHD ASTRONOMY

Oct 2015 - Jul 2019 Awarded: 30th Nov 2019

- Thesis title: *A Study on Quenching and Galaxy Growth in $z \sim 1$ Clusters using HST WFC3 Grism Observations*
- Primary Supervisor: Dr. Adam Muzzin
- Primary Supervisor (Cambridge): Prof. Paul C. Hewett
- Secondary Supervisor (Cambridge): Dr. Matthew Auger

University College London (UCL)

MSCI ASTROPHYSICS (FIRST CLASS HONOURS)

- Masters Project: *Testing Cosmic Microwave Background Delensing*
- Primary Supervisor (nominal): Prof. Hiranya Peiris
- Secondary Supervisor: Dr Aurélien Benoit-Lévy

Gower Street, London, UK

Sep 2011 - Aug 2015

Professional Experience

May 2025 Reached the interview stage of the Future Leaders Fellowship, Round 9 in the UK

Dec 2023 -
Feb 2024 Panelist on the DAWN Fellowship Committee

Nov 2023 Shortlisted candidate (top 6 of 86) for the Lectureship in Astrophysics at the University of Bath, UK

PEER REVIEW

2021- Referee for *Monthly Notices of the Royal Astronomical Society*, *The Astrophysical Journal*

2020- Referee for *Astronomy & Astrophysics*

PROPOSAL REVIEW

Cycle 2 External Reviewer for *JWST* observing proposals

Cycle 9 Reviewer for ALMA observing proposals

2022B NOIRLab Time Allocation Committee Member (Extragalactic Astronomy)

2021B Referee for *Gemini* observing proposals

Cycle 29 External Reviewer for *Hubble Space Telescope* observing proposals

Cycle 8 Reviewer for ALMA observing proposals

Professional Certificates

Nov 2025 NVIDIA: Fundamentals of Deep Learning authorised by Whizlabs and offered through Coursera

Nov 2025 NVIDIA: Fundamentals of Machine Learning authorised by Whizlabs and offered through Coursera

Awards

Jan 2025 **Max Planck Institute for Astronomy (MPIA) Postdoctoral Prize Fellowship**, 4-year independent prize fellowship to freely pursue my research. ~£ 325,000

Feb 2022 **DAWN Fellowship**, 3-year independent prize fellowship to freely pursue my research at the Cosmic Dawn Center in Copenhagen. ~£ 200,000

Oct 2018 **Churchill College Travel Grant Award**, Talks Tour to present PhD work, Nottingham (UK), Leiden (The Netherlands), Baltimore, New Haven, Cambridge (USA) and Toronto (Canada) £ 250

May 2017 **Churchill College Travel Grant Award**, Conference on Galaxy Evolution Across Time, Paris (France) £ 250

Oct 2015 **Science and Technology Facilities Council (STFC) Quota Award**, to undertake research in Astrophysics at the Institute of Astronomy, Cambridge for up to 3.5 years

Publication Statistics

LAST UPDATED 13TH JAN 2026

- Refereed first author publications: 6, total citations: 211
- Refereed total publications: 51, total citations: 2,687
- H-index: 29

Presentation Statistics

- 5 Colloquia, 1 invited Conference talk, 10 invited seminars
- 7 Contributed conference talks, 18 contributed seminars, 1 poster

Student Supervision

- Mar 2024- Co-Supervisor, PhD Thesis, Natalie Allen, University of Copenhagen Primary Supervisors: Prof. Sune Toft and Prof. Pascal Oesch
- Feb - Jun 2024 Primary Supervisor, Bachelors Project, Jacob Salling Christiansen, University of Copenhagen The first direct measurement of Ram-pressure Stripping in cluster galaxies at $z=1$. Awarded Danish grade 12, ECTS grade A (*Highest grade*) on 26th June 2024).

Teaching Experience

- 4th Oct 2023 Guest Lecturer, ASTRO101: Astrophysics and Cosmology “Galaxy Evolution with JWST”, Undergraduates, 1.5 hours, University of Copenhagen.
- Nov 2019-Feb 2020 **Co-Chair of Central Texas James Webb Space Telescope (JWST) Workshops Committee**, Remotely attended a week-long Masterclass on the James Webb Space Telescope at the Space Telescope Science Institute, Co-organised two all-day JWST Proposal Planning Workshops with hands-on exercises at UT Austin and Texas A&M University.
- 2016-2017 Maths IA Supervisor, Undergraduates, 34 hours, Churchill College, University of Cambridge

Observing Proposals

Cycle 3	Co-I, (PI: Withers), James Webb Space Telescope GO #5890, <i>JUMPS: The JWST Ultimate Medium-band Photometric Survey</i>	42.3 hrs 366,600 USD
Cycle 3	Co-I, (PI: Willott), James Webb Space Telescope GTO #4527, <i>CANUCS: The Canadian NIRISS Unbiased Cluster Survey</i>	6.0 hrs 52,000 USD
Cycle 2	Co-I, (PIs: Glazebrook & Brammer), James Webb Space Telescope GO #3383, <i>JWST Wide Area 3D Parallel Survey</i>	615.0 hrs 635,866 USD
Cycle 8	Co-I, (PI: Noble), Atacama Large Millimeter/submillimeter Array 2021.1.01257.S, <i>Toward a Spatially-resolved Molecular Kennicutt-Schmidt Law in High-z Cluster Galaxies with ALMA</i>	21 hrs 100,000 USD
Cycle 8	Co-I, (PI: Noble), Atacama Large Millimeter/submillimeter Array 2021.1.01002.S, <i>Detailed Gas Kinematics and Morphologies of the Highest-redshift Jellyfish Galaxy Candidates at $z=1.6$</i>	21.6 hrs 100,000 USD
Cycle 8	Co-I, (PI: Simons), Atacama Large Millimeter/submillimeter Array 2021.1.01188.S, <i>CO Kinematics at Cosmic Noon: Timing the Redistribution of Metals Around Galaxies</i>	23.1 hrs 100,000 USD
Cycle 29	Co-I, (PI: Cleri), Hubble Space Telescope AR #16609, <i>Peering Through The Dust: Paschen-beta Indicators of Star Formation and Dust Attenuation</i>	136,000 USD
Cycle 1	Co-I, (PIs: Finkelstein & Papovich), James Webb Space Telescope GO #2079, <i>The Webb Deep Extragalactic Exploratory Public (WDEEP) Survey: Feedback in Low-Mass Galaxies from Cosmic Dawn to Dusk</i>	121.8 hrs 1,056,190 USD
Cycle 28	Co-I, (PI: Noble), Hubble Space Telescope GO #16300, <i>Toward a Spatially-resolved Kennicutt-Schmidt Law in High-redshift Cluster Galaxies: the Interplay Between Molecular Gas, Star Formation, and Stellar Mass with ALMA and HST</i>	18 orbits 1,800,000 USD

