# Néstor Espinoza

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## Education

#### Pontificia Universidad Católica de Chile (PUC)

2012 — present

Ph. D. in Astrophysics

(expected graduation: June, 2017)

## Pontificia Universidad Católica de Chile (PUC)

2007 - 2012

Licenciate in Astronomy (summa cum laude)

Advisor: Dr. Andrés Jordán

# Fellowships & Awards

## **PUC Young Student Leader**

2016

Yearly recognition given to 20 students from the university

# Kavli Summer Program in Astrophysics Fellowship

2016

Granted to 17 PhD students around the world

## People's Choice Award

2014

Awarded at the Three Minute Thesis® Competition at PUC

## Distinguished Graduate Student Award

2014

Yearly award granted by the Chilean Astronomical Society

#### **CONICYT Graduate Research Fellowship**

2013-present

Granted by the Chilean Ministry of Education

## **Publications**

#### First author:

- 1. "Metal enrichment leads to low atmospheric C/O ratios in transiting giant exoplanets" **Espinoza**, N., Fortney, J., Miguel, Y., et al., 2016, submitted to ApJL (eprint arXiv:1611.08616).
- 2. "EPIC 220504338b: A dense hot-Jupiter transiting a solar analogue" Espinoza, N., Rabus, M., Brahm, R., et al., 2016, submmited to MNRAS (eprint arXiv:1611.07614).
- 3. "Discovery and Validation of a High-Density sub-Neptune from the K2 Mission" Espinoza, N., Brahm, R., Jordán, A., et al., 2016, ApJ, 830, 43.
- 4. "HATS-25b through HATS-30b: A Half-dozen New Inflated Transiting Hot Jupiters from the HATSouth Survey"
  - Espinoza, N., Bayliss, D., Hartman, J., et al., 2016, AJ, 152, 108.
- 5. "Limb-darkening and exoplanets II: Choosing the Best Law for Optimal Retrieval of Transit Parameters"
  - Espinoza, N. & Jordán, A., 2016, MNRAS, 457, 3573.
- 6. "Limb-darkening and exoplanets: testing stellar model atmospheres and identifying biases in transit parameters"
  - Espinoza, N. & Jordán, A., 2015, MNRAS, 450, 1879.

## Co-authored (28 refereed publications in total, selected publications follow):

- 1. "ACCESS I: An Optical Transmission Spectrum of GJ 1214b Suggesting a Heterogeneous Stellar Photosphere"
  - Rackham, B., Espinoza, N., Apai, D., et al., 2016, ApJ, accepted.
- 2. "CERES: A Set of Automated Reduction Routines for Echelle Spectra" Brahm, R., Jordán, A., Espinoza, N., 2016, Submitted to PASP.
- 3. "HATS-11b AND HATS-12b: Two Transiting Hot Jupiters Orbiting Subsolar Metallicity Stars Selected for the K2 Campaign 7"
  - Rabus, M., Jordán, A., Hartman, J., et al. (including Espinoza, N.), 2016, AJ, 152, 88.
- 4. "HATS-18 b: An Extreme Short-Period Massive Transiting Planet Spinning Up Its Star" Penev, K., Hartman, J., Bakos, G., et al. (including Espinoza, N.), 2016, Submitted to ApJ.
- 5. "HATS-17b: A Transiting Compact Warm Jupiter in a 16.3 Day Circular Orbit" Brahm, R., Jordán, A., Bakos, G., et al. (including Espinoza, N.), 2016, AJ, 151, 89.
- 6. "An independent discovery of two hot Jupiters from the K2 mission" Brahm, R., Jones, M., Espinoza, N., et al., 2016, Accepted for Publication in PASP.
- 7. "HATS-7b: A Hot Super Neptune Transiting a Quiet K Dwarf Star" Bakos, G., Penev, K., Bayliss, D., et al. (including Espinoza, N.), 2015, ApJ, 813, 111.
- 8. "Water vapour absorption in the clear atmosphere of a Neptune-sized exoplanet" Fraine, J., Deming, D., Benneke, B., et al. (including Espinoza, N.), 2014, Nature, 513, 526.
- 9. "A Ground-based Optical Transmission Spectrum of WASP-6b" Jordán, A., Espinoza, N., Rabus, M., et al., 2013, ApJ, 778, 184.

# Observing proposals & experience

#### Accepted observing proposals (as PI):

- 1. "Exploring the broadband atmospheric features of the extreme exoplanet KELT-11b" 4 nights | Swope 1m | 2016A
- 2. "ACCESS The Arizona-CfA-Catolica Exoplanet Spectroscopy Survey" 8 nights | Baade 6.5m | 2014-2016
- 3. "Variability monitoring of ACCESS targets: towards a precise and accurate view of exoplanetary atmospheres"

  50 hours | LCOGTN 1m | 2015B

### Observing experience:

Magellan/IMACS, 23 nights	2014-2016
Magellan/MMIRS, 1 night	2014A
DuPont 2.5m, 1 night	2013B
SMARTS 0.9m, 8 nights	2014B
Swope 1m, 10 nights	2014-2016
Euler 1.2m/CORALIE, 20 nights	2013-2016
MPG-ESO 2.2m/FEROS, 2 nights	2012A
ESO 3.2m/HARPS, 10 nights	2014-2016

# **Invited Talks**

Stars and Planets Seminar, Harvard-Smithsonian CfA, USA	11/2016
Disks and Planets Seminar, Universidad Diego Portales, Chile	08/2016
Kavli Summer Program Seminar, UCSC, USA	07/2016
Planet and Star Formation Coffee Talk, MPIA, Germany	07/2015
Instituto de Astrofísica de Canarias Seminar, Spain	07/2015
Joint OSU-PUC Workshop, Ohio State University, USA	05/2014
ORIGINS Seminar, Center for Astrobiology, University of Arizona, USA	03/2014
XI Chilean Astronomical Society Annual Science Meeting, Chile	01/2014
First International Meeting in Astrostatistics in Valparaiso, Chile	05/2013

# Outreach

Weekly astronomy show on chilean national radio station "Futuro FM" Audience: +30k/week (source: Iberoamericana Radio Chile)	2015—present
Monthly astronomy blog at the "Telescopios Chile" web portal	2015—present
Public lecture: "Planetary transits: 400 years discovering new worlds" 2016 Transit of Mercury day, PUC, Chile	05/2016
Public lecture: "Light: an electric and magnetic relationship" EXPLORA-CONICYT National Science Week, Chile	10/2015
Lecture for school teachers: "Hands-on spectroscopy with the SDSS" Given yearly at the National Astronomy Olympiads, Chile	2012—2015
Invited jury at the VI National Astronomy Olympiads, Chile	07/2014
Several ( $\sim 2$ per semester) talks at chilean schools	2012—present
Founder and Coordinator of the "Bling Bling Universe" astronomy initiative	2009—2015
Director of the "Itinerant Physics" outreach program	2009—2013

# Teaching and Mentoring

Teacher, Center of Study and Development of Talent, Penta UC	2014A, 2014B, 2016A
Course: "Orders of Magnitude" (50 hours per course)	
Invited Lecturer, Faculty of Economics and Business, U. de Chile Course: "Introduction to Science" (one lecture per semester)	2016A, 2016B
Course: introduction to Science (one lecture per semester)	

# **Teaching Assistant:**

ASP5408: Statistics for Astronomers (PUC)	2012—2016
AST0421: Experimental Astrophysics (PUC)	2014B
AST0212: Introduction to Data Analysis (PUC)	2014A
AST1525: Putting Numbers to the Earth and the Universe (PUC)	2014A
AST0311: General Astrophysics (PUC)	2013A
FIS101M: General Physics for the Military School (PUC)	2011B
FIS120: Electricity & Magnetism (Univ. Técnica Federico Santa María)	2010-2011

# Student mentorship:

Roy Van der Westhuizen (Undergraduate Thesis), PUC Title: "An interactive virtual exoplanet laboratory: APIastro"

2015B