

Curriculum Vitae

Yamila Miguel

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My development as a scientist includes research, teaching, mentoring and outreach. In research, understanding the information hidden in atmospheric observable features in hot rocky and giant exoplanets is one of my main interests. These planets are targets for current and future space and ground base observations. Characterising their atmospheric structure, composition and spectral features, putting them - and our own Solar System - into context to link them with the planetary interior and its formation history is the aim of my work.

Teaching, mentoring and outreach are very rewarding activities for me and also a fundamental part of my growth as a scientist. Teaching is a way to guide students towards the development of curiosity and critical thinking. Promoting science through mentoring minorities allows me to contribute to both the scientific community and the society, and outreach gives me the chance to increase awareness of astrophysics, stimulate interest in science and inspire future scientists.

Research Interests: Exoplanet atmospheres: chemistry and radiative transfer, Planetary interiors, Planetary systems formation.

Current Position

CNES Postdoctoral Fellow, Observatoire de la Côte d'Azur (OCA) - France

Education

2011 PhD Astronomy Universidad Nacional de La Plata (UNLP) - Argentina

2007 BA Astronomy UNLP - Argentina

Employment, Research Experience & Awards

Research

10 years

Teaching

6 years

Outreach

11 years

Publications - 10 first-author publications plus 11 as co-author in peer-reviewed international journals. Total citations: 273 (as August 2017).

Employment, research experience and awards (continue)

2016 - 2018	CNES postdoctoral Fellowship - OCA - France
2015 - 2016	Henri Poincare Postdoctoral Fellowship - OCA - France
Fall 2013	Guest-Lecturer "Astrophysics & Astrobiology II" - Universität Heidelberg - Germany
2011 - 2014	MPIA Postdoctoral Fellowship - Germany
2010 - 2011	CONICET¹ type II Graduate Fellowship - Argentina
2007 - 2009	CONICET type I Graduate Fellowship - Argentina
2005 - 2011	Educator, Science Coach - Mundo Nuevo ²
2008 - 2010	Lecturer "Knowing the Universe" - UNLP - Argentina
2007 - 2011	Teaching Assistant "Spherical Astronomy" - UNLP - Argentina
2008 - 2009	Teaching Assistant "Calculus I" - UNLP - Argentina
2005 - 2007	Teaching Assistant "Modern Physics" - UNLP - Argentina
2005 - 2007	Teaching Assistant "Calculus I" - UNLP - Argentina
2007	Joaquin V. Gonzalez Award, to the best GPA - UNLP - Argentina
2001 - 2007	Museum Guide - Museum of Astronomy and Geophysics - UNLP

Publication List (Refereed papers in primary journals only)

First-author publications

Miguel, Y. Guillot, T. and Fayon, L. *Jupiter internal structure: the effect of different equations of state*, 2016, *A&A*, 596, A114. ([Link](#))

Miguel, Y. & Ida, S., *A semi-analytical model for exploring Galilean satellites formation from a massive disk*, 2016, *Icarus*, Volume 266, 1 ([Link](#)).

Miguel, Y., Kaltenecker L., Linsky, Jeffrey L. & Rugheimer, S., *The effect of Lyman α radiation on mini-Neptune atmospheres around M stars: application to GJ 436b*, 2015, *MNRAS*, 446, 345 ([Link](#)).

Miguel, Y. & Kaltenecker L., *Exploring atmospheres of hot mini-Neptunes and extrasolar giant planets orbiting different stars with application to HD 97658b, WASP-12b, CoRoT-2b, XO-1b and HD 189733b*, 2014, *ApJ*, 780, 166 ([Link](#)).

Miguel, Y., Kaltenecker L., Fegley, B. Jr. & Schaefer L., *Composition of hot super-Earth atmospheres: exploring Kepler candidates*, 2012, *ApJ Letters*, 742, L19 ([Link](#)).

¹ National Council of Scientific and Technical Research. Ministry of Science, Technology and Productive Innovation - Argentina

² Science and technology outreach program. UNESCO, UNLP, and Ministry of Culture and Education of Buenos Aires initiative

First-author publications - (continue)

Miguel, Y., Guilera, O. & Brunini, A., *The diversity of planetary systems architectures: contrasting theory with observations*, 2011, MNRAS, 417, 314 ([Link](#)).

Miguel, Y., Guilera, O. & Brunini, A., *The role of the initial surface density profiles of the disc on giant planet formation: comparing with observations*, 2011, MNRAS, 412, 2113 ([Link](#)).