Cycle 28	Co-I, (PI: Simons), Hubble Space Telescope AR #16151, <i>On The Rapid Evolution of Galaxy Metallicity Gradients: A Bridge Between Theory and Observations</i>	130,000 USD
	Co-I, (PI: Muzzin), Gemini North Telescope GN-2020A-Q-214, <i>Towards a Deeper Understanding of Galaxy Quenching: First Measurement of the Stellar Kinematics of Poststarburst Galaxies in Clusters at $z \sim 1$</i>	18.18 hrs 44,950 USD

Observing Experience

ROQUE DE LOS MUCHACHOS OBSERVATORY, WILLIAM HERSCHEL
TELESCOPE

5 nights, May 2017

- PAUCam, assisted Nina Hatch

Publications

REFEREED

Sarrouh, G.T.E., Asada, Y., Martis, N., Willott, C.J., Iyer, K.G., Noirot, G., Muzzin, A., Sawicki, M., Brammer, G., Desprez, G., Rihtaršič, G., Zabl, J., Abraham, R., Bradač, M., Doyon, R., Antwi-Danso, J., Berek, S., Brown, W., Estrada-Carpenter, V., Favaro, J., Felicioni, G., Forrest, B., Gaspar, G., Gould, K.M.L., Gledhill, R., Harshan, A., Jahan, N., Jagga, N., Judež, J., Marchesini, D., Markov, V., **Matharu, J.**, MacFarland, S., Merchant, M., Mérida, R.M., Mowla, L., Myers, K., Omori, K.C., Pacifici, C., Ravindranath, S., Robbins, L., Strait, V., Sok, V., Tan, V.Y.Y., Tripodi, R., Wilson, G. and Withers, S. 2026, “CANUCS/Technicolor Data Release 1: Imaging, Photometry, Slit Spectroscopy, and Stellar Population Parameters”. Published in *The Astrophysical Journal Supplement Series*, Volume 282, Issue 1, id.3.

Contributed significantly to data processing.

Genin, A., Shuntov, M., Brammer, G., Allen, N., Ito, K., Magdis, G., **Matharu, J.**, Oesch., P.A., Toft, S. and Valentino. F. 2025, “DAWN JWST Archive: Morphology from profile fitting of over 340,000 galaxies in major fields”. Published in *Astronomy & Astrophysics*, Volume 699, id.A343.

Provided detailed comments for improving the manuscript.

Allen, N., Oesch, P.A., Toft, S., **Matharu, J.**, McPartland, C. J. R., Weibel, A., Brammer, G., Bowler, R. A. A., Ito, K., Gottumukkala, R., Rizzo, F., Valentino, F., Varadaraj, R. G., Weaver J. R. and Whitaker, K. E., 2024, “Galaxy Size and Mass Build-up in the First 2 Gyrs of Cosmic History from Multi-Wavelength JWST NIRCам Imaging”. Published in *Astronomy & Astrophysics*, Volume 698, id.A30.

Official PhD co-supervisor of first author. Provided extensive advice on measurement strategy, results and the manuscript.

Rihtaršič, G., Bradač, M., Desprez, G., Harshan, A., Noirot, G., Estrada-Carpenter, V., Martis, N. S., Abraham, R. G., Asada, Y., Brammer, G., Iyer, K., **Matharu, J.**, Mowla, L., Muzzin, A., Sarrouh, G. T. E., Sawicki, M., Strait, V., Willot, C. and Gledhill, R., 2024, “CANUCS: Constraining the MACS J0416.1-2403 Strong Lensing Model with JWST NIRISS, NIRSpec, and NIRCам”. Published in *Astronomy & Astrophysics*, Volume 696, id.A15.

Contributed significantly to data processing.

Shen, L., Papovich, C., **Matharu, J.**, Pirzkal, N., Hu, W., Berg, D., Bagley, M.B., Backhaus, B.E., Cleri, N.J., Dickinson M., Finkelstein, S.L., Hathi, N., Huertas-Company, M., Hutchison, T., Gialalisco, M., Grogin, N.A., Jaskot, A.E., Jung, I., Kartaltepe, J.S., Koekemoer, A.M., Lotz, J.M., Pérez-González, P., Rotheberg, B., Simons, R.C., Vanderhood B.N. and Yung, L.Y.A., 2024 “NGDEEP: The Star Formation and Ionization Properties of Galaxies at $1.7 < z < 3.4$ ”. Published in *The Astrophysical Journal Letters*, Volume 980, Issue 2, id.L45.

Processed the data used in the manuscript, advised on analysis techniques.

Covelo-Paz, A., Giovinazzo, E., Oesch, P.A., Meyer, R.A., Weibel, A., Brammer, G., Fudamoto, Y., Kerutt, J., Lin, J., **Matharu, J.**, Naidu, R.P., Velichko, A., Bollo, V., Bouwens, R., Chisholm, J., Illingworth, G. D., Kramarenko, I., Magee, D., Maseda, M., Matthee, J., Nelson, E., Reddy, N., Schaerer, D.,

Stefanon, M. and Xiao, M., 2024, “An H α view of galaxy build-up in the first 2 Gyr: luminosity functions at $z = 4 - 6.5$ from NIRCам/grism spectroscopy”. Published in *Astronomy & Astrophysics*, Volume 694, id.A178.

Contributed to data processing.

Mowla, L., Iyer, K., Asada, Y., Desprez, G., Tan, V.Y., Martis, N., Sarrouh, G., Strait, V., Abraham, R., Bradač, M., Brammer, G.B., Muzzin, A., Pacifici, C., Ravindranath, S., Sawicki, M., Willott, C., Estrada-Carpenter, V., Jahan, N., Noirot, G., **Matharu, J.**, Rihtaršič, G. and Zabl, J., “Formation of a low-mass galaxy from star clusters in a 600-million-year-old Universe”. Published in *Nature*, Volume 636, Issue 8042.

Contributed significantly to data processing.

Harshan, A., Tripodi, R., Martis, N. S., Rihtaršič, G., Bradač, M., Asada, Y., Brammer, G., Desprez, G., Estrada-Carpenter, V., **Matharu, J.**, Markov, V., Muzzin, A., Mowla, L., Noirot, G., Sarrouh, G. T. E., Sawicki, M., Strait, V. and Willot, C., 2024, “Detailed Study of Stars and Gas in a $z = 8.3$ Massive Merger with Extreme Dust Conditions”. Published in *The Astrophysical Journal Letters*, Volume 977, Issue 2, id.L36.

Contributed significantly to data processing.

