

# Jaime E. FORERO-ROMERO

## PERSONAL INFORMATION

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EMAIL: [je.forero@uniandes.edu.co](mailto:je.forero@uniandes.edu.co)  
PERSONAL WEBSITE: <http://wwwprof.uniandes.edu.co/~je.forero>  
GROUP WEBSITE: <http://astroandes.github.io/>  
CITIZENSHIP: Colombian  
BIRTH DATE: October 14, 1981

## RESEARCH INTERESTS

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- Cosmology
- Galaxy Formation
- Computational Astrophysics

## EDUCATION

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NOVEMBER 2007 **PhD. Physics**  
AUGUST 2005 at the École Normale Supérieure de Lyon (France)  
  
JULY 2005 **M.Sc.Physics (Magistère Interuniversitaire)**  
AUGUST 2003 at the École Normale Supérieure (Paris, France)  
  
JULY 2003 **Undergraduate Physics studies** (3<sup>rd</sup> & 4<sup>th</sup> year)  
AUGUST 2001 at the Instituto Balseiro (Argentina)  
  
JULY 2001 **Undergraduate Physics studies** (1<sup>st</sup> & 2<sup>nd</sup> year)  
JULY 1999 at the U. Nacional de Colombia

## ACADEMIC POSITIONS

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PRESENT DAY **Associate Professor**  
AUGUST 2015 Physics Department, Universidad de los Andes (Colombia)  
  
JULY 2015 **Assistant Professor**  
AUGUST 2012 Physics Department, Universidad de los Andes (Colombia)  
  
JULY 2012 **Gruber Fellow**  
OCTOBER 2011 Astronomy Department UC Berkeley (USA)  
  
SEPTEMBER 2011 **Postdoctoral Researcher**  
SEPTEMBER 2007 Leibniz Insititute for Astrophysics at Potsdam(Germany)  
  
AUGUST 2007 **Graduate Student**  
AUGUST 2006 École Normale Supérieure de Lyon (France)  
  
JULY 2006 **Élève**  
SEPTEMBER 2003 École Normale Supérieure (Paris, France)  
  
AUGUST 2003 **Undergraduate Fellow**  
AUGUST 2001 Instituto Balseiro (Bariloche, Argentina)

## RESEARCH

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### BIBLIOMETRICS

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- Refereed journal articles: 28 published + 3 submitted (since first paper in 2007).
- Google Scholar statistics. Total Number of Citations: 846. H-index: 14.
- SAO/NASA Astrophysics Data System statistics. Total Number of Citations: 699. H-index: 13.

### REFEREED PUBLICATIONS

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2018

- 31 *Unbiased clustering estimates with the DESI fibre assignment*, D. Bianchi, A. Burden, W. J. Percival, D. Brooks, R. N. Cahn, **J. E. Forero-Romero**, M. Levi, A. J. Ross, G. Tarle, MNRAS submitted.
- 30 *Lyman- $\alpha$  photons through rotating outflows*, M. C. Remolina-Gutiérrez, MNRAS submitted.
- 29 *We are not the 99 percent: quantifying asphericity in the distribution of Local Group satellites*, **J. E. Forero-Romero**, V. Arias, MNRAS submitted.
- 28 *Modelling the gas kinematics of an atypical Lyman alpha emitting compact dwarf galaxy*, **J. E. Forero-Romero**, M. Gronke, M. C. Remolina-Gutiérrez, Nicolás Garavito-Camargo, Mark Dijkstra, MNRAS, 474, 12, 2018.
- 27 *Tracing the cosmic web*, N. I. Libeskind, R. van de Weygaert, M. Cautun, B. Falck, E. Tempel, T. Abel, M. Alpaslan, M. A. Aragón-Calvo, **J. E. Forero-Romero**, R. Gonzalez, S. Gottlöber, O. Hahn, W. A. Hellwing, Y. Hoffman, B. J. T. Jones, F. Kitaura, A. Knebe, S. Manti, M. Neyrinck, S. E. Nuza, N. Padilla, E. Platen, N. Ramachandra, A. Robotham, E. Saar, S. Shandarin, M. Steinmetz, R. S. Stoica, Th. Sousbie, G. Yepes, MNRAS, 473, 1195, 2018.

2016

- 26 *Boosting Ly $\alpha$  and HeII 1640Å Line Fluxes from Pop III Galaxies: Stochastic IMF Sampling and Departures from Case-B*, L. Mas-Ribis, M. Dijkstra, **J.E. Forero-Romero**, ApJ, 833, 1, 2016.
- 25 *Quantifying and controlling biases in dark matter halo concentration estimates*, C.N. Poveda-Ruiz, **J.E. Forero-Romero**, J.C. Muñoz-Cuartas, ApJ, 832, 2, 2016.
- 24 *Impact of Cosmic Variance on the Galaxy-Halo Connection for Lyman- $\alpha$  emitters*, J.E. Mejía-Restrepo, **J.E. Forero-Romero**, ApJ, 821, 1, 2016
- 23 *SPOKES: An end-to-end simulation facility for spectroscopic cosmological surveys*, Nord, B.; Amara, A.; Réfrégier, A.; Gamper, La.; Gamper, Lu.; Hambrecht, B.; Chang, C.; **Forero-Romero, J. E.**; Serrano, S.; Cunha, C.; Coles, O.; Nicola, A.; Busha, M.; Bauer, A.; Saunders, W.; Jouvel, S.; Kirk, D.; Wechsler, R., Astronomy and Computing, 15, 1, 2016

2015

- 22 *Tensor anisotropy as a tracer of cosmic voids*, S. Bustamante, **J.E. Forero-Romero**, MNRAS, 453, 497, 2015

- 21 *The Local Group in the cosmic web*, **J.E. Forero-Romero**, R. González, ApJ, 799, 1, 2015.