Miguel, Y. & Brunini, A., *Planet formation: statistics of spin rates and obliquities of extrasolar planets*, 2010, MNRAS, 403, 1935 ([Link](#)).

Miguel, Y. & Brunini, A., *Core instability models of giant planet accretion II: forming planetary systems*, 2009, MNRAS, 392, 324 ([Link](#)).

Miguel, Y. & Brunini, A., *Core instability models of giant planet accretion and the planetary desert*, 2008, MNRAS, 387, 463 ([Link](#)).

Co-author publications

Mahapatra, G., Helling, Ch. and **Miguel, Y.**, *Cloud formation in evaporating planets: application to 55 Cnc e and CoRoT7b*, MNRAS in press ([Link](#)).

Espinoza, N., Fortney, J., **Miguel, Y.**, Thorngren, D., Murray-Clay, R., *Metal enrichment leads to low atmospheric C/O ratios in transiting exoplanets*, 2017, ApJL, 838, 1 ([Link](#)).

S. J. Bolton, A. Adriani, V. Adumitroaie, J. Anderson, S. Atreya, J. Bloxham, S. Brown, J. E.P. Connerney, E. DeJong, W. Folkner, D. Gautier, S. Gulkis, T. Guillot, C. Hansen, W.B. Hubbard, L. Iess, A. Ingersoll, M. Janssen, J. Jorgensen, Y. Kaspi, S. M. Levin, C. Li, J. Lunine, **Y. Miguel**, G. Orton, T. Owen, M. Ravine, E. Smith, P. Steffes, E. Stone, D. Stevenson, R. Thorne, J. Waite, *Jupiter's interior and deep atmosphere: the first close polar pass with the Juno spacecraft*, 2017, *Science*, 356 (6340), 821-825 ([Link](#)).

Y. Kaspi, T. Guillot, E. Galanti, **Y. Miguel**, R. Helled, W. B. Hubbard, B. Militzer, S. M. Wahl, S. Levin, J. E. Connerney and S. J. Bolton, *The effect of differential rotation on Jupiter's low-degree even gravity moments*, 2017, *Geophys. Res. Lett.*, 44, 5960-5968 ([Link](#)).

S. M. Wahl, W. B. Hubbard, B. Militzer, T. Guillot, **Y. Miguel**, Y. Kaspi, R. Helled, D. Reese, N. Movshovitz, E. Galanti, S. Levin, J.E. Connerney, S.J. Bolton, *Comparing Jupiter interior structure models to Juno gravity measurements and the role of a dilute core*, 2017, *Geophys. Res. Lett.*, 44 (11), 4649-4659 ([Link](#)).

Youngblood, A., France, K., Loyd, P.R.O, Brown, A., Mason, J. P., Schneider, Ch. P., Tilley, M., Berta-Thompson, Z., Buccino, A., Froning, C., Hawley, S. L., Linsky, J., Mauas, P. J. D., Redfield, S., Kowalski, A., **Miguel, Y.**, Newton, E.R., Roberge, A., Rugheimer, S., Segura, A., Vieytes, M., *The MUSCLES Treasury Survey IV: Scaling Relations for Ultraviolet, Ca II K, and Energetic Particle Fluxes from M dwarfs*, 2017, *ApJ* 843 (1), 31 ([Link](#)).

France, K., Loyd, P., Youngblood, A., Brown, A., Schneider A., Hawley, S., Froning, C., Linsky, J. L., Roberge, A., Buccino, A., Davenport, J. R., Fontenla, J. M., Kaltenecker, L., Kowalski, A. F., Mauas, P.J., **Miguel, Y.**, Redfield, S., Rugheimer, S., Tian, F., Vieytes, M. C., Walkowicz, L. M., Weisenburger, K. L., *The MUSCLES treasury survey I. Motivation and Overview*, 2016, *ApJ*, 820, 89 ([Link](#)).

Youngblood, A., France, K., Loyd, P.R.O., Linsky, J. L., Redfield, S., Schneider, C., Wood, B., Brown, A., Froning, C., **Miguel, Y.**, Rugheimer, S., Walkowicz, L., *The MUSCLES Treasury Survey II: Intrinsic Lyman Alpha and Extreme Ultraviolet Spectra of K and M Dwarfs with Exoplanets*, 2016, *ApJ*, 824, 101 ([Link](#)).

Co-author publications - (continue)

Domagal-Goldman, S.D., Wright, K.E., Adamala, K., Arina de la Rubia, L., Bond, J., Dartnell, L.R., Goldman, A.D., Lynch, K., Naud, M., Paulino-Lima, I.G., Singer, K., Walter-Antonio, M., Abrevaya, X.C., Anderson, R., Arney, G., Atri, D., Azúa-Bustos, A., Bowman, J.S., Brazelton, W. J., Brennecke, G. A., Carns, R., Chopra, A., Colangelo-Lillis, J., Crockett, C., J., DeMarines, J., Frank, E. A., Frantz, C., de la Fuente, E., Galante, D., Glass, J., Gleeson, D., Glein, G.R., Goldblatt, C., Horak, R., Horodyskyj, L., Kaçar, B., Kereszturi, A., Knowles, E., Mayeur, P., McGlynn, S., **Miguel, Y.**, Montgomery, M., Neish, C., Noack, L., Rugheimer, S., Stüeken, E. E., Tamez-Hidalgo, P., Imari Walker, S., Wong, T., *The Astrobiology Primer v2.0*, 2016, *Astrobiology*. Aug 2016, 16(8): 561-653 ([Link](#)).

LM Barge, E Branscomb, JR Brucato, SSS Cardoso, JHE Cartwright, SO Danielache, D Galante, TP Kee, **Y. Miguel**, S Mojzsis, KJ Robinson, MJ Russell, E Simoncini, P Sobron, *Thermodynamics, Disequilibrium, Evolution: Far-From-Equilibrium Geological and Chemical Considerations for Origin-Of-Life Research*, 2016, *Origins of Life and Evolution of Biospheres*, 1,18 ([Link](#)).

Kaltenegger L., **Miguel, Y.** & Rugheimer, S., *Rocky exoplanet characterization and atmospheres*, 2012, *International Journal of Astrobiology*, 11, 297 ([Link](#)).

[Link to all publications \(ADS\)](#)

Submitted publications

Wang, D., **Miguel, Y.**, Lunine, J., *Transit Observations of PH₃ and H₂S with JWST*, submitted to *ApJ*. Note: My contribution was in developing the idea, orient the student in the project and performed radiative transfer simulations.

Contribution to symposia and compiled volumes (refereed only)

Miguel, Y. & Kaltenegger L., *Hot super-Earth atmospheres*, 2013, chapter 5 in the *Early Evolution of the Atmospheres of terrestrial Planets*, *Astrophysics and Space Science proceedings* 35, DOI 10.1007/978-1-4614-5191-4_5, Springer Science+Business Media, New York, J. M. Trigo-Rodriguez et al. (eds.) ([Link](#)). Note: I wrote the chapter: Hot Super-Earth Atmospheres.

van Boekel, R., Benneke, B., Heng, K., Hu, R., Madhusudhan, N., Quanz, S., Betremieux, Y., Bouwman, J., Chen, G., Decin, L., de Kok, R., Glauser, A., Gudel, M., Hauschildt, P., Henning, T., Jeers, S., Jin, S., Kaltenegger, L., Kerschbaum, F., Krause, O., Lammer, H., Luntzer, A., Meyer, M., **Miguel, Y.**, Mordasini, C., Ottensamer, R., Rank-Lueftinger, T., Reiners, A., Reinhold, T., Schmid, H., Snellen, I., Stam, D., Sun, Z., Vandenbussche, B., *The Exoplanet Characterization Observatory (EChO): performance model EclipseSim and applications*, 2012, *Space Telescopes and Instrumentation 2012: optical, infrared, and millimeter wave*. Proceedings of the SPIE, 8442, article id. 84421F, 21 ([Link](#)) Note: My contribution was to provide the opacities (tables and figures).

Miguel, Y., Guilera, O.M., & Brunini, A., *Planetary systems formation and the diversity of extrasolar systems*, 2011, *IAU Symposium*, volume 276, 441 ([Link](#)).

Fernandez-Lajus, E., **Miguel, Y.**, Fortier, A., & Di Sisto, R. P., *Monitoring and analyzing exoplanetary transits from Argentina*, 2011, *IAU Symposium*, volume 276, 416 ([Link](#)) Note: My contribution was to go to observe transits twice during the campaign.

Miguel, Y., & Brunini, A., *Testing models for the formation of habitable planets*, 2010, *Highlights of Astronomy*, 15, 706 Book Chapters ([Link](#)).

Selected Invited Colloquia and Seminars (last 5 years)

2017	University of Oxford, UK
2017	University of Bern, Switzerland
2017	University of Zurich, Switzerland
2017	National University of Asuncion, Paraguay
2016	University of California Santa Cruz, US
2016	St. Andrews University, UK
2016	Harvard University, Department of Earth and Planetary Sciences, US
2016	Harvard-Smithsonian Center for Astrophysics, US
2016	National University of La Plata, Argentina
2015	Cornell University, US
2015	Osservatorio di Arcetri, Italy
2014	American Museum of National History, US
2013	Harvard Smithsonian Center for Astrophysics, US
2013	Tokyo Institute for Technology, Japan
2012	Tokyo Institute for Technology, Japan
2012	Max Planck Institute for Astronomy, Germany

Invited Speaker at International Conferences (last 5 years)

2017	The atmospheres of disks and planets, Ringberg Castle, Bavaria, Germany
2016	5th Joint Workshop on High Pressure, Planetary and Plasma Physics (HP4), Hamburg, Germany
2015	11th Recontres du Vietnam: Exoplanetary Science. Quy Nhon, Vietnam
2015	Workshop for the opening of the Carl Sagan Institute at Cornell University - US
2014	VII Thermodynamics, Disequilibrium and Evolution (TDE) Focus Group workshop, Tokyo, Japan
2014	Japanese-German Frontiers of Science Symposium - Bremen, Germany
2013	Joint Workshop on High Pressure, Planetary, and Plasma Physics DLR - Germany
2012	Annual Meeting of the Astronomische Gesellschaft - Hamburg, Germany
2012	NASA Working Group: "Thermodynamics, Disequilibrium and Evolution" - Spain

Teaching

2013

Guest-Lecturer at the Heidelberg University, 1 class at Kaltenecker's course "Astrophysics & Astrobiology II". Course for Master and graduate level.

2007 - 2011

Teaching assistant at the UNLP in "Spherical Astronomy". Mandatory course for undergraduate level.

2008 - 2010

Lecturer at the UNLP in "Knowing the Universe". Course for general public. Scope: Introductory course to Astrophysics for professionals with no previous studies in astronomy.

2008 - 2010

Teaching assistant at the UNLP in "Calculus I". Mandatory course for undergraduate level.

2005 - 2007

Teaching assistant at the UNLP in "Modern Physics". Mandatory course for undergraduate level.

2005 - 2007

Teaching assistant at the UNLP in "Calculus I". Mandatory course for undergraduate level.

Mentored and supervised students

2014

MPIA PhD student Taisiya Kopytova. I co-advise her in a project involving the modelling of thermal structure, photochemistry and spectra of direct imaging exoplanets.

2010 - 2012

Jessica Giovanna Caceres Reategui, a master physics student of the National University of St Augustin of Arequipa, Peru. Mentor her in her master project topic: formation of giant planets.

Outreach and Gender Equality Activities

2014 - 2015

Role Model in the "Science is a girl thing!", part of the "Women in Research and Innovation" campaign which aims to encourage girls to develop an interest in science and to encourage young women in scientific careers.

2005 - 2011

Educator, Science Coach in "Mundo Nuevo", a program of science and technology dedicated to outreach. It is part of the UNESCO initiative, the UNLP, and the direction of culture and education of Buenos Aires. My job consisted in giving lectures and perform lab experiments about different astronomical and physical phenomena at kindergartens, elementary and high schools, including seminars for teachers.

Outreach and gender equality activities - (continue)

2008 - 2010

Coordinator and chair of weekly seminars. Handled 100% of the organisation of weekly seminars for general public given at the Department of Astronomy and Geophysical Sciences - UNLP. From searching scientific speakers for the seminar to organise and chair the event.

2009

Participant in the International Astronomy Year initiated by the IAU and UNESCO. I participated actively and organised activities for the International Astronomical Year in Argentina. The special projects that I participated are *400 Years of the Telescope*, *100 hours with Astronomy*, *She is an astronomer* and *Astronomical coffee*.

2008

Lecturer in Astronomy course. Teaching in the Astronomy Course (8 x 1.5hr classes) for the staff at the Malargue Planetary, Mendoza - Argentina. The topics were: stellar and planetary system formation and evolution, general characteristics of our Solar System, characteristics of extrasolar planets and detection methods.