Nelson, E., Brammer, G., Giménez-Arteaga, C., Oesch, P.A., Übler, H., de Graaff, A., **Matharu, J.**, Naidu, R.P., Shapley, A., Whitaker, K.E., Wisnioski, E., Förster-Schreiber, N.M., Smit, R., van Dokkum, P., Chisholm, J., Giovinazzo, E., Illingworth, G., Covelo Paz, A., Price, S.H., Endsley, R., Hartley, A., Gibson, J., Labbe, I., Maseda, M.V., Matthee, J., Reddy, N.A., Shivaiei, I., Weibel, A., Wuyts, S., Xiao, M., Alberts, S., Baker, W.M., Bunker, A.J., Cameron, A.J., Charlot, S., Eisenstein, D.J., Ji, Z., Johnson, B.D., Jones, G.C., Maiolino, R., Robertson, B., Sandles, L., Suess, K.A., Tacchella, S., Williams C.C. and Witstok, J., 2023, “Ionized Gas Kinematics with FRESCO: An Extended, Massive, Rapidly Rotating Galaxy at $z=5.4$ ”. Published in *The Astrophysical Journal Letters*, Volume 976, Issue 2, id.27.

The first paper to demonstrate and successfully make kinematic measurements of a galaxy in the early Universe with JWST slitless spectroscopy. Discussed results and methodology, and provided suggestions to lead author while they were preparing the manuscript.

Meyer, R.A., Oesch, P.A., Giovinazzo, E., Weibel, A., Brammer, G., Matthee, J., Naidu, R.P., Chisholm, J., Covelo-Paz, A., Fudamoto, Y., Maseda, M., Nelson, E., Shivaiei, I., Xiao, M., Herard-Demanche, T., Illingworth, G. D., Kerutt, J., Kramarenko, I., Labbe, I., Leanova, E., Magee, D., **Matharu, J.**, Prieto-Lyon, G., Reddy, N., Schaerer, D., Shapley, A., Stefanon, M., Wozniak, M. A. and Wuyts, S., 2024, “JWST FRESCO: A comprehensive census of H β + [O III] emitters at $6.8 < z < 9.0$ in the GOODS fields”. Accepted for publication in *Monthly Notices of the Royal Astronomical Society*, arXiv:2405.05111.

Contributing to data processing.

Cramer, W.J., Noble, A.G., Rudnick, G., Pigarelli, A., Wilson, G., Bahé, Y.M., Cooper, M.C., Demarco, R., **Matharu, J.**, Miller, T.B., Muzzin, A., Nantais, J., Sportsman, W., van Kampen, E., Webb, T.M.A. and Yee, H.K.C. 2024 “Resolved UV and Optical Color Gradients Reveal Environmental Influence on Galaxy Evolution at Redshift $z \sim 1.6$ ”. Published in *The Astrophysical Journal*, Volume 975, Issue 1, id.144.

Advised on analysis techniques and provided comments for improving the manuscript.

Matharu, J., Nelson, E.J., Brammer, G., Oesch, P.A., Allen, N., Shivaiei, I., Naidu, R.P., Chisholm, J., Covelo-Paz, A., Fudamoto, Y., Giovinazzo, E., Herard-Demanche, T., Kerutt, J., Kramarenko, I., Marchesini, D., Meyer, R.A., Prieto-Lyon, G., Reddy, N., Shuntov, M., Weibel, A., Wuyts, S. and Xiao, M., 2024, “A First Look at Spatially Resolved Star Formation at $4.8 < z < 6.5$ with JWST FRESCO NIRCам Slitless Spectroscopy”. Published in *Astronomy & Astrophysics*, Volume 690, id.A64

The first paper to provide direct evidence that the earliest galaxies grow “inside-out” via star formation using JWST slitless spectroscopy. Conceived and led the project, performed the analysis and wrote the manuscript.

Harshan, A., Bradač, M., Abraham, R., Asada, Y., Brammer, G., Desprez, G., Iyer, K., Martis, N. S., **Matharu, J.**, Mowla, L., Muzzin, A., Noirot, G., Rihtaršič, G., Sarrouh, G. T. E., Sawicki, M., Strait, V., Willot, C., 2024, “CANUCS: UV and ionizing properties of dwarf star-forming galaxies at $z \sim 5-7$ ”. Published in *Monthly Notices of the Royal Astronomical Society*, Volume 532, Issue 1, Pages 1112-1125

Contributing significantly to data processing.

Estrada-Carpenter, V., Sawicki, M., Brammer, G., Desprez, G., Abraham, R., Asada, Y., Bradač, M., Iyer, K., Martis, N. S. **Matharu, J.**, Mowla, L., Muzzin, A., Noiro, G., Sarrouh, G. T. E., Sawicki, M., Strait, V., Willott, C., 2024, “When, where, and how star formation happens in a galaxy pair at cosmic noon using CANUCS JWST/NIRISS grism spectroscopy”. Published in *Monthly Notices of the Royal Astronomical Society*, Volume 532, Issue 1, Pages 577-591

Contributing significantly to data processing and provided comments for improving the manuscript.

Pirzkal, N., Rothberg, B., Papovich, C., Shen, L., Leung, G.C.K., Bagley, M.B., Finkelstein, S.L., Lotz, J.M., Koekemoer, A.M., Hathi, N.P., Cheng, Y., Cleri, N.J., Yung, A., Backhaus, B.E., Gardner, J.P., Pérez-González, P.G., Ferguson H.C., Grogin, N.A., **Matharu, J.**, Ravindranath, S., Ryan, R., Berg, D.A., Casey, C.M., Castellano, M., Chávez Ortiz, O.A., Chworowsky, K., Dickinson, M., Somerville, R.S., Cox, I.G., Davé, R., Davis, K., Estrada-Carpenter, V., Fontana, A., Fujimoto, S., Giallisco, M., Grazian, A., Hutchison, T.A., Jaskot, A.E., Jung, I., Kartaltepe, J.S., Kewley, L.J., Kirkpatrick, A., Kocevski, D.D., Larson, R.L., Natarajan, P., Pentericci, L., Simons, R.C., Snyder, G.F., Trump, J.R., Vanderhoof, B.N. and Wilkins, S.M., 2023, “The Next Generation Deep Extragalactic Exploratory Public Near-Infrared Slitless Survey Epoch 1 (NGDEEP-NISS1): Extra-Galactic Star-formation and Active Galactic Nuclei at $0.5 < z < 3.6$ ”. Published in *The Astrophysical Journal*, Volume 969, Issue 2, id 90.

Provided detailed comments for improving the manuscript.

Desprez, G., Martis, N., Asada, Y., Sawicki, M., Willott, C.J., Muzzin, A., Abraham, R.G, Bradač, M., Brammer, G., Estrada-Carpenter, V., Iyer, K., **Matharu, J.**, Mowla, L., Noiro, G., Sarrouh, G.T.E., Strait, V., Gledhill, R. and Rihtaršič, G. 2023, “ Λ CDM not dead yet: massive high- z Balmer break galaxies are less common than previously reported”. Published in *Monthly Notices of the Royal Astronomical Society*, Volume 530, Issue 3, Pages 2935-2952

Contributing significantly to data processing.

Sarrouh, G.T.E., Muzzin, A., Iyer, K.G., Mowla, L., Abraham, R.G., Asada, Y., Bradač, M., Brammer, G.B., Desprez, G., Martis, N.S., **Matharu, J.**, Noiro, G., Sawicki, M., Strait, V., Willott, C. and Zabl, J., “Exposing Line Emission: A First Look At The Systematic Differences of Measuring Stellar Masses With JWST NIRCам Medium Versus Wide Band Photometry”. Published in *The Astrophysical Journal Letters*, Volume 967, Issue 1, id.L17.

