

## Curriculum Vitae of Jasleen Matharu

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CONTACT INFORMATION	Department of Physics & Astronomy Texas A&M University College Station, Texas, 77843-4242 USA	Email: <a href="mailto:jmatharu@tamu.edu">jmatharu@tamu.edu</a> Website
RESEARCH INTERESTS	Galaxy Evolution, Galaxy Clusters, High-Redshift Galaxies, Star Formation, Quenching, Galaxy Growth, Cosmic Reionisation	
COMPUTER LANGUAGES	Python, Object Orientated Programming, bash, git, LaTeX, HTML, Markdown, reStructuredText	
SPECIALISED SKILLS	<ul style="list-style-type: none"><li>• <i>Grism redshift and line analysis software</i> (Grizli) – Creator, Author and Editor of “Grizli for dummies”, an unofficial guide to using Grizli.</li><li>• GALFIT</li></ul>	
EDUCATION	<p><b>Institute of Astronomy, University of Cambridge</b>, Cambridgeshire, UK</p> <p>Ph.D., Astronomy, October 2015 - July 2019, <i>Awarded</i>: 30th November 2019</p> <ul style="list-style-type: none"><li>• Thesis Title: <i>A Study on Quenching and Galaxy Growth in <math>z \sim 1</math> Clusters using HST WFC3 Grism Observations</i></li><li>• Primary Supervisor: <a href="#">Dr. Adam Muzzin</a></li><li>• Primary Supervisor (Cambridge): <a href="#">Prof. Paul C. Hewett</a></li><li>• Secondary Supervisor (Cambridge): <a href="#">Dr. Matthew Auger</a></li></ul> <p><b>University College London (UCL)</b>, Gower Street, London, UK</p> <p>M.Sci., Astrophysics (First Class Honours), September 2011 - August 2015</p> <ul style="list-style-type: none"><li>• Masters Project: <i>Testing Cosmic Microwave Background Delensing</i></li><li>• Primary Supervisor (nominal): <a href="#">Prof Hiranya Peiris</a></li><li>• Secondary Supervisor: <a href="#">Dr Aurélien Benoit-Lévy</a></li></ul>	
PROFFESIONAL APPOINTMENTS	Department of Physics & Astronomy, Texas A&M University Supervisors: <a href="#">Prof. Casey Papovich</a> & <a href="#">Prof. Robert Kennicutt</a> <b>Postdoctoral Research Associate</b>	September 2019 - present
PROFESSIONAL EXPERIENCE	Referee for <i>Astronomy &amp; Astrophysics</i>	2020-
PUBLICATION STATISTICS	Last updated 22nd December 2020: <ul style="list-style-type: none"><li>• Refereed first author publications: 2, total citations: 21</li><li>• Refereed total publications: 6, total citations: 46</li><li>• H-index: 3</li></ul>	
REFEREED JOURNAL PUBLICATIONS	1. 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., <b>Matharu, J.</b> , 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.
2. 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”. Accepted for Publication in *Monthly Notices of the Royal Astronomical Society*, arXiv: 2007.04987.
  3. 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.
  4. **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.
  5. **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.
  6. 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.

- PRESENTATIONS
- **[COVID-19]** Mitchell Institute Seminar, *The Role of Galaxy Clusters in Shaping the Size Growth and Quenching of Galaxies*, Mitchell Institute for Fundamental Physics and Astronomy, Texas A&M University, College Station, TX, USA. Sep 2020
  - **[COVID-19]** Texas A&M Astrosymposium, *New results from spatially resolved studies with space-based slitless spectroscopy*, Mitchell Institute for Fundamental Physics and Astronomy, Texas A&M University, College Station, TX, USA. Aug 2020
  - **[COVID-19]** Lunch talk, *The cluster vs. field stellar mass–size relation at  $z \sim 1$ : implications for galaxy size growth and quenching*, Space Telescope Science Institute, Baltimore, USA. Jul 2020

