

# Dr. Matthew A. Taylor

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## EDUCATION

July 2016	<b>Pontificia Universidad Católica de Chile</b> <i>PhD in Astrophysics</i> Distinción Maxima Dissertation: The Global Globular Cluster System of the Nearby Giant Elliptical Galaxy NGC5128 Advisors: Dr. Thomas H. Puzia, Dr. Steffen Mieske	Santiago, Chile
June 2011	<b>University of Victoria</b> <i>Bachelor of Science in Physics and Astronomy</i> Co-operative Education Distinction	Victoria, Canada

## EMPLOYMENT

June 2017-	<b>Gemini Observatory, Northern Operations Center</b> <i>Gemini Science Fellow</i>	Hilo, Hawai'i
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## HONOURS, GRANTS, AND AWARDS

2017	<b>Postdoctoral Fellowship Grant (\$45000CAD/year declined)</b> <i>National Research Council of Canada</i>	Canada
2014–2016	<b>Student Fellowship</b> <i>European Southern Observatory</i>	Santiago, Chile
2014–2015	<b>Instructor Becario</b> Senior Doctoral Scholarship, <i>Pontificia Universidad Católica de Chile</i>	Santiago, Chile
2013–2014	<b>Ayudante Becario</b> Junior Doctoral Scholarship, <i>Pontificia Universidad Católica de Chile</i>	Santiago, Chile
2012–2013	<b>Beca de Excelencia para Alumnos Extranjeros</b> Foreign Doctoral Student Scholarship, <i>Pontificia Universidad Católica de Chile</i>	Santiago, Chile
2011	<b>NSERC-USRA National Research Council of Canada</b> <b>Undergraduate Student Research Award</b> <i>University of Victoria</i>	Victoria, Canada
2008, 2009	<b>University of Victoria Physics/Astronomy Co-operative</b> <b>Education Award: Best Co-op Work Term Report</b> <i>University of Victoria</i>	Victoria, Canada

## SKILLS

<b>Languages</b>	English: mother tongue; Spanish: intermediate
<b>Programming</b>	Python, IDL, R, Java, Maple
<b>Software</b>	IRAF, ds9, Astromatic software suite, Supermongo, MESA, standard office software
<b>Platforms:</b>	Linux (various), Mac OSX, Windows

## ACCEPTED PI OBSERVING PROGRAMS

2018A	<b>"The Need for Speeds: A pilot study to map the velocity field of NGC5128 with ultra-compact dwarf galaxies".</b> (7.5 hours awarded in Band 1 on Gemini South/GMOS) Long-slit optical spectroscopy of ultra-compact dwarf galaxies. Prog. ID: GS-2018A-FT-108	Gemini Fast Turnaround
2018A	<b>"Dancing in the Dark: GMOS-S imaging of a potential dwarf binary pair"</b> (6.2 hours awarded in Bands $\frac{1}{2}$ on Gemini South/GMOS) Direct <0.6" seeing photometry of dwarf galaxies in $g'$ and $i'$ filters. Prog. ID: GS-2018A-Q-206, GS-2018A-FT-102	Gemini National and Fast Turnaround TACs
2016A	<b>"Redder is Better: The Survey of Centaurus A's Baryonic Structures - Near-Infrared Supplement"</b> (37.5 hours awarded on VISTA/VIRCam) Direct, wide-field, near-infrared photometry of NGC 5128 in J, and $K_s$ filters. Prog. ID: 097.B-0603	ESO OPC
2015A	<b>"The Dark Side of NGC 5128's Globular Cluster System"</b> (13.2 hours awarded on VLT/XSHOOTER) High-resolution spectroscopy of dark star clusters around NGC 5128. Prog. ID: 095.B-0492	ESO OPC
2013/2014B	<b>"Compact Stellar Systems in Hickson Compact Groups: A MultiBand Photometric Survey for their Origins"</b> (36.5 hours awarded on VLT/HAWK-I+VIMOS) Direct photometry of Hickson Compact Group 90 in U, I, and $K_s$ filters. Prog. IDs: 092.B-0476; 094.B-0366	ESO OPC
2014A	<b>"Nowhere Left to Hide: SCABS, The Survey of Centaurus A's Baryonic Structures"</b> (2 nights awarded on Blanco/DECam) Direct, wide-field photometry of NGC 5128 in $u'$ , $g'$ , $r'$ , $i'$ , and $z'$ filters. Prog. ID: CN2014A-92	Chilean National TAC