Contributing significantly to data processing and provided comments for improving the manuscript.

Willott, C.J., Desprez, G., Asada, Y., Sarrouh, G.T.E., Abraham, R., Bradač, M., Brammer, G., Estrada-Carpenter, V., Iyer, K.G., Martis, N.S., **Matharu, J.**, Mowla, L., Muzzin, A., Noiro, G., Sawicki, M., Strait, V., Rihtaršič, G. and Withers, S., 2023, “A Steep Decline in the Galaxy Space Density Beyond Redshift 9 in the CANUCS UV Luminosity Function”. Published in *The Astrophysical Journal*, Volume 966, Issue 1, id.74

Contributing significantly to data processing.

Bagley, M.B., Pirzkal, N., Finkelstein, S.L., + NGDEEP Collaboration inc. **Matharu, J.** 2023, “The Next Generation Deep Extragalactic Exploratory Public (NGDEEP) Survey”. Published in *The Astrophysical Journal Letters*, Volume 965, Issue 1, id.L6.

Survey Team Member and provided comments for improving the manuscript.

Shen, L., Papovich, C., **Matharu, J.**, Pirzkal, N., Hu, W., Backhaus, B.E., Bagley, M.B., Cheng, Y., Cleri, N.J., Finkelstein, S.L., Huertas-Company, M., Giallisco, M., Grogin, N.A. Jung, I., Kartaltepe, J.S., Koekemoer, A.M., Lotz, J.M., Maseda, M.V., Pérez-González, P., Rotheberg, B., Simons, R.C., Tacchella, S., Williams, C.C. and Yung, L.Y.A., 2023, “NGDEEP Epoch 1: Spatially Resolved H-Alpha Observations of Disk and Bulge Growth in Star-Forming Galaxies at $z \sim 0.6 - 2.2$ from JWST NIRISS Slitless Spectroscopy”. Published in *The Astrophysical Journal Letters*, Volume 963, Issue 2, id.L49.

The first paper to make spatially resolved measurements of disk and bulge growth in galaxies at Cosmic Noon with JWST slitless spectroscopy. Processed the data used in the manuscript. Provided detailed comments for improving the manuscript.

Asada, Y., Sawicki, M., Abraham, R., Bradač, M., Brammer, G., Desprez, G., Estrada-Carpenter, V., Iyer, K., Martis, N., **Matharu, J.**, Mowla, L., Muzzin, A., Noiro, G., Sarrouh, G.T.E., Strait, V., Willott, C. and Harshan, A. 2024, “Bursty star formation and galaxy-galaxy interactions in low-mass galaxies

1 Gyr after the Big Bang”. Published in *Monthly Notices of the Royal Astronomical Society*, Volume 527, Issue 4, Pages 11372-11392

Contributing significantly to data processing.

Bradač, M., Strait, V., Mowla, L., Iyer, K.G., Noirot, G., Willott, C., Brammer, G., Abraham, R., Asada, Y., Desprez, G., Estrada-Carpenter, V., Harshan, A., Martis, N.S., **Matharu, J.**, Muzzin, A., Rihtaršič, G., Sarrouh, G.T.E. and Sawicki, M. 2024, “Star Formation at the Epoch of Reionization with CANUCS: The Ages of Stellar Populations in MACS1149-JD1”. Published in *The Astrophysical Journal Letters*, Volume 961, Issue 1, id.L21.

Contributing significantly to data processing.

Roper, W.J., Lovell C.C., Vijayan, A.P., Irodotou, D., Kuusisto, J.K., **Matharu, J.**, Seeyave, L.T.C., Thomas, P.A. and Wilkins, S.M. 2023, “First Light and Epoch Reionisation Simulations (FLARES) IX: The Physical Mechanisms Driving Compact Galaxy Formation and Evolution”. Published in *Monthly Notices of the Royal Astronomical Society*, Volume 526, Issue 4, Pages 6128–6144.

Provided text from the perspective of an observer for the introduction and provided comments for improving the manuscript.

Oesch, P.A., Brammer, G., Naidu, R.P., Bouwens, R.J., Chisholm, J., Illingworth, G.D., Matthee, J., Nelson, E., Qin, Y., Reddy, N., Shapley, A., Shivaee, I., van Dokkum, P., Weibel A., Whitaker, K., Wuyts, S., Covelo-Paz, A., Endsley, R., Fudamoto, Y., Lin, J., Magee, D., Marchesini, D., Maseda, M., Mason, C., **Matharu, J.**, Meyer, R.A., Neufeld, C., Prieto Lyon, G., Schaerer, D., Sharma, R., Shuntov, M., Smit, R., Stefanon, M., Wyithe, J.S.B. and Xiao, M. 2023 “The JWST FRESCO survey: legacy NIRCcam/grism spectroscopy and imaging in the two GOODS fields”. Published in *Monthly Notices of the Royal Astronomical Society*, Volume 525, Issue 2, Pages 2864–2874.

Survey Team Member and contributed to data processing.

Noirot, G., Desprez, G., Asada, Y., Sawicki, M., Estrada-Carpenter, V., Martis, N., Sarrouh, G.T.E., Strait, V., Abraham, R., Bradač, M., Brammer, G., Iyer, K., MacFarland, S., **Matharu, J.**, Mowla, L., Muzzin, A., Pacifici, C., Ravindranath, S., Willott, C.J., Albert, L., Doyor, R., Hutchings, J.B. and Rowlands, N. 2023 “The first large catalogue of spectroscopic redshifts in Webb’s first deep field, SMACS J0723.3-7327”. Published in *Monthly Notices of the Royal Astronomical Society*, Volume 525, Issue 2, Pages 1867–1884.

Contributing significantly to data processing.

Werner, S.V., Hatch, N.A., **Matharu, J.**, Gonzalez, A.H., Bahé, Y.M., Mei, S., Noirot, G. and Wylezalek, D. 2023 “Intracluster light in the core of $z \sim 2$ galaxy proto-clusters”. Published in *Monthly Notices of the Royal Astronomical Society*, Volume 523, Issue 1, Pages 91–104.

Processed the data used in the manuscript. Provided detailed comments for improving the manuscript.

Estrada-Carpenter, V., Papovich, C., Momcheva, I., Brammer, G., Simons, R.C., Cleri, N.J., Giavalisco, M., **Matharu, J.**, Trump, J.R., Weiner, B. and Ji, Z. 2023 “CLEAR: The Morphological Evolution of Galaxies in the Green Valley”. Published in *The Astrophysical Journal*, Volume 951, Issue 2, id.115.

Contributed to data processing and provided comments for improving the manuscript.