- **[COVID-19][Contributed]** European Astronomical Society Annual Meeting 2020: Quenching cluster galaxies in the cosmic middle ages, *The cluster vs. field stellar mass–size relation at  $z \sim 1$ : implications for galaxy size growth and quenching*, Leiden, The Netherlands (virtual conference). Jul 2020
- **[Contributed]** Aspen Winter Conference: Galaxy Quenching and Transformation Throughout Cosmic Time, *The cluster vs. field stellar mass–size relation at  $z \sim 1$ : implications for galaxy size growth and quenching*, Aspen Center for Physics, Aspen, Colorado, USA Feb 2020
- Extragalactic Lunch, *Understanding Environmental Quenching at High-redshift*, Mitchell Institute for Fundamental Physics and Astronomy, Texas A&M University, College Station, TX, USA. Oct 2019
- CLEAR Collaboration meeting, *The cluster vs. field stellar mass–size relation at  $z \sim 1$ : implications for galaxy size growth and quenching*, Space Telescope Science Institute, Baltimore, USA. Jun 2019
- Dunlap tea, *The cluster vs. field stellar mass–size relation at  $z \sim 1$ : implications for galaxy size growth with decreasing redshift*, Dunlap Institute for Astronomy & Astrophysics, University of Toronto, Canada. Oct 2018
- Astrophysics Brown Bag Lunch talk, *The cluster vs. field stellar mass–size relation at  $z \sim 1$ : implications for galaxy size growth with decreasing redshift*, MIT Kavli Institute for Astrophysics and Space Research, Cambridge, USA. Oct 2018
- Lars Hernquist’s group meeting, *The cluster vs. field stellar mass–size relation at  $z \sim 1$ : implications for galaxy size growth with decreasing redshift*, Harvard-Smithsonian Center for Astrophysics, Cambridge, USA. Oct 2018
- ITC Lunch, *The cluster vs. field stellar mass–size relation at  $z \sim 1$ : implications for galaxy size growth with decreasing redshift*, Institute for Theory and Computation, Harvard-Smithsonian Center for Astrophysics, Cambridge, USA. Oct 2018
- Lunch talk, *The cluster vs. field stellar mass–size relation at  $z \sim 1$ : implications for galaxy size growth with decreasing redshift*, Yale University, New Haven, USA. Oct 2018
- Lunch talk, *The cluster vs. field stellar mass–size relation at  $z \sim 1$ : implications for galaxy size growth with decreasing redshift*, Space Telescope Science Institute, Baltimore, USA. Oct 2018
- Lunch talk, *The cluster vs. field stellar mass–size relation at  $z \sim 1$ : implications for galaxy size growth with decreasing redshift*, University of Nottingham, Nottingham, UK. Sep 2018
- Lunch talk, *The cluster vs. field stellar mass–size relation at  $z \sim 1$ : implications for galaxy size growth with decreasing redshift*, Leiden Observatory, Leiden, Netherlands. Sep 2018
- Poster, *Galaxy Evolution & the Mass–Size Relation in  $z \sim 1$  Clusters*, Galaxy Evolution Across Time, proceedings of a conference held in Paris, France. Jun 2017
- Seminar, *The shut down of star formation in galaxies at  $z \sim 1$ : obtaining direct evidence for its environmental dependence*, Institute of Astronomy, Cambridge, UK. Feb 2017

#### OBSERVING PROPOSALS

- **Co-I** (PI: Noble), Hubble Space Telescope Cycle 28 GO Proposal #16300: *“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*

- **Co-I** (PI: Simons), Hubble Space Telescope Cycle 28 Archival & Theoretical Research Proposal #16151: *“On The Rapid Evolution of Galaxy Metallicity Gradients: A Bridge Between Theory and Observations”*
- **Co-I** (PI: Muzzin), 20.00 hrs, Gemini-North Telescope Proposal GN-2020A-Q-214: *“Towards a Deeper Understanding of Galaxy Quenching: First Measurement of the Stellar Kinematics of Poststarburst Galaxies in Clusters at  $z \sim 1$ ”*

OBSERVING EXPERIENCE	<p>Roque de los Muchachos Observatory, <a href="#">William Herschel Telescope (WHT)</a></p> <ul style="list-style-type: none"> <li>• <a href="#">PAUCam</a>, assisted Nina Hatch</li> </ul> <p>5 nights</p>
AWARDS	<ul style="list-style-type: none"> <li>• Churchill College Travel Grant Award, Talks Tour to present PhD work, Nottingham (UK), Leiden (The Netherlands), Baltimore, New Haven and Cambridge (USA) and Toronto (Canada) Oct 2018</li> <li>• Churchill College Travel Grant Award, Conference on Galaxy Evolution Across Time, Paris (France) May 2017</li> <li>• 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 Oct 2015</li> </ul>
UNDERGRADUATE SUPERVISION	<p><b>Maths IA Supervisor, Churchill College</b> Academic year 2016–17</p> <p>Weekly two-on-one and one-on-one teaching of undergraduate students in their first year mathematics course.</p>
OUTREACH	<p><b>[COVID-19]</b> College Station, Texas May 2020</p> <ul style="list-style-type: none"> <li>• Astronomy on Tap Bryan/College Station Virtual Edition #24: 25 minute talk on “Our Place in the Universe”, <a href="#">livestreamed on YouTube</a>.</li> </ul> <p>Institute of Astronomy, University of Cambridge Jul 2018</p> <ul style="list-style-type: none"> <li>• 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.</li> </ul> <p>Institute of Astronomy, University of Cambridge Mar 2016</p> <ul style="list-style-type: none"> <li>• Organised an activity for the Cambridge Science Festival where by children can “build” a galaxy.</li> </ul>
SERVICE	<p><b>[COVID-19] Lead organiser of Texas A&amp;M University’s Astrosymposium 2020</b> Jun 2020 – Aug 2020</p> <ul style="list-style-type: none"> <li>• Prepared the schedule for the all-day virtual conference.</li> <li>• Moderated and supported other organisers during the virtual conference.</li> </ul> <p><b>[COVID-19] Creator, Author and Editor of “<a href="#">Grizli for dummies</a>” – an unofficial guide to using Grizli</b></p> <ul style="list-style-type: none"> <li>• Unofficial guide to using Grizli that is part of the official Grizli documentation.</li> <li>• Open source such that other users can contribute to it, since Grizli is in active development.</li> </ul> <p><b>Co-Chair of Central Texas James Webb Space Telescope (JWST) Workshops Committee</b> Nov 2019 – Feb 2020</p> <ul style="list-style-type: none"> <li>• Remotely attended a <a href="#">week-long Masterclass</a> on the James Webb Space Telescope (JWST) at the Space Telescope Science Institute (StScl).</li> </ul>

- Co-organised two all-day JWST Proposal Planning Workshops with hands-on exercises at UT Austin and Texas A&M University.