## OBSERVING AND OBSERVATORY EXPERIENCE

Aug. 2018--	<b>Queue Observing Coordinator</b> <i>Daily organization and development of nightly queue observing plans</i>	Hilo, USA
Jan. 2018--	<b>Seminar Coordinator</b> <i>Organization and hosting visiting speakers to Gemini Northern Operations Center</i>	Hilo, USA
Nov. 2017--	<b>Gemini Fast Turnaround Team</b> <i>Support for Gemini Fast Turnaround Observing Mode Program</i> Organization of monthly submitted proposals and user support.	Hilo, USA
Oct. 2017--	<b>Gemini North Queue Observer</b> <i>Nighttime queue observing duties at Gemini North</i>	Hilo, USA
June 2017--	<b>Gemini Near-Infrared Support Scientist</b> <i>Support for Gemini's Near-Infrared Instrumentation</i>	Hilo, USA
Aug. 2015	<b>"Near-UV Spectroscopy of Galactic Globular Clusters: Probing the Self-Enrichment Scenario"</b> <i>2 nights on SOAR/Goodman Spectrograph</i> Drift-scan spectroscopy of Milky Way globular clusters.	Cerro Pachón

- Feb. 2015 *Prog. ID: CN2015B-96 (PI: Thomas H. Puzia)*  
**"Mapping the Radial Distribution of the Unusual Globular Cluster System of NGC 4365"** Las Campanas  
*0.5 night on Magellan (Baade)/Fourstar Imager*  
 Near infrared (Ks-band) imaging of the giant elliptical galaxy NGC 4365.  
*Prog. ID: CN2015A-120 (PI: Maren Hempel)*
- Apr. 2014 **"SCABS: The Survey of Centaurus A's Baryonic Structures"** Cerro Tololo  
*2 nights on Blanco/DECam*  
 Deep, multi-band survey of nearby giant elliptical galaxy NGC 5128 (Centaurus A).  
*Prog. ID: CN2014A-92 (PI: Matthew A. Taylor)*
- Oct. 2013 **"Chemodynamical Characterization of Blue Straggler Stars in Galactic Globular Clusters"** Cerro Paranal  
*3 nights on VLT/FLAMES*  
 Spectroscopy of blue straggler stars in Milky Way globular clusters.  
*Prog. ID: 092.D-0477 (PI: Mirko Simunovic)*

## SCIENCE COMMUNITY SERVICE AND OUTREACH ACTIVITIES

- Dec. 2018 **TMT Early Career Initiative Workshop** Pasadena, USA  
 Seven-day early career focused workshop to develop skills relevant for future operations with the Thirty Metre Telescope, where I was in a leadership role.
- Mar. 2018 **Maunakea Spectroscopic Explorer International Science Team** Hilo, USA  
 Contributing member of Galaxy Formation and evolution science development team for the Maunakea Spectroscopic Explorer project. This service is ongoing.
- Mar. 2018,19 **Journey Through the Universe** Kona, USA  
 Community outreach to share astronomy with Hawaiian children through hands-on classroom activities and "ask-me-anything" sessions.
- Nov. 2017 **Kona Astroday** Kona, USA  
 Community outreach day to connect with Hawaiian community and inspire children and youth to observatory careers.
- 2016, 2017 **Preparing TMT Future Leaders Workshop** Hilo/Santa Cruz, USA  
 Multi-day workshops to prepare early career researchers for future operations with the Thirty Metre Telescope.
- Feb. 2017 **Thirty Meter Telescope International Science Development Team (ISDT)**  
 Contributing member to the "Milky Way and Nearby Galaxies" ISDT to help define for the Thirty Meter Telescope. This service is ongoing.
- Apr. 2016 **Astrostatistics Using R Workshop** Santiago, Chile  
 Attended weeklong tutorial by Dr. Eric Feigelson on astrostatistics applications using the R programming language.
- Apr. 2015 **Conference Local Organizing Committee** Santiago, Chile  
 Participated in local organizing committee duties for the *Satellites and Streams in Santiago* meeting held 13-17 April 2015.
- 2009–2010 **University of Victoria Astronomy Open House** Victoria, Canada  
 Assisted in UVic's Department of Physics and Astronomy weekly open house.