Shen, L., Papovich, C., Yang, G., **Matharu, J.** + CEERS Collaboration 2023 “CEERS: Spatially Resolved UV and Mid-infrared Star Formation in Galaxies at $0.2 < z < 2.5$: The Picture from the Hubble and James Webb Space Telescopes”. Published in *The Astrophysical Journal*, Volume 950, Issue 1, id.7.

Provided detailed comments for improving the manuscript.

Strait, V., Brammer, G., Muzzin, A., Desprez, G., Asada, Y., Abraham, R., Bradač, M., Iyer, K.G., Martis, N., Mowla, L., Noirot, G., Sarrouh, G.T.E., Sawicki, M., Willott, C., Gould, K.M.L., Grindlay, T., **Matharu, J.** and Rihtaršič, G. 2023 “An Extremely Compact, Low-mass Galaxy on its Way to Quiescence at $z = 5.2$ ”. Published in *The Astrophysical Journal Letters*, Volume 949, Issue 2, id.L23.

Provided comments for improving the manuscript.

Simons, R.C., Papovich, C., Momcheva, I., Brammer, G., Estrada-Carpenter, V., Finklestein, S.L., Gosmeyer C.M., **Matharu, J.**, Trump, J.R., Backhaus, B.E., Cheng, Y., Cleri, N. J., Ferguson, H.C., Finlator, K., Giavalisco, M., Ji, Z., Jung, I., Lotz, J.M., O’Brien, R., Skelton, R.E., Tilvi, V. and

Weiner, B. 2023 “CLEAR: Survey Overview, Data Analysis, and Products”. Published in *The Astrophysical Journal Supplement Series*, Volume 266, Issue 1, id.13.

Contributed to data processing and provided detailed comments for improving the manuscript.

Matharu, J., Muzzin, A., Sarrouh, G.T.E., Brammer, G., Abraham, R., Asada, Y., Bradač, M., Desprez, G., Martis, N., Mowla, L., Noirot, G., Sawicki, M., Strait, V., Willott, C.J., Gould, K.M.L., Grindlay, T. and Harshan A.T. 2023 “A First Look at Spatially Resolved Balmer Decrements at $1.0 < z < 2.4$ from JWST NIRISS Slitless Spectroscopy”. Published in *The Astrophysical Journal Letters*, Volume 949, Issue 1, id.L11.

The first paper to demonstrate and successfully measure dust attenuation profiles of galaxies at Cosmic Noon with JWST slitless spectroscopy. Conceived and led the project, processed the data, performed the analysis and wrote the manuscript.

Cleri, N.J., Yang, G., Papovich, C., Trump, J.R., Backhaus, B.E., Estrada-Carpenter, V., Finklestein, S.L., Giavalisco, M., Hutchison, T.A., Ji, Z., Jung, I., **Matharu, J.**, Momcheva, I., Olivier, G.M., Simons, R.C. and Weiner, B. 2023 “CLEAR: High-ionization [Ne V] $\lambda 3426$ Emission-line Galaxies at $1.4 < z < 2.3$ ”. Published in *The Astrophysical Journal*, Volume 948, Issue 2, id.112.

Contributed to data processing and provided comments for improving the manuscript.

Trump, J.R., Arrabalo Haro, P., C., Simons, R.C. et al inc. **Matharu, J.** 2023 “The Physical Conditions of Emission-line Galaxies at Cosmic Dawn from JWST/NIRSpec Spectroscopy in the SMACS 0723 Early Release Observations”. Published in *The Astrophysical Journal*, Volume 945, Issue 1, id.35.

Provided comments for improving the manuscript.

Cramer, W.J., Noble, A.G., Massingill, K., Cairns, J., Clements, D.L., Cooper, M.C., Demarco, R., **Matharu, J.**, McDonald, M., Muzzin, A., Nantais, J., Rudnick, G., Übler, H., van Kampen, E., Webb, T.M.A., Wilson, G. and Yee, H.K.C. 2023 “A Large-scale Kinematic Study of Molecular Gas in High- z Cluster Galaxies: Evidence for High Levels of Kinematic Asymmetry”. Published in *The Astrophysical Journal*, Volume 944, Issue 2, id.213.

Advised on analysis techniques and provided comments for improving the manuscript.

Zavala, J.A., Buat, V., Casey, C.M., + CEERS Collaboration inc. **Matharu, J.** 2023 “Dusty Starbursts Masquerading as Ultra-high Redshift Galaxies in JWST CEERS Observations”. Published in *The Astrophysical Journal Letters*, Volume 943, Issue 2, id.L9.

Provided comments for improving the manuscript.

Backhaus, B.E., Bridge, J.S., Trump, J.R., Cleri, N. J., Papovich, C., Simons, R.C., Momcheva, I., Holwerda, B.W., Ji, Z., Jung, I. and **Matharu, J.** 2023 “CLEAR: Spatially Resolved Emission Lines and Active Galactic Nuclei at $0.6 < z < 1.3$ ”. Published in *The Astrophysical Journal*, Volume 943, Issue 1, id.37.

Advised on analysis techniques and provided comments for improving the manuscript.

Finklestein, S.L., Bagley, M.B., Arrabalo Haro, P. + CEERS Collaboration inc. **Matharu, J.** 2022 “A Long Time Ago in a Galaxy Far, Far Away: A Candidate $z \sim 12$ Galaxy in Early JWST CEERS Imaging”. Published in *The Astrophysical Journal Letters*, Volume 940, Issue 2, id.L55.

Provided comments for improving the manuscript.

Papovich, C., Simons, R.C., Estrada-Carpenter, V., **Matharu, J.**, Momcheva, I., Trump, J.R., Backhaus, B.E., Brammer, G.B., Cleri, N. J., Finklestein, S.L., Giavalisco, M., Ji, Z., Jung, I., Kewley, L.J., Nicholls, D.C., Pirzkal, N., Rafelski, M. and Weiner B. 2022 “CLEAR: The Ionization and Chemical-Enrichment Properties of Galaxies at $1.1 < z < 2.3$ ”. Published in *The Astrophysical Journal*, Volume 937, Issue 1, id.22.

Contributed to the data processing and provided comments for improving the manuscript.

Matharu, J., Papovich, C., Momcheva, I., Simons, R.C., Brammer, G.B., Ji, Z., Backhaus, B.E., Cleri, N. J., Estrada-Carpenter, V., Finklestein, S.L., Finlator, K., Giavalisco, M., Jung, I., Muzzin, A., Pillepich, A., Trump, J.R., Weiner, B. 2022 “CLEAR: The Evolution of Spatially Resolved Star Formation in Galaxies between $0.5 \lesssim z \lesssim 1.7$ using H α Emission Line Maps”. Published in *The Astrophysical Journal*, Volume 937, Issue 1, id.16.

The only paper that combines maps of star formation in distant galaxies from multiple surveys – using HST slitless spectroscopy and IFU spectroscopy – to track how star formation progresses in galaxies

over a large portion of cosmic history. Conceived and led the project, processed the data, performed the analysis and wrote the manuscript.

