

Fernando Becerra

ASTROPHYSICIST

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Ph.D. candidate in Astronomy & Astrophysics at Harvard University with strong research skills in astrophysical numerical simulations. I have more than six years of experience developing simulation and analysis codes in languages like Python and C. I also possess a demonstrated history of teaching and outreach, among which creating interactive learning tools stands out. My current interests are applied research, data science, data analytics, and data visualization.

Education

Harvard University, PH.D. CANDIDATE IN ASTRONOMY & ASTROPHYSICS

Aug 2012 - Present

Thesis: Formation of Supermassive Black Hole Seeds, Advisor: Lars E. Hernquist.

Harvