

Matthew A. Taylor

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EDUCATION

July 2016	Pontificia Universidad Católica de Chile <i>PhD in Astrophysics</i> Distinción Máxima 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	University of Victoria <i>Bachelor of Science in Physics and Astronomy</i> Co-operative Education Distinction	Victoria, Canada

INTERESTS

Professional:	data analysis, data visualization, galaxy evolution, globular cluster systems, massive compact stellar systems, observations, software development, stellar populations
Personal:	cooking (professionally trained), backpacking, science fiction, photography, board/card games

HONOURS AND AWARDS

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

University of Victoria

SCIENCE ACTIVITIES AND OUTREACH

July 2016	ESO Thirty Minute Talk Thirty minute formal talk given at the European Southern Observatory offices entitled “The Extended Globular Cluster System of NGC5128”.	Santiago, Chile
2014–2016	Student Science Coffee Contributions Provided summaries of talks given by speakers visiting the European Southern Observatory offices for colleagues unable to attend, and recaps of recent astronomy and/or general science related news.	Santiago, Chile
Apr. 2016	Astrostatistics Using R Workshop Attended weeklong tutorial by Dr. Eric Feigelson on astrostatistics applications using the R programming language.	Santiago, Chile
Sept. 2015	Proposal Writing Workshop Took part in a workshop on effective observing proposal writing, including a mock Time Allocation Committee exercise.	Santiago, Chile
Sept. 2015	Python Plotting Tutorial Gave an introduction to Python-based plotting package <i>matplotlib</i> to ESO colleagues covering basic to advanced data visualization techniques.	Santiago, Chile
June 2015	ESO Thirty Minute Talk Thirty minute formal talk given at the European Southern Observatory offices entitled “Observational Evidence for a Dark Side to Centaurus A’s Globular Cluster System”.	Santiago, Chile
Apr. 2015	Conference Local Organizing Committee Participated in local organizing committee duties for the <i>Satellites and Streams in Santiago</i> meeting held 13-17 April 2015.	Santiago, Chile
2009–2010	University of Victoria Astronomy Open House Assisted in UVic’s Department of Physics and Astronomy weekly open house. Duties included giving tours of the university telescopes, guided star-gazing, and answering questions from visitors.	Victoria, Canada

RESEARCH EXPERIENCE

2013–2014	Graduate Term Research Project <i>Pontificia Universidad Católica de Chile</i> Stellar parameter and iron abundance estimates of red giant branch and red clump stars from VLT/FLAMES spectra. Supervisor: Dr. Manuela Zoccali	Santiago, Chile
2012–2014	Graduate Term Research Project <i>Pontificia Universidad Católica de Chile</i> Internal kinematics and dynamical mass estimates of extragalactic globular clusters from VLT/FLAMES integrated light spectra. Supervisors: Dr. Thomas H. Puzia and Dr. Matias Gomez	Santiago, Chile
2011	Research Assistant <i>University of Victoria</i> Spectral energy distribution fitting for large catalogues of galaxies from SDSS and CFHT photometry. Supervisor: Dr. Chris Pritchett	Victoria, Canada
2010	Co-operative Education Work Term	Victoria, Canada

	<i>University of Victoria</i> Population estimate of Kuiper Belt objects via statistical simulations of observations conducted by the CFHT. Supervisor: Dr. J.J. Kavelaars	
2009	Undergraduate Directed Studies	Victoria, Canada
	<i>University of Victoria</i> Complex modeling of very metal-poor, intermediate mass stars during thermal pulse asymptotic giant branch evolution. Supervisor: Dr. Falk Herwig	
2008–2009	Co-operative Education Work Term	Victoria, Canada
	<i>Herzberg Institute for Astrophysics</i> Dynamical and chemical analyses of massive extragalactic compact stellar systems from high-resolution VLT/UVES integrated light spectra. Supervisor: Dr. Thomas H. Puzia	

SKILLS

Languages	English: mother tongue; Spanish: intermediate
Programming	Python, IDL, R, Java, Maple
Software	IRAF, ds9, SExtractor, SCAMP SWARP, PSFEx, Supermongo, MESA, standard office software
Platforms:	Linux (various), Mac OSX, Windows

ACCEPTED PI OBSERVING PROGRAMS

2016A	"Redder is Better: The Survey of Centaurus A's Baryonic Structures - Near-Infrared Supplement" (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	"The Dark Side of NGC 5128's Globular Cluster System" (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	"Compact Stellar Systems in Hickson Compact Groups: A MultiBand Photometric Survey for their Origins" (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	"Nowhere Left to Hide: SCABS, The Survey of Centaurus A's Baryonic Structures" (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 EXPERIENCE

- Aug. 2015 **"Near-UV Spectroscopy of Galactic Globular Clusters: Probing the Self-Enrichment Scenario"** Cerro Pachón
2 nights on SOAR/Goodman Spectrograph
 Drift-scan spectroscopy of Milky Way globular clusters.
Prog. ID: CN2015B-96 (PI: Thomas H. Puzia)
- Feb. 2015 **"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)

CONFERENCE CONTRIBUTIONS

(3 contributed talks; 6 contributed posters)

- 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 August 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 August 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 April 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 March 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.
- Jul. 2014 **Discovering the Dark Side of Centaurus A's Globular Cluster System**
 Contributed **poster**: *IAUS309: Galaxies in 3D Across the Universe*, Vienna, Austria, 7–11 July 2014.
- Jul. 2014 **Discovering the Dark Side of Centaurus A's Globular Cluster System**
 Contributed **poster**: *Nuclear Clusters in Galaxies, and the Role of the Environment*,

- May 2014 Leiden, The Netherlands, 30 June–4 July 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

- 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

(Two first-author papers with 37 citations; five co-author papers with 92 citations)

- 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*, accepted
- 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*, under review
- 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., McConnachie, 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

REFERENCES

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