Jung, I., Papovich, C., Finklestein, S.L., Simons, R.C., Estrada-Carpenter, V., Backhaus, B.E., Cleri, N. J., Finlator, K., Giavalisco, M., Ji, Z., **Matharu, J.**, Momcheva, I., Straughn, Amber N. and Trump, J.R. 2021, “CLEAR: Boosted Lyman-Alpha Transmission of the Intergalactic Medium in UV bright Galaxies”. Published in *The Astrophysical Journal*, Volume 933, Issue 1, id.87.

Provided comments for improving the manuscript.

Tan, V. Y. Y., Muzzin, A., Marsan, Z.C., Sok, V., Alcorn, L.Y., **Matharu, J.**, Shipley, H., Marchesini, D., Nedkova, K.V., Martis, N., van der Wel, A. and Whitaker, K.E. 2022, “Resolved stellar mass profiles of galaxies in the Hubble Frontier Fields”. Published in *The Astrophysical Journal*, Volume 933, Issue 1, id.30.

Advised on analysis techniques and provided detailed comments for improving the manuscript.

Cleri, N. J., Trump, J.R., Backhaus, B.E., Momcheva, I., Papovich, C., Simons, R.C., Weiner, B., Estrada-Carpenter, V., Finklestein, S.L., Giavalisco, M., Ji, Z., Jung, I., **Matharu, J.**, Martinez, F. III. and Sturm, M.R. 2020, “CLEAR: Paschen-Beta Star Formation Rates and Dust Attenuation of Low Redshift Galaxies”. Published in *The Astrophysical Journal*, Volume 929, Issue 1, id.3.

Advised on analysis techniques and provided detailed comments for improving the manuscript.

Backhaus, B.E., Trump, J.R., Cleri, N. J., Simons, R.C, Papovich, C., Momcheva, I., Estrada-Carpenter, V., Finklestein, S.L., **Matharu, J.**, Ji, Z., Weiner, B., Giavalisco, M. and Jung, I. 2021, “CLEAR: Emission Line Ratios at Cosmic High Noon”. Published in *The Astrophysical Journal*, Volume 926, Issue 2, id.161.

Provided comments for improving the manuscript.

Matharu, J., Muzzin, A., Brammer, G.B., Nelson, E.J., Auger, A.W., Hewett, P.C., van der Burg, R.F.J., Balogh, M., Demarco, R., Marchesini, D., Noble, A.G., Rudnick, G., van der Wel, A., Wilson, G. and Yee, H.K.C. 2021. “HST/WFC3 grism observations of $z \sim 1$ clusters: Evidence for rapid outside-in environmental quenching from spatially resolved H-Alpha maps”. Published in *The Astrophysical Journal*, Volume 923, Issue 2, id.222.

The first paper to provide direct evidence for the rapid “outside-in” quenching of star formation in distant cluster galaxies using HST slitless spectroscopy. Led the project, processed the data, performed the analysis and wrote the manuscript.

Simons, R.C, Papovich, C., Momcheva, I., Trump, J.R., Brammer, G.B., Estrada-Carpenter, V., Backhaus, B.E., Cleri, N. J., Finklestein, S.L., Giavalisco, M., Ji, Z., Jung, I., **Matharu, J.** and Weiner, B. 2021. “CLEAR: The Gas-Phase Metallicity Gradients of Star-Forming Galaxies at $0.6 < z < 2.6$ ”. Published in *The Astrophysical Journal*, Volume 923, Issue 2, id.203.

Provided comments for improving the manuscript.

Balogh, M., van der Burg, R.F.J., Muzzin, A., Rudnick, G., Wilson, G., Webb, K., Biviano, A., Boak, K., Cerulo, P., Chan, J.C.C., Cooper, M.C., Gilbank, D.G., Gwyn, S., Lidman, C., **Matharu, J.**, McGee, S.L., Old, L., Pintos-Castro, I., Reeves, A.M.M., Shipley, H., Vulcani, B., Yee, H.K.C., Alonso, M.V., Bellhouse, C., Cooke, K.C., Davidson, A., De Lucia, G., Demarco, R., Drakos, N., Fillingham, S.P., Finoguenov, A., Forrest, B., Golledge, C., Jablonka, P., Garcia, D.L., McNab, K., Muriel, H., Nantais, J.B., Noble, A., Parker, L.C., Petter, G., Poggianti, B.M., Townsend, M., Valotto, C., Webb, T., and Zaritsky, D. 2021, “The GOGREEN and GCLASS Surveys: First Data Release”. Published in *Monthly Notices of the Royal Astronomical Society*, Volume 500, Issue 1, Pages 358–387.

Provided processed data for the data release.

Ni, Q., Brandt, W. N., Yang, G., Leja, J., Chen, C. -T. J., Luo, B., **Matharu, J.**, Sun, M., Vito, F., Xue, Y. Q., Zhang, K., 2020, “Revealing the relation between black-hole growth and host-galaxy compactness among star-forming galaxies”. Published in *Monthly Notices of the Royal Astronomical Society*, Volume 500, Issue 4, Pages 4989–5008.

Advised on analysis techniques and provided detailed comments for improving the manuscript.

Estrada-Carpenter, V., Papovich, C., Momcheva, I., Brammer, G.B., Simons, R., Bridge, J., Cleri, N., Ferguson, H., Finklestein, S.L., Giavalisco, M., Jung, I., **Matharu, J.**, Trump, J. and Weiner, B. 2020, “CLEAR II: Evidence for Early Formation of the Most Compact Quiescent Galaxies at High Redshift”. Published in *The Astrophysical Journal*, Volume 898, Issue 2, article id. 171.

Provided detailed comments for improving the manuscript.

Matharu, J., Muzzin, A., Brammer, G.B., van der Burg, R.F.J., Auger, M.W., Hewett, P.C., van der Wel, A., van Dokkum, P., Chan, J.C.C., Demarco, R., Marchesini, D., Nelson, E.J., Noble, A.G. and Wilson, G. 2020, “HST/WFC3 grism observations of $z \sim 1$ clusters: evidence for evolution in the mass–size relation of quiescent galaxies from poststarburst galaxies”. Published in *Monthly Notices of the Royal Astronomical Society*, Volume 493, Issue 4, Pages 6011–6032.

The first paper to provide direct evidence for the contribution of recently quenched cluster galaxies to the evolution in the cluster quiescent galaxy mass–size relation using HST slitless spectroscopy. Led the project, processed the data, performed the analysis and wrote the manuscript.

Matharu, J., Muzzin, A., Brammer, G.B., van der Burg, R.F.J., Auger, M.W., Hewett, P.C., van der Wel, A., van Dokkum, P., Balogh, M., Chan, J.C.C., Demarco, R., Marchesini, D., Nelson, E.J., Noble, A.G., Wilson, G. and Yee, H.K.C. 2019, “HST/WFC3 grism observations of $z \sim 1$ clusters: The cluster versus field stellar mass–size relation and evidence for size growth of quiescent galaxies from minor mergers”. Published in *Monthly Notices of the Royal Astronomical Society*, Volume 484, Issue 1, Pages 595–617.

The first paper to provide direct evidence for the minor mergers hypothesis of galaxy size growth using HST slitless spectroscopy. Led the project, processed the data, performed the analysis and wrote the manuscript.

Noble, A.G., Muzzin, A., McDonald, M., Rudnick, G., **Matharu, J.**, Cooper, M.C., Demarco, R., Lidman, C., Nantais, J., van Kampen, E., Webb, T.M.A., Wilson, G. and Yee, H.K.C. 2019, “Resolving CO(2-1) in $z \sim 1.6$ Gas-Rich Cluster Galaxies with ALMA: Rotating Molecular Gas Disks with Possible Signatures of Gas Stripping”. Published in *The Astrophysical Journal*, Volume 870, Issue 2, article id. 56.

Provided the Hubble Space Telescope data measurements for this publication. Provided comments for improving the manuscript.

SOFTWARE

Matharu, Jasleen, & Brammer, Gabriel. (2022). Updated Configuration files for JWST NIRISS Slitless Spectroscopy (1.0). Zenodo. <https://doi.org/10.5281/zenodo.7628094>

Calculated improved slitless spectroscopy calibrations for the NIRISS instrument on-board JWST. Currently has >100 downloads.

Brammer, G., Strait, V., **Matharu, J.** and Momcheva, I., 2022. “Grizli”. Published on Zenodo. DOI: 10.5281/zenodo.6672538.

Updated the documentation “Grizli for Dummies”, a user manual for using grizli.

Brammer, Gabe and **Matharu, Jasleen**, 2021. “Grizli: Release 2021”. Published on Zenodo. DOI: 10.5281/zenodo.5012699.

I am the Creator, Author and Editor of **Grizli for Dummies** – an official guide to using the Grism Redshift & Line Analysis Software (Grizli). Open source user manual such that other users can contribute to it, since Grizli is in active development.

Presentations

COLLOQUIA

[Invited] 20th Feb 2026. *Revealing how the Earliest Galaxies Evolved into Today’s Diverse Population with Slitless Spectroscopy*. Königstuhl Colloquium, Max Planck Institute for Astronomy (MPIA), Heidelberg, Germany.

[Invited] 23rd Sep 2022. *Revealing how Star Formation and Quenching proceed in High Redshift Galaxies with Spatially Resolved Space-based Slitless Spectroscopy*. Saint Mary’s University, Halifax, Canada.

[COVID-19][Invited][Given in-person] 6th Jun 2022. *Revealing how Star Formation and Quenching proceed in High Redshift Galaxies with Spatially Resolved Space-based Slitless Spectroscopy*. University of Oxford, Oxfordshire, UK.

[COVID-19][Invited] 22nd Oct 2021. *Revealing how Galaxy Growth, Star Formation and Quenching Proceed in High Redshift Galaxies with Spatially Resolved Space-based Slitless Spectroscopy.* University of Louisville, Kentucky, USA.

[COVID-19][Invited][Given in-person] 16th Sep 2021. *Revealing how Galaxy Growth, Star Formation and Quenching Proceed in High Redshift Galaxies with Spatially Resolved Space-based Slitless Spectroscopy.* Steward Observatory/NSF NOIR Lab, University of Arizona, Tucson, Arizona, USA.

CONFERENCE TALKS & PRESENTATIONS

3rd May 2024. *The role of BCGs, PSBs and Compact Galaxies in Shaping Galaxy Size Growth and Quenching over Cosmic Time.* Extreme Galaxies in their extreme environments at extremely early epochs, Reykjavik, Iceland.

10th Jul 2023. *The First High Resolution View of Galaxy Evolution in the Earliest Galaxies with JWST Slitless Spectroscopy.* European Astronomical Society Annual Meeting 2023, Kraków, Poland.

[Invited] 23rd Jun 2023. *Galaxy Evolution with Space-based Slitless Spectroscopy: Past, Present and Roman.* Roman Science Inspired By Emerging JWST Results, Space Telescope Science Institute (StScI), Baltimore, USA.

[COVID-19] 17th Jun 2021. *The Role of Galaxy Clusters in Shaping the Size Growth and Quenching of Galaxies.* Galaxy Cluster Formation II Workshop, European Southern Observatory, Garching, Germany and Harvard-Smithsonian Centre for Astrophysics, Cambridge, USA.

[COVID-19] 18th May 2021. *Spatially resolved star formation in different environments between $0.5 < z < 1.7$ with HST WFC3 slitless spectroscopy.* Multi-Object Spectroscopy for Statistical Measures of Galaxy Evolution Workshop, Space Telescope Science Institute, Baltimore, USA.

[COVID-19] 15th Jan 2021. *The Role of Galaxy Clusters in Shaping the Size Growth and Quenching of Galaxies.* 237th Meeting of the American Astronomical Society, virtually anywhere.

[COVID-19] 1st Jul 2020. *The cluster vs. field stellar mass-size relation at $z \sim 1$: implications for galaxy size growth and quenching.* European Astronomical Society Annual Meeting 2020, Leiden, The Netherlands (virtual conference).

10th Feb 2020. *The cluster vs. field stellar mass-size relation at $z \sim 1$: implications for galaxy size growth and quenching.* Aspen Winter Conference: Galaxy Quenching and Transformation Throughout Cosmic Time, Aspen Center for Physics, Aspen, Colorado, USA.

Jun 2017. *Galaxy Evolution & the Mass-Size Relation in $z \sim 1$ Clusters.* Galaxy Evolution Across Time Conference, Paris, France.

SEMINARS

28th May 2025. *Galaxy Evolution Across Cosmic Time with Slitless Spectroscopy.* Institute of Cosmology and Gravitation, University of Portsmouth, Portsmouth, UK.

[Invited] 11th Dec 2024. *Galaxy Evolution Across Cosmic Time with Slitless Spectroscopy.* Astrophysics Research Institute Seminar, Liverpool John Moores University, Liverpool, UK.

[Invited] 25th April 2024. *The First High Resolution View of Galaxy Evolution in the Earliest Galaxies with JWST Slitless Spectroscopy.* UCL, London, UK.

[Invited] 26th Jan 2023. *Revealing how Star Formation and Quenching proceed in High Redshift Galaxies with Spatially Resolved Space-based Slitless Spectroscopy.* Max Planck Institute for Astronomy, Heidelberg, Germany.

[Invited] 16th Nov 2022. *Revealing how Star Formation and Quenching proceed in High Redshift Galaxies with Spatially Resolved Space-based Slitless Spectroscopy.* Leiden Observatory, Leiden University, Leiden, The Netherlands.

[Invited] 6th Oct 2022. *The First High Resolution View of Galaxy Evolution in the Earliest Galaxies with JWST Slitless Spectroscopy.* Cake Talk, The Cosmic DAWN Center, Niels Bohr Institute, University of Copenhagen, Copenhagen, Denmark.