2014

- 20 *Cosmological constraints from the redshift dependence of the Alcock-Paczynski effect in the galaxy density gradient field*, X-D. Li, C. Park, **J.E. Forero-Romero**, J. Kim, ApJ, 796, 2, 2014.
- 19 *The impact of gas bulk rotation on the Lyman-alpha line* J.N. Garavito-Camargo, **J.E. Forero-Romero**, M. Dijkstra, ApJ, 795, 2, 2014.
- 18 *Characterizing SL2S galaxy groups using the Einstein radius*, T. Verdugo, V. Motta, G. Foëx, **J. E. Forero-Romero**, R. P. Muñoz, R. Pello, M. Limousin, A. More, R. Cabanac, G. Soucail, J. P. Blakeslee, A. J. Mejía-Narváez, G. Magris, J. G. Fernández-Trincado, Astronomy & Astrophysics, 571, id.A65, 2014.
- 17 *Systematic uncertainties from halo asphericity in dark matter searches* N. Bernal, **J.E. Forero-Romero**, R. Garani, S. Palomares-Ruiz, JCAP, 09, 004, 2014.
- 16 *Cosmic web alignments with the shape, angular momentum and peculiar velocities of dark matter halos*, **J.E. Forero-Romero**, S. Contreras, N. Padilla, MNRAS, 443, 1090, 2014.
- 15 *The abundance of Bullet Groups in  $\Lambda$ CDM*, J. G. Fernández-Trincado, **J. E. Forero-Romero**, G. Foëx, V. Motta, T. Verdugo, V. Motta, ApJ Letter, 787, L32, 2014.

2013

- 14 *The MultiDark Database: Release of the Bolshoi and MultiDark Cosmological Simulations*, K. Riebe, A. M. Partl, H. Enke, **J.E. Forero-Romero**, S. Gottloeber, A. Klypin, G. Lemson, F. Prada, J. R. Primack, M. Steinmetz, V. Turchaninov, Astronomische Nachrichten, 334, 691, 2013.
- 13 *The kinematics of the Local Group in a cosmological context*, **J.E. Forero-Romero**, Y. Hoffman, S. Bustamante, S. Gottloeber, G. Yepes, ApJ Letters, 767, 1, 2013
- 12 *The velocity shear tensor: tracer of halo alignment*, Libeskind N., Hoffman Y., **J.E. Forero-Romero**, S. Gottloeber, A. Knebe, M. Steinmetz, A. Klypin, MNRAS 428, 2489, 2013
- 11 *Effects of Star Formation Stochasticity on the Ly alpha & Lyman Continuum Emission from Dwarf Galaxies*, **J. E. Forero-Romero** & M. Dijkstra, MNRAS 428, 2163, 2013

2012

- 10 *A kinematic classification of the cosmic web*, Y. Hoffman, O. Metuki, G. Yepes, S. Gottloeber, **J. E. Forero-Romero**, N. I. Libeskind, A. Knebe, MNRAS, 425, 2049, 2012
- 9 *Modelling the fraction of Lyman Break Galaxies with strong Lyman-alpha emission at  $5 < z < 7$*  **Forero-Romero J.E.**, Yepes G., Gottloeber S., Prada F., MNRAS, 419, 952, 2012

2011

- 8 *The dark matter assembly of the Local Group in constrained cosmological simulations of a  $\Lambda$ CDM universe* **Forero-Romero** J.E., Hoffman Y., Yepes G., Gottlöber S., Piontek R., Klypin A., Steinmetz M., MNRAS, 417, 1434, 2011
- 7 *Halo based reconstruction of the cosmic mass density field* Munõz-Cuertas J. C., Müller V, **Forero-Romero** J. E., MNRAS, 417, 1303, 2011
- 6 *CLARA's view on the escape fraction of Lyman- $\alpha$  photons in high redshift galaxies* **Forero-Romero** J.E., Yepes G., Gottlöber S., Knollmann S., Cuesta A., Prada F., MNRAS, 415, 3666, 2011

2010

- 5 *Bullet Clusters in the MareNostrum Universe.* **Forero-Romero** J.E., Yepes G., Gottlöber S., ApJ, 725, 1, 2010.
- 4 *Simulated vs. observed UV emission at high redshift: a hint for a clumpy ISM? .* **Forero-Romero** J.E., Yepes G., Gottlöber S., Knollmann S., Khalatyan A., Cuesta A., Prada F., MNRAS Letters, 403, L31-L35, 2010

