Dr. Matthew A. Taylor

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# EducatioN and academic employment

Dec.2019 **Herzberg Astronomy & Astrophysics Research Centre** Victoria, BC

*NRC Postdoctoral Fellow*

June2017 **Gemini Observatory, Northern Operations Center** Hilo, Hawai’i

*Gemini Science Fellow*

July2016 **Pontificia Universidad Católica de Chile** Santiago, Chile

*PhD in Astrophysics*

Distinción Maxima

Dissertation: The Global Globular Cluster System of the Nearby Giant Elliptical Galaxy NGC5128

Advisors: Dr. Thomas H. Puzia, Dr. Steffen Mieske

June 2011 University of Victoria Victoria, Canada

*Bachelor of Science in Physics and Astronomy*

Co-operative Education Distinction

# Honours, grants, and Awards

2017 **Postdoctoral Fellowship Grant** **(declined)** Canada

National Research Council of Canada

2014–2016 Student Fellowship Santiago, Chile

European Southern Observatory

2014–2015 Instructor Becario Santiago, Chile

Senior Doctoral Scholarship

*Pontificia Universidad Católica de Chile*

2013–2014 Ayudante Becario Santiago, Chile

Junior Doctoral Scholarship

*Pontificia Universidad Católica de Chile*

2012–2013 Beca de Excelencia para Alumnos Extranjeros Santiago, Chile

Foreign Doctoral Student Scholarship

*Pontificia Universidad Católica de Chile*

2011 NSERC-USRA National Research Council of Canada Victoria, Canada

Undergraduate Student Research Award

*University of Victoria*

2008, 2009 University of Victoria Physics/Astronomy Co-operative Victoria, Canada

Education Award: Best Co-op Work Term Report

*University of Victoria*

# ACCEPTED pI oBSERVING pROGRAMS

2019A **"The Need for Speeds: Using Globular Clusters to Map the Kinematics of NGC5128 and its Surrounding Environment”** Australian National TAC

(*6.5 nights awarded in grey/dark time on 2dF/AAOmega/AAT*)

2018A **"The Need for Speeds: A pilot study to map the velocity field of NGC5128 with ultra-compact dwarf galaxies”**

Gemini Fast Turnaround

(*7.5 hours awarded in Band 1 on Gemini South/GMOS*)

2018A **"Dancing in the Dark: GMOS-S imaging of a potential dwarf binary pair”**

Gemini National and Fast Turnaround TACs

(*6.2 hours awarded in Bands ½ on Gemini South/GMOS*)

2016A **"Redder is Better: The Survey of Centaurus A's Baryonic Structures - Near-Infrared Supplement”** ESO OPC

(*37.5 hours awarded on VISTA/VIRCam*)

2015A **"The Dark Side of NGC 5128's Globular Cluster System"** ESO OPC

(*13.2 hours awarded on VLT/XSHOOTER*)

2013/2014B **"Compact Stellar Systems in Hickson Compact Groups: A MultiBand Photometric Survey for their Origins"** ESO OPC

(*36.5 hours awarded on VLT/HAWK-I+VIMOS*)

2014A **"Nowhere Left to Hide: SCABS, The Survey of Centaurus A's Baryonic Structures”**

Chilean National TAC

(*2 nights awarded on Blanco/DECam*)

# oBSERVING and observatory eXPERIENCE

2018-- **Queue Observing Coordinator** Hilo, USA

*Daily organization and development of nightly queue observing plans*

2018-- **Seminar Coordinator** Hilo, USA

*Helped organize and host visiting speakers to Gemini Northern Operations Center*

2017-- **Gemini Fast Turnaround Team Member** Hilo, USA

*Support for Gemini Fast Turnaround Observing Mode Program*

2017-- **Gemini North Queue Observer** Hilo, USA

*Nighttime queue observing duties at Gemini North*

2017-- **Member** **Gemini Near-Infrared Support Team** Hilo, USA

*Support for Gemini’s Near-Infrared Instrumentation*

2015 **"Near-UV Spectroscopy of Galactic Globular Clusters: Probing the Self-Enrichment Scenario"** Cerro Pachón