2001 - 2007

Museum Guide at the Museum of Astronomy and Geophysics of La Plata. Outreach activities for general public at the observatory and museum, three times a week, including guided tours and workshops for schools (all levels) and University students.

Selected Invited Public Colloquia (more than 50 given in total)

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| 2017 | Planetarium - La Plata, Argentina |
| 2017 | Meeting of members of the "Club de Astronomia", Villa Mercedes, San Luis, Argentina |
| 2016 | JSOCA - journée scientifique in Cannes |
| 2016 | Planetarium - La Plata, Argentina |
| 2013 | Meeting of members of the Internationale Amateursternwarte - Frankfurt, Germany |
| 2013 | Albertus-Magnus-Schule Bischofliches Gymnasium - Germany |
| 2009 | 1st Patagonia Meeting on Astronomy Education Esquel - Argentina |
| 2009 | Dardo Rocha, cultural center La Plata - Argentina |
| 2009 | 37th Science and Technology National Festival San Bernardo - Argentina |
| 2009 | 35th Buenos Aires International Book Festival Buenos Aires - Argentina |
| 2009 | School of Astronomy and Geophysical Sciences La Plata - Argentina |
| 2009 | School of Astronomy and Geophysical Sciences La Plata - Argentina |

Media

Newspapers & Magazines

- 2017 Press article of our paper Miguel et al. 2016 on the popular science news website - sci-news.com. [Link](#)
- 2017 Interview for the popular science articles website "Ciencia del Sur" - cienciadelsur.com. [Link](#)
- 2017 Interview for "Hoy" Argentinian newspaper. [Link](#)
- 2017 Interview for "Cosmopolitan" Magazine.
- 2017 Interview for "Clarín" Argentinian National newspaper.
- 2016 Interview for "Sputnik" an international science magazine. [Link](#)
- 2016 Interview for "Perfil" Argentinian national newspaper. [Link](#)
- 2016 Interview for "La Nación" Argentinian national newspaper. [Link](#)
- 2016 Interview for "Hoy" Argentinian newspaper about the Juno mission. [Link](#)
- 2016 Interview for "Punto Noticias" Argentinian newspaper. [Link](#)
- 2009 Interview for "Billiken" magazine "Astronomy as a career".
- 2009 Interview for the Newsletter: "Boletín de Noticias del Observatorio Astronómico de La Plata".
- 2008 Interview for "Parateens" magazine "Working with stars, planets and galaxies".

Radio

- 2017 Interview for "Todo por la tarde" program at "San Rafael" radio in Mendoza, Argentina. [Link](#)
- 2017 Interview for a radio program at "Radio Cantilo", Argentina.
- 2016 Interview for a radio program at "Radio La Colmena", Argentina. [Link](#)
- 2016 Interview for a radio program at "Radio 10", Argentina. [Link](#)
- 2016 Interview for a radio program at "Radio Nacional", Argentina, about the Juno mission.
- 2016 Interview for a radio program at "San Rafael" radio in Mendoza, Argentina.
- 2016 Interview for a radio program at "Universidad Nacional de Tierra del Fuego", in Argentina.

Tv

- 2017 Interview for the program "Ciudadanos Ilustres" on Somos La Plata
- 2009 Participation in the Show "Zapping Zone" on Disney Channel Latinamerica.

University Services

- 2008 - 2011 Member of the committee for the change in the Astronomy baccalaureate degree program at the UNLP.
- 2009 - 2011 Academic Committee - Representing Graduate Students at the Department of Astronomical and Geophysical Sciences, UNLP.
- 2009 - 2011 Member of the Outreach Committee at the Astronomy and Geophysics department of the UNLP.

Conference Organizer: Scientific Organising Committee

- 2015 Planetary Systems: A Synergistic View - Quy Nhon - Vietnam
- 2014 Planetology beyond the Solar System - Ringberg
- 2013 Planet and Star Formation retreat - MPIA

Conference Organizer: Local Organizer Committee

- 2015 Exoplanetary Atmospheres and Habitability - OCA - France
- 2012 Characterising and Modelling Extrasolar Planetary Atmospheres - MPIA
- 2010 V Workshop of Planetary Science - UNLP

Refereeing

Astronomy & Astrophysics

Astrophysical Journal

Monthly Notices of the Royal Astronomical Society

Origin of Life and Evolution of Biospheres