

# Néstor Espinoza

Bernoulli Fellow  
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## Education

<b>Pontificia Universidad Católica de Chile (PUC)</b> Ph. D. in Astrophysics ( <i>summa cum laude</i> ) Advisor: Dr. Andrés Jordán	2012 — 2017
<b>Pontificia Universidad Católica de Chile (PUC)</b> Licenciate in Astronomy ( <i>summa cum laude</i> ) Advisor: Dr. Andrés Jordán	2007 — 2012

## Fellowships & Awards

<b>100 Young Chilean Leaders</b> Selected as one of the 100 leaders under 35 by El Mercurio newspaper.	2017
<b>Bernoulli Fellowship</b> Joint position between the Max-Planck-Institut für Astronomie and the University of Bern to develop independent research on exoplanet atmospheres.	2017—present
<b>PUC Young Student Leader</b> Yearly recognition given to 20 students from the university	2016
<b>Kavli Summer Program in Astrophysics Fellowship</b> Granted to 17 PhD students around the world	2016
<b>People's Choice Award</b> Awarded at the Three Minute Thesis® Competition at PUC	2014
<b>Distinguished Graduate Student Award</b> Yearly award granted by the Chilean Astronomical Society	2014
<b>CONICYT Graduate Research Fellowship</b> Granted by the Chilean Ministry of Education	2013—2017

## 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., 2017, ApJL, 838, L9.
2. “*K2-113b: A dense hot-Jupiter transiting a solar analogue*”  
Espinoza, N., Rabus, M., Brahm, R., et al., 2017, MNRAS, 471, 4374.
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., 2017, ApJ, 834, 151.
2. “CERES: A Set of Automated Reduction Routines for Echelle Spectra”  
Brahm, R., Jordán, A., Espinoza, N., 2017, PASP, 129, 973.
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, AJ, 152, 5.
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, PASP, 128, 970.
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”  
Fraigne, 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

CSH Symposium, University of Bern, Switzerland	01/2017
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 Valparaíso, Chile	05/2013

## Outreach

Weekly astronomy show on Chilean national radio station “Futuro FM” Audience: +30k/week (source: Iberoamericana Radio Chile)	2015—2017
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 (~ 2 per semester) talks at Chilean schools	2012—2017
Founder and Coordinator of the “Bling Bling Universe” astronomy initiative	2009—2015
Director of the “Itinerant Physics” outreach program	2009—2013

## Teaching and Mentoring

<b>Teacher, Center of Study and Development of Talent, Penta UC</b> Course: “Orders of Magnitude” (50 hours per course)	2014A, 2014B, 2016A
<b>Invited Lecturer, Faculty of Economics and Business, U. de Chile</b> Course: “Introduction to Science” (one lecture per semester)	2016A, 2016B, 2017A
<b>Teaching Assistant:</b>	

ASP5408: Statistics for Astronomers (PUC)	2012—2016
ASTo421: Experimental Astrophysics (PUC)	2014B
ASTo212: Introduction to Data Analysis (PUC)	2014A
AST1525: Putting Numbers to the Earth and the Universe (PUC)	2014A
ASTo311: 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	2015B
Title: “An interactive virtual exoplanet laboratory: APIastro”	