## CONFERENCE CONTRIBUTIONS AND INVITED TALKS

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(2 invited talks; 6 contributed talks; 7 contributed posters)

- Jan. 2019 **Dwarf Galaxies, Globular Clusters, and Ultra-compact Dwarfs: Getting to know the outer halo of NGC5128**  
Contributed **talk**: AAS 233, Seattle, USA, 6-10 January 2019.
- Dec. 2018 **The Curiously Complex Satellite System of NGC5128**  
Contributed **poster**: TMT Science Forum, Pasadena, USA, 9-12 December 2018.
- Aug. 2018 **A Newly Discovered Reservoir of Dwarf Galaxies in the Centaurus A Group**  
Contributed **talk**: IAU-GA Symposium 344, Vienna, Austria, 20-24 August 2018.
- May 2018 **Neighbourhood Watch: A survey of baryonic structures in the Local Universe**  
Contributed **talk**: CASCA 2018, Victoria, Canada, 22-26 May 2018.
- Sept. 2016 **The Extended Globular Cluster System of NGC5128 and its Nearby Environment**  
Invited **talk**: University of Victoria, Victoria, Canada, 22 Sept. 2016.
- Sept. 2016 **The Extended Globular Cluster System of NGC5128 and its Nearby Environment**  
Invited **talk**: Herzberg Institute of Astrophysics, Victoria, Canada, 13 Sept. 2016.
- Aug. 2015 **Evidence for a Dark Side to NGC 5128's Globular Cluster System**  
Contributed **poster**: *IAUS316: Formation, Evolution, and Survival of Massive Star Clusters*, Honolulu, USA, 11-14 Aug. 2015.
- Aug. 2015 **SCABS: The Survey of Centaurus A's Baryonic Structures**  
Contributed **poster**: *IAUS317: The General Assembly of Galaxy Halos: Structure, Origin and Evolution*, Honolulu, USA, 3-7 Aug. 2015.
- May 2015 **SCABS: The Survey of Centaurus A's Baryonic Structures**  
Contributed **talk**: *Multiwavelength Dissection of Galaxies*, Sydney, Australia, 24-29 May 2015.
- Apr. 2015 **SCABS: The Survey of Centaurus A's Baryonic Structures**  
Contributed **poster**: *Satellites and Streams in Santiago*, Santiago, Chile, 13-17 Apr. 2015.
- Mar. 2015 **Observational Evidence for a Dark Side to Centaurus A's Globular Cluster System**  
Contributed **talk**: *Modelling and Observing Dense Stellar Systems 15*, Concepción, Chile, 2-6 Mar. 2015.
- Jul. 2014 **Discovering the Dark Side of Centaurus A's Globular Cluster System**  
Contributed **poster**: *IAUS311: Galaxy Masses as Constraints of Formation Models*, Oxford, United Kingdom, 21-25 July 2014.  
Contributed **poster**: *IAUS309: Galaxies in 3D Across the Universe*, Vienna, Austria, 7-11 July 2014.  
Contributed **poster**: *Nuclear Clusters in Galaxies, and the Role of the Environment*, Leiden, The Netherlands, 30 June-4 July 2014.
- May 2014 **Observational Evidence for a Bifurcation in the Dynamical Mass Scaling Relations of Compact Stellar Systems in NGC 5128**  
Contributed **talk**: *Formation and Evolution of Star Clusters*, Santiago, Chile, 14-16 May 2014.