[COVID-19][Invited] 24th Jun 2022. *Revealing how Star Formation and Quenching proceed in High Redshift Galaxies with Spatially Resolved Space-based Slitless Spectroscopy.* Seminar, Arizona State University, Tempe, USA.

- [COVID-19][Given in-person]** 25th Apr 2022. *Revealing how Star Formation and Quenching proceed in High Redshift Galaxies with Spatially Resolved Space-based Slitless Spectroscopy*. Seminar, University of California, San Diego, USA.
- [COVID-19]** 29th Sep 2021. *Revealing how Galaxy Growth, Star Formation and Quenching proceed in High Redshift Galaxies with Spatially Resolved Space-based Slitless Spectroscopy*. Seminar, University of Nottingham, UK.
- [COVID-19]** 21st Sep 2021. *Revealing how Galaxy Growth, Star Formation and Quenching proceed in High Redshift Galaxies with Spatially Resolved Space-based Slitless Spectroscopy*. Extragalactic Group Seminar, University of Edinburgh, UK.
- [COVID-19]** 9th Sep 2021. *Revealing how Galaxy Growth, Star Formation and Quenching Proceed in High Redshift Galaxies with Spatially Resolved Space-based Slitless Spectroscopy*. School of Physical Sciences Seminar, The Open University, Milton Keynes, UK.
- [COVID-19][Invited]** 26th Feb 2021. *Tracing star formation in galaxies using spatially resolved H-Alpha emission line maps*. Joint Nuclear and Astrophysics Seminar, Texas A&M University, College Station, TX, USA.
- [COVID-19][Invited]** 25th Jan 2021. *The Role of Galaxy Clusters in Shaping the Size Growth and Quenching of Galaxies*. Extragalactic/Cosmology Seminar, University of Texas at Austin, TX, USA.
- [COVID-19][Invited]** 21st Sep 2020. *The Role of Galaxy Clusters in Shaping the Size Growth and Quenching of Galaxies*. Mitchell Institute Seminar, Mitchell Institute for Fundamental Physics and Astronomy, Texas A&M University, College Station, TX, USA.
- [COVID-19]** 17th Aug 2020. *New results from spatially resolved studies with space-based slitless spectroscopy*. Texas A&M Astrosymposium, Mitchell Institute for Fundamental Physics and Astronomy, Texas A&M University, College Station, TX, USA.
- [COVID-19]** 31st Jul 2020. *The cluster vs. field stellar mass–size relation at $z \sim 1$: implications for galaxy size growth and quenching*. Lunch talk, Space Telescope Science Institute, Baltimore, USA.
- Oct 2019. *Understanding Environmental Quenching at High-redshift*. Extragalactic Lunch, Mitchell Institute for Fundamental Physics and Astronomy, Texas A&M University, College Station, TX, USA.
- [Invited]** Jun 2019. *The cluster vs. field stellar mass–size relation at $z \sim 1$: implications for galaxy size growth and quenching*. CLEAR Collaboration meeting, Space Telescope Science Institute, Baltimore, USA.
- Oct 2018. *The cluster vs. field stellar mass–size relation at $z \sim 1$: implications for galaxy size growth with decreasing redshift*. Dunlap tea, Dunlap Institute for Astronomy & Astrophysics, University of Toronto, Canada.
- Oct 2018. *The cluster vs. field stellar mass–size relation at $z \sim 1$: implications for galaxy size growth with decreasing redshift*. Astrophysics Brown Bag Lunch talk, MIT Kavli Institute for Astrophysics and Space Research, Cambridge, USA.
- Oct 2018. *The cluster vs. field stellar mass–size relation at $z \sim 1$: implications for galaxy size growth with decreasing redshift*. Lars Hernquist's group meeting, Harvard-Smithsonian Center for Astrophysics, Cambridge, USA.
- Oct 2018. *The cluster vs. field stellar mass–size relation at $z \sim 1$: implications for galaxy size growth with decreasing redshift*. ITC Lunch, Institute for Theory and Computation, Harvard-Smithsonian Center for Astrophysics, Cambridge, USA.
- Oct 2018. *The cluster vs. field stellar mass–size relation at $z \sim 1$: implications for galaxy size growth with decreasing redshift*. Lunch talk, Yale University, New Haven, USA.
- Oct 2018. *The cluster vs. field stellar mass–size relation at $z \sim 1$: implications for galaxy size growth with decreasing redshift*. Lunch talk, Space Telescope Science Institute, Baltimore, USA.
- Sep 2018. *The cluster vs. field stellar mass–size relation at $z \sim 1$: implications for galaxy size growth with decreasing redshift*. Lunch talk, University of Nottingham, Nottingham, UK
- Sep 2018. *The cluster vs. field stellar mass–size relation at $z \sim 1$: implications for galaxy size growth with decreasing redshift*. Lunch talk, Leiden Observatory, Leiden, The Netherlands.

Feb 2017. *The shut down of star formation in galaxies at $z \sim 1$: obtaining direct evidence for its environmental dependence*. Seminar, Institute of Astronomy, Cambridge, UK.

Professional Development & Outreach

SERVICE

- Apr-Jun 2025 **Dawn Summit SOC Member**, assisted with organisation for the yearly Cosmic Dawn Center conference.
- June 2023- **Executive Committee Member on the JWST Wide Area 3D Parallel Survey Team**, make strategic decisions, set policy matters, oversee distribution of science topics and technical tasks, manage NASA budget allocation.
- Apr 2021-Feb 2022 **[COVID-19] Astronomy Postdoc Representative**, Attend Faculty Meetings, push for Diversity, Equity & Inclusion initiatives, Delegate tasks/responsibilities amongst Astronomy Postdocs.
- Jun-Aug 2020 **[COVID-19] Lead organiser of Texas A&M University's Astrosymposium 2020**, Prepared schedule for all-day virtual conference, Moderated and supported other organisers during the conference.
- May 2020- **[COVID-19] Creator, Author and Editor of Grizli for Dummies – a guide to using Grizli**, Open source such that other users can contribute to it, since Grizli is in active development.

OUTREACH

- October 2024 Talk on *The First High Resolution View of Galaxy Evolution in the Earliest Galaxies with JWST* Niels Bohr Institute, Copenhagen Culture Night
- May 2024 Talk on *The First High Resolution View of Galaxy Evolution in the Earliest Galaxies with JWST* Copenhagen Planetarium, Denmark
- May 2020 **[COVID-19] Astronomy on Tap Bryan/College Station Virtual Edition #24**, 25 minute talk on *Our Place in the Universe*, livestreamed on YouTube. College Station, TX, USA
- Jul 2018 Gave two lectures on the topic of *Our Place in the Universe* and the workings of the the Northumberland Telescope to two groups of local and overseas students aged between 13 - 14 and 15 - 18. Institute of Astronomy, University of Cambridge, UK
- Mar 2016 Organised an activity for the Cambridge Science Festival where by children can “build” a galaxy. Institute of Astronomy, University of Cambridge, UK

Referees

Dr. Annalisa Pillepich

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