2009

- 3 *The coarse geometry of merger trees in  $\Lambda$ CDM.* **Forero-Romero** J.E., MNRAS, 399, 762-768, 2009
- 2 *A Dynamical Classification of the Cosmic Web.* **Forero-Romero** J.E., Hoffman Y., Gottloeber S., Klypin A., Yepes G., MNRAS, 396, 1815-1824, 2009

2007

- 1 *LEMOMAF: Lensed Mock Map Facility.* **Forero-Romero** J.E., Blaizot J., Devriendt J., Van Waerbeke L., Guiderdoni B., MNRAS, 379, 1507-1518, 2007

## SUPERVISED POSTDOCS

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- 2015-2016. Verónica Arias. Dynamics of satellites in the Local Group.

## SUPERVISED STUDENTS

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2018

- 10 Jesús Prada. Master thesis in Physics at Universidad de los Andes. *Constraining the dark matter halo shape of the Milky Way with numerical simulations.*
- 9 Sebastián Sanabria. Undergraduate thesis in Physics at Universidad de los Andes. *Characterizing dark matter halo dynamics in the cosmic web.*

2017

- 8 Sebastián Franco Ulloa. Undergraduate thesis in Physics at Universidad de los Andes. *Lattice Boltzmann methods to simulate dark matter.*

2016

- 7 Nicolás Romero Díaz. Undergraduate thesis in Physics at Universidad de los Andes. *Observational evidence of star formation stochasticity in the CALIFA dataset.*
- 6 David Esteban Bernal Neira. Undergraduate thesis in Physics at Universidad de los Andes. *Acotando las velocidades tangenciales de las galaxias satélite de Andrómeda utilizando optimización no lineal.*
- 5 Sergio Hernández Charpak. Undergraduate thesis in Physics at Universidad de los Andes. *Laniakea in a cosmological context.*

2015

- 4 María Camila Remolina Gutiérrez. Undergraduate thesis in Physics at Universidad de los Andes. *The joint effect of outflows and rotation on the Lyman-alpha line.*
- 3 Juan Nicolás Garavito Camargo. Master thesis in Physics at Universidad de los Andes. *The effect of gas bulk rotation on the Lyman-alpha line.*
- 2 Christian Nicanor Poveda Ruiz. Undergraduate thesis in Physics at Universidad de los Andes. *A semi-analytic approach to formation processes in galaxies.*

2014

- 1 Camilo Andrés Rivera Lozano. Undergraduate thesis in Physics at Universidad de los Andes. *Impacto de los parámetros cosmológicos en la estructura a gran escala del Universo.*

## GRANTS

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- 2017-2021 (coPI) LACEGAL Latin American Chinese European GALaxy Formation network. Funded by MSCA-RISE - Marie Skłodowska-Curie Research and Innovation Staff Exchange (RISE). (1.5 MEuro)
- 2016-2020 (PI) COLCIENCIAS grant to work on the Dark Energy Spectroscopic Instrument. (60 KUSD)
- 2012-2016 (PI) UNIANDES grant given as a startup package to assistant professors (25 KUSD).
- 2011-2012 (PI) IAU Peter and Patricia Gruber Foundation Fellowship. (50K USD).

## SERVICE

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### SCIENTIFIC COLLABORATIONS

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PRESENT DAY Full Member of the Dark Energy Spectroscopic Instrument.  
JANUARY 2014 <http://desi.lbl.gov/>

### SCIENTIFIC ORGANIZATIONS

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PRESENT DAY Coordinator for the Andean Regional Office of Astronomy for Development.  
OCTOBER 2015 <http://andean.astro4dev.org/>

### REFEREEING

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PRESENT DAY Referee for The Astrophysical Journal and  
JANUARY 2010 Monthly Notices for the Royal Astronomical Society

### ORGANIZER

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OCTOBER 2015 Main organizer of the Second *Workshop Astronomía en los Andes* to convene astronomers in the Andean region. Held in Bogotá, Colombia.

JUNE 2015 Main organizer for the *Andean School on Cosmology* held in Bogotá, Colombia.

JULY 2013 Main organizer of the First *Workshop Astronomía en los Andes* to convene astronomers in the Andean region. Held in Bogotá, Colombia.

SEPTEMBER 2011 Co-organizer of the international conference *Young and Bright: understanding high redshift structures*. Held in Potsdam, Germany.

### LECTURER

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AUGUST 2018 Lecturer for the *41st International School for Young Astronomers* to be held in Socorro, Colombia.

DECEMBER 2015 Lecturer for the *Second Guatemalan School of Astrophysics* held in Antigua, Guatemala.

JUNE 2013 Lecturer for the *Pan-American Advanced Studies Institutes (PASI)* on Methods in Computation-Based Discovery. Held in Guatemala City, Guatemala.

JULY 2009 Lecturer for the *Fifth Colombian School of Astronomy* held in Bogotá, Colombia.

## MISCELLANEA

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### LANGUAGES

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SPANISH: Native  
ENGLISH: Fluent  
FRENCH: Fluent  
GERMAN: Proficient  
RUSSIAN: Beginner