## PUBLICATIONS

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### Conference Proceedings

- 2018 **A New Reservoir of Dwarf Galaxy Candidates in the Centaurus A Group**  
**Taylor, M.A.**, Eigenthaler, P., Puzia, T.H., Muñoz, R.P., Ribbeck, K.X., Zhang, H.X., Ordenes-Briceño, Y., & Bovill, M.S. 2018, in IAU Symp. 344, *Dwarfs from the Deep Universe to the Present*, ed. Kristen McQuinn, 2018, IAU General Assembly, *in press*
- 2017 **Faint Dwarf Galaxies in Hickson Compact Group 90**  
 Ordenes-Briceño, Y., **Taylor, M.A.**, Puzia, T.H., & Muñoz, R.P., 2017, *Revista Mexicana de Astronomía y Astrofísica Conference Series*, 49, 130
- 2017 **The Extended Globular Cluster System of NGC3923**  
 Ahumada, T., Miller, B., Candlish, G., McGaugh, S.S., Mihos, C., Smith, R., Puzia, T.H., & **Taylor, M.A.**, 2017, *American Astronomical Society Meeting Abstracts*, 229, 343.22
- 2015 **Forming NGC 5128's High M/L Globular Clusters**  
 Sauda Bovill, M., Puzia, T.H., Ricotti, M., & **Taylor, M.A.**, 2015, IAU General Assembly, 22, 2258170
- 2015 **SCABS: A Survey of Centaurus A's Baryonic Structures**  
 Puzia, T.H., & **Taylor, M.A.**, 2015, IAU General Assembly, 22, 2258151
- 2015 **The Dark Side of SCABS: Predictions for Centaurus A's Baryonic Substructure**  
 Sauda Bovill, M., **Taylor, M.A.**, Puzia, T.H., Padilla, N., & Eigenthaler, P., 2015, IAU General Assembly, 22, 2258133
- 2015 **Evidence for a Dark Side to NGC5128's Globular Cluster System**  
 Puzia, T.H., & **Taylor, M.A.**, 2015, IAU General Assembly, 22, 2258025
- 2015 **NGC 5128's Globular Cluster System: Is there a dark side?**  
**Taylor, M.A.**, Puzia, T.H., Gomez, M., and Woodley, K.A., 2015, in IAU Symp. 309 *Galaxies in 3D Across the Universe*, ed. Ziegler, B.L., Combes, F., Dannerbauer, H., & Verdugo, M., (Cambridge, UK: Cambridge Univ. Press), pp. 348
- 2011 **The Scattered Disk and Hot Belt, Two Sides of the Same Coin?**  
 Kavelaars, J.J., Petit, J.-M., Gladman, B., Jones, R.L., Parker, J., & **Taylor, M.**, 2011, in EPSC-DPS Joint Meeting 2011, pp. 1318

### Peer Reviewed Journal Articles

(Four first-author papers with 69 citations; fourteen co-author papers with 263 citations; H=7)

- 2019 **How nucleation and luminosity shape faint dwarf galaxies**  
 Sánchez-Janssen, R., Puzia, T.H., Ferrarese, L., Côté, P., Eigenthaler, P., Miller, B., Ordenes-Briceño, Y., Peng, E., Ribbeck, K.X., Roediger, J., Spengler, C., and **Taylor, M.A.**, *Monthly Notices of the Royal Astronomical Society*, accepted, *arXiv:1901.04509*
- 2018 **A Collection of New Dwarf Galaxies in NGC5128's Western Halo**  
**Taylor, M.A.**, Eigenthaler, P., Puzia, T.H., Muñoz, R.P., Ribbeck, K.X., Zhang, H.-X., Ordenes-Briceño, Y., and Bovill, M.S., *The Astrophysical Journal Letters*, vol. 867, no. 1, L15
- 2018 **The Fornax Cluster VLT Spectroscopic Survey. I – VIMOS spectroscopy of compact stellar systems in the Fornax core region**  
 Pota, V., Napolitano, N.R., Hilker, M., Spavone, M., Schulz, C., Cantiello, M., Tortora, C., Iodice, E., Paolillo, M., D'Abrusco, R., Capaccioli, M., Puzia, T.H., Peletier, R.F., Romanowsky, A.J., van de Ven, G., Spiniello, C., Norris, M., Lisker, T., Muñoz, R.P., Schipani, P., Eigenthaler, P., **Taylor, M.A.**, Sánchez-Janssen, R., and Ordenes-Briceño, Y., *Monthly Notices of the Royal Astronomical Society*, vol. 481, no. 2, pp. 1744-1756
- 2018 **The GEMS/GSAOI Galactic Globular Cluster Survey (G4CS) I: A pilot study of the stellar populations in NGC2298 and NGC3201**

- Monty, S., Puzia, T.H., Miller, B.W., Carrasco, E.R., Simunovic, M., Schirmer, M., Stetson, P.B., Venn, K.A., Dotter, A., Goudfrooij, P., Perina, S., Pessev, P., Sarajedini, A., and **Taylor, M.A.**, *The Astrophysical Journal*, vol. 865, no. 2, pp. 160-183
- 2018 **The Next Generation Fornax Survey (NGFS): V. Discovery of an isolated dwarf-dwarf galaxy pair at  $z=0.30$  and its characterization using deep VLT/MUSE observations**  
Johnson, E., Eigenthaler, P., Puzia, T.H., Ordenes-Briceño, Y., **Taylor, M.A.**, Alamo-Martínez, K., Côté, P., Galaz, G., Grebel, E., Hilker, M., Lançon, A., Mieske, S., Sánchez-Janssen, and Rong, Y., *The Astrophysical Journal*, submitted
- 2018 **The Next Generation Fornax Survey (NGFS). IV. Mass and Age Bimodality of Nuclear Star Clusters in the Fornax Core Region**  
Ordenes-Briceño, Y., Puzia, T.H., Eigenthaler, P., **Taylor, M.A.**, Muñoz, R.P., Zhang, H., Alamo-Martínez, K., Ribbeck, K.X., Grebel, E.K., Ángel, S., Côté, P., Ferrarese, L., Hilker, M., Lançon, A., Mieske, S., Miller, B., Rong, Y., and Sánchez-Janssen, R. *The Astrophysical Journal*, vol. 860, no. 1, 2018, pp. 4-25
- 2018 **The Next Generation Fornax Survey (NGFS). III. Revealing the spatial substructure of the dwarf galaxy population inside half of Fornax's virial radius**  
Ordenes-Briceño, Y., Eigenthaler, P., **Taylor, M.A.**, Puzia, T.H., Alamo-Martínez, K., Ribbeck, K.X., Muñoz, R.P., Zhang, H., Grebel, E.K., Ángel, S., Côté, P., Ferrarese, L., Hilker, M., Lançon, A., Mieske, S., Miller, B., Rong, Y., and Sánchez-Janssen, R. *The Astrophysical Journal*, vol. 859, no. 1, 2018, pp. 52-60
- 2018 **Stellar Population Properties of Ultra-Compact Dwarfs in M87: A mass-metallicity correlation connecting low-metallicity globular clusters and compact ellipticals**  
Zhang, H.-X., Puzia, T.H., Peng, E.W., Liu, C., Côté, P., Ferrarese, L., Duc, P.-A., Eigenthaler, P., Lim, S., Lançon, A., Muñoz, R.P., Roediger, J., Sánchez-Janssen, R., **Taylor, M.A.**, and Yu, J., *The Astrophysical Journal*, vol. 858, no. 1, 2018, pp. 37-48
- 2018 **The Next Generation Fornax Survey (NGFS). II. The Central Dwarf Galaxy Population**  
Eigenthaler, P., Puzia, T.H., **Taylor, M.A.**, Ordenes-Briceño, Y., Muñoz, R.P., Ribbeck, K.X., Alamo-Martínez, K., Zhang, H., Ángel, S., Capaccioli, M., Côté, P., Ferrarese, L., Galaz, G., Grebel, E.K., Hempel, M., Hilker, M., Lançon, A., Mieske, S., Miller, B., Paolillo, M., Powalka, M., Richtler, T., Roediger, J., Rong, Y., Sánchez-Janssen, R., and Spengler, C., *The Astrophysical Journal*, vol. 855, no. 2, 2018, pp. 142-161
- 2017 **The Extended Baryonic Halo of NGC3923**  
Miller, B., Ahumada, T., Puzia, T.H., Candlish, G., McGaugh, S.S., Mihos, C., Sanderson, R., Schirmer, M., Smith, R., & **Taylor, M.A.**, 2017, *Galaxies*, 5, 29
- 2017 **The Survey of Centurus A's Baryonic Structures (SCABS). II. The Extended Globular Cluster System of NGC5128 and its Nearby Environment**  
**Taylor, M.A.**, Puzia, T.H., Muñoz, R.P., Mieske, S., Eigenthaler, P., and Bovill, M.S., *Monthly Notices of the Royal Astronomical Society*, vol. 469, no. 3, 2017, pp. 3444-3467
- 2016 **Faint Dwarf Galaxies in Hickson Compact Group 90**  
Ordenes-Briceño Y., **Taylor, M.A.**, Puzia, T.H., Muñoz, R.P., Eigenthaler, P., Georgiev, I.Y., Goudfrooij, P., Hilker, M., Lançon, A., Mamon, G., Mieske, S., Miller, B., Peng, E.W., and Sánchez-Janssen, R., *Monthly Notices of the Royal Astronomical Society*, vol. 463, no. 2, 2016, pp. 1284-1290
- 2016 **The Lost Dwarfs of Centaurus A and the Formation of its Dark Globular Clusters**