*2 nights on SOAR/Goodman Spectrograph*

2015 **"Mapping the Radial Distribution of the Unusual Globular Cluster System of NGC 4365"** Las Campanas

*0.5 night on Magellan (Baade)/Fourstar Imager*

2014 **"SCABS: The Survey of Centaurus A's Baryonic Structures"** Cerro Tololo

*2 nights on Blanco/DECam*

2013 **"Chemodynamical Characterization of Blue Straggler Stars in Galactic Globular**

**Clusters"**Cerro Paranal

*3 nights on VLT/FLAMES*

# Science Community service and Outreach

June-Aug. 2019 **Mentorship of Akamai Workforce Initiative Intern** Hilo, USA

Supervision of undergraduate Akamai intern carrying out artificial star experiments.

June-Oct. 2019 **Mentorship of Undergraduate Intern** Hilo, USA

Supervision of undergraduate intern carrying out image reduction and photometry.

May 2019 **Hilo Astroday** Hilo, USA

Community outreach in the Hawaiian community to inspire children and youth to observatory careers.

Mar. 2018,19 **Journey Through the Universe** Hilo, USA

Community outreach to share astronomy with Hawaiian children through hands-on

classroom activities and “ask-me-anything” sessions.

Dec. 2018 **TMT Early Career Initiative Workshop** Pasadena, USA

Facilitated multi-day instrument design exercise during workshop to develop early-career skills relevant to future operations with the Thirty Meter Telescope.

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.

Nov. 2017 **Kona Astroday** Kona, USA

Community outreach in the Hawaiian community to inspire children and youth to observatory careers.

Feb. 2017- **Thirty Meter Telescope International Science Development Team** (ISDT)

Contributing member to the “Milky Way and Nearby Galaxies” ISDT for the Thirty Meter Telescope.

Sept. 2015 **Python Plotting Tutorial** Santiago, Chile

Provided an introductory tutorial to *matplotlib* to ESO colleagues.

Apr. 2015 **Conference Local Organizing Committee** Santiago, Chile

*Satellites and Streams in Santiago*, 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.

# Selected Conference Contributions and invited talks

(2 invited talks; 6 contributed talks)

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.

Aug. 2018  **A Newly Discovered Reservoir of Dwarf Galaxies in the Centaurus A Group**

Contributed **talk**: IAU-GA Symposium 344, Vienna, Austira, 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.

May 2015 **SCABS: The Survey of Centaurus A's Baryonic Structures**

Contributed **talk**: *Multiwavelength Dissection of Galaxies*, Sydney, Australia,

24–29 May 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.

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

Conference Proceedings

2019 **The Gemini Fast Turnaround Program**

Anderson, M.**,** Chiboucas, K., Geball, T., Salinas, R., Scharwaechter, J., Eckersley, J., Kim, H., **Taylor, M.A.**, Dupuy, T., & Sanmartim, D. 2019, American Astronomical Society Meeting Abstracts #233, 233, #455.03

2019 **Dwarf Galaxies, Globular Clusters, and Ultra-compact Dwarfs: Getting to know the   
outer halo of NGC5128**

**Taylor, M.A.**, Puzia, T.H., Eigenthaler, P.,Ribbeck, K.X., Zhang, H.X.,   
Ordenes-Briceño, Y., & Bovill, M.S. 2019, American Astronomical Society Meeting Abstracts #233, 233, #339.01

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

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 Astronomia y Astrofisica 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 79 citations; fifteen co-author papers with 306 citations; H=9)

2019 **The Next Generation Fornax Survey (NGFS): VI. The Alignment of Dwarf Galaxies in the Fornax Cluster**

Rong, Y., Puzia, T.H., Ordenes-Briceño, Y., Eigenthaler, P., **Taylor, M.A.**, Muñoz, R.P., Zhang, H.-X., Alamo-Martínez, K., Ribbeck, K.X., Grebel, E., Ángel, S., Côté, P., Ferrarese, L., Hilker, M., Lançon, A., Mieske, S., Miller, B., Sánchez-Janssen, R., and Johnston, E.J., *The Astrophysical Journal, submitted*

2019 **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,* vol. 873, no. 1, 59

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 Letters,* 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). 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-Jannsen, 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., 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, 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