Curriculum Vitae of Jasleen Matharu

CONTACT INFORMATION

Department of Physics & Astronomy
Texas A&M University
College Station, Texas, 77843-4242
USA

Email: jmatharu@tamu.edu
Website

RESEARCH INTERESTS

Galaxy Evolution, Galaxy Clusters, High-Redshift Galaxies, Star Formation, Quenching, Galaxy Growth, Cosmic Reionisation

COMPUTER LANGUAGES

Python, bash, git, LaTeX, HTML, Markdown, reStructuredText

SPECIALISED SKILLS

- *Grism redshift and line analysis software* (Grizli) – Creator, Author and Editor of "Grizli for dummies", an unofficial guide to using Grizli.
- GALFIT

EDUCATION

Institute of Astronomy, University of Cambridge, Cambridgeshire, UK

Ph.D., Astronomy, October 2015 - July 2019, *Awarded:* 30th November 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), Gower Street, London, UK

M.Sci., Astrophysics (First Class Honours), September 2011 - August 2015

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

PROFFESIONAL APPOINTMENTS

Department of Physics & Astronomy,
Texas A&M University
Supervisors: Prof. Casey Papovich & Prof. Robert Kennicutt
Postdoctoral Research Associate September 2019 - present

PROFESSIONAL EXPERIENCE

Referee for *Astronomy & Astrophysics* 2020-

PUBLICATION STATISTICS

As of 18th June 2020:

- Refereed first author publications: 2, total citations: 10
- Refereed total publications: 4, total citations: 18
- H-index: 2

REFEREED JOURNAL PUBLICATIONS

1. 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". Accepted for publication in *The Astrophysical Journal*, arXiv:2005.1228.

2. **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.

3. **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.

4. 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

- **[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

Roque de los Muchachos Observatory, William Herschel Telescope (WHT)

- PAUCam, assisted Nina Hatch 5 nights

AWARDS

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

UNDERGRADUATE SUPERVISION

Maths IA Supervisor, Churchill College Academic year 2016–17

Weekly two-on-one and one-on-one teaching of undergraduate students in their first year mathematics course.

OUTREACH

[COVID-19] College Station, Texas May 2020

- Astronomy on Tap Bryan/College Station Virtual Edition #24: 25 minute talk on "Our Place in the Universe", livestreamed on YouTube.

Institute of Astronomy, University of Cambridge 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 Mar 2016

- Organised an activity for the Cambridge Science Festival where by children can "build" a galaxy.

SERVICE

Co-Chair of Central Texas James Webb Space Telescope (JWST) Workshops Comittee Nov 2019 – Feb 2020

- Remotely attended a week-long Masterclass on the James Webb Space Telescope (JWST) at the Space Telescope Science Institute (StScI).
- Co-organised two all-day JWST Proposal Planning Workshops with hands-on exercises at UT Austin and Texas A&M University.

[COVID-19] Creator, Author and Editor of "Grizli for dummies"– an unofficial guide to using Grizli

- Unofficial guide to using Grizli that is part of the official Grizli documentation.
- Open source such that other users can add information to it, since Grizli is in active development.