- Mia Sauda Bovill, Puzia T.H., Ricotti, M., and **Taylor, M.A.**, *The Astrophysical Journal*, vol. 832, no. 1, 2016, pp. 88-99
- 2015 **Unveiling a Rich System of Faint Dwarf Galaxies in the Next Generation Fornax Survey**  
Muñoz, R.P., Eigenthaler, P., Puzia, T.H., **Taylor, M.A.**, Ordenes-Briceño, Y., Alamo-Martínez, K., Ribbeck, K.X., Ángel, S., Capaccioli, M., Côté, P., Ferrarese, L., Galaz, G., Hempel, M., Hilker, M., Jordán, A., Lançon, A., Mieske, S., Paolillo, M., Richtler, T., Sánchez-Janssen, R., and Zhang, H., *The Astrophysical Journal Letters*, vol. 813, no. 1, 2015, pp. 15-21
- 2015 **Observational Evidence for a Dark Side to NGC 5128's Globular Cluster System**  
**Taylor, M.A.**, Puzia, T.P., Gomez, M., and Woodley, K.A., *The Astrophysical Journal*, vol. 805, no. 1, 2015, pp. 65-85
- 2014 **The Next Generation Virgo Survey-Infrared (NGVS-IR). I. A New Near-Ultraviolet, Optical, and Near-Infrared Globular Cluster Selection Tool**  
Muñoz, R.P., Puzia, T.H., Lançon, A., Peng, E.W., Côté, P., Ferrarese, L., Blakeslee, J.P., Mei, S., Cuillandre, J.-C., Hudelot, P., Courteau, S., Duc, P.-A., Balogh, M.L., Boselli, A., Bournaud, F., Carlberg, R.G., Chapman, S.C., Durrell, P., Eigenthaler, P., Emsellem, E., Gavazzi, G., Gwyn, S., Huertas-Company, M., Ilbert, O., Jordán, A., Läsker, R., Licitra, R., Liu, C., MacArthur, L., Mc-Connachie, A., McCracken, H.J., Mellier, Y., Peng, C.Y., Raichoor, A., **Taylor, M.A.**, Tonry, J.L., Tully, B.R., and Zhang, H., *The Astrophysical Journal Supplement*, vol. 210, no. 1, 2014, pp. 4-27
- 2011 **The Canada-France Ecliptic Plane Survey -- Full Data Release: The orbital structure of the Kuiper Belt**  
Petit, J.-M., Kavelaars, J.J., Gladman, B.J., Jones, R.L., Parker, J. Wm., Van Laerhoven, C., Nicholson, P., Mars, G., Rousselot, P., Mousis, O., Marsden, B., Bieryla, A., **Taylor, M.**, Ashby, M.L.N., Benavidez, P., Campo Bagatin, A., and Bernabeu, G., *The Astronomical Journal*, vol. 142, no. 4, article id. 131, 2011, pp. 24
- 2010 **Chemodynamics of Compact Stellar Systems in NGC 5128: How similar are globular clusters, ultra-compact dwarfs, and dwarf galaxies?**  
**Taylor, M.A.**, Puzia, T.H., Harris, W.E., Harris, G.L.H., Kissler-Patig, M., and Hilker, M., *The Astrophysical Journal*, vol. 712, no. 2, 2010, pp. 1191-1208