Tim B. Miller

Department of Astronomy
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Research Interests

Galaxy formation and evolution; Galaxy morphology; Low surface-brightness observations; Galaxy surveys; Image analysis techniques

Education

Ph.D Candidate, Astronomy — Expected Summer 2022
Yale University, CT, USA
Supervisor: Pieter van Dokkum

Masters of Science, Physics — Awarded August 2017
Dalhousie University, Nova Scotia, Canada
Supervisor: Scott Chapman
Thesis: *Star Formation Rate Indicators in the FIRE Simulations & SPT2349-56: A Massive and Active Proto-cluster*

Bachelor of Science, First Class Honors in Physics — Awarded May 2015
Dalhousie University, Nova Scotia, Canada

Academic Scholarships & Awards

Gruber Science Fellowship	2017 - Present
Killam Predoctoral Scholarship-Master's	2016 - 2017
Nova Scotia Graduate Scholarship	2016 - 2017
NSERC Canada Graduate Scholarship-Master's	2016
NSERC Undergraduate Summer Research Award	Summers 2013 - 2015
Mackenzie Scholarship	2013

Publications

First Authored

Miller, T. B. & van Dokkum, P., 2021, "Bayesian fitting of multi-Gaussian expansion models to galaxy images", in press, ApJ, arXiv:2109.13262

Miller, T. B., van Dokkum, P., Danieli, S., et al. 2021, "The Dragonfly Wide Field Survey. II. Accurate Total Luminosities and Colors of Nearby Massive Galaxies and Implications for the Galaxy Stellar Mass Function", ApJ, 909, 74

Miller, T. B., van den Bosch, F. C., Green, S. B., et al. 2020, "Dynamical self-friction: how mass loss slows you down ", MNRAS , 495, 4496.

Miller, T. B., Chapman, S. C., Hayward, C. C., et al., 2020, "Investigating overdensities around $z > 6$ Galaxies through ALMA observations of [CII]", ApJ , 889, 2

Miller, T. B., van Dokkum, P., Mowla, L. and van der Wel, A. 2019, "A New View of the Size-Mass Distribution of Galaxies: Using r_{20} and r_{80} Instead of r_{50}", ApJL, 872, L14

Miller, T. B., Chapman, S. C., Aravena, M., et al., 2018,"A massive core for a cluster of galaxies at a redshift of 4.3" , Nature, 556, 469

Miller, T. B., Hayward, C. C., Chapman, S. C., et al. 2015, "The bias of the sub-millimetre galaxy population: SMGs are poor tracers of the most-massive structures in the z∼2 Universe", MNRAS, 452, 878

Co-authored

Liu, Q., Abraham, R., ... **Miller, T. B.** ..., et al. 2021, "A Method To Characterize the Wide-Angle Point Spread Function of Astronomical Images", Accepted ApJ, arXiv:2110.11598

Keim, M. A., van Dokkum, P., ... **Miller, T. B.** ... , et al. 2021, " Tidal Distortions in NGC1052-DF2 and NGC1052-DF4: Independent Evidence for a Lack of Dark Matter ", submitted to ApJ, arXiv:2109.09778

Hill, R., Chapman, S. C., ... **Miller, T. B.** ... , et al. 2021,"A census of the stellar content in the protocluster core SPT2349−56 at $z = 4.3$", submitted to MNRAS, arXiv:2109.04534

Cunningham, D. J. M., Chapman, S. C. .... **Miller, T. B.** ... , et al. 2020, The [C II]/[N II] ratio in $3 < z < 6$ sub-millimetre galaxies from the South Pole Telescope survey MNRAS, 494, 4090

Danieli, S., Lokhorst, D., ... **Miller, T. B.** ... , et al. 2020, "The Dragonfly Wide Field Survey. I. Telescope, Survey Design and Data Characterization", ApJ , 894, 119

Ogiya, G., van den Bosch, F. C., ... **Miller, T. B.** ... et al. 2019, "DASH: a library of dynamical subhalo evolution ", MNRAS, 485, 189.

Mowla, L., van der Wel, A., van Dokkum, P. and **Miller, T. B.**, "A Mass-dependent Slope of the Galaxy Size-Mass Relation out to $z \sim 3$: Further Evidence for a Direct Relation between Median Galaxy Size and Median Halo Mass", 2019, ApJLn, 872, L13

Marrone, D. P., Spilker, J. S., ... **Miller, T. B.** ... , et al. "Galaxy growth in a massive halo in the first billion years of cosmic history", Nature, 2018, 553, 51

Strandet, M. L., Weiss, A., ... **Miller, T. B.** ... , et al. , "ISM Properties of a Massive Dusty Star-forming Galaxy Discovered at z ∼ 7", ApJL, 2017, 842, L15

Orr, M. E., Hayward, C. C., ... **Miller, T. B.** ... , et al. "Stacked Star Formation Rate Profiles of Bursty Galaxies Exhibit "Coherent" Star Formation", ApJL , 2017, 849, L2

Conference Presentations & Seminars

Galaxies and AGN journal club - John Hopkins U.	Jan 2022
Thunch - Princeton	Sept 2021
EAS Annual Meeting	July 2021
AAS 235	Jan 2020
SMA Offices, Hawaii, USA	Jul. 2015
Canadian Undergraduate Physics Conference, Queen's University	Oct. 2014

Observing Experience

Keck I - LRIS — Apr. 2021
· 2 nights observing

Dragonfly Telephoto Array — July 2020 - Present
· Recurring observer

Keck I - MOSFIRE — Nov. 2018
· 3 nights observing

SMA — July 2016
· Guest observer for 5 nights

Community and Outreach

Galaxy lunch Organizer — Fall 2019 - Fall 2021
· Moderated and organized weekly journal club and speaker series

Astronomy on tap New Haven: public talk — July 2019
· "The Hubble constant and our expanding universe"

Yale Astronomy Student Council — Fall 2018 - Fall 2021
· Founding member, worked with students and faculty to update graduate program

Physics Fun and Discovery Days, Dalhousie University — Summers 2013-2016
· Performed physics demonstrations to elementary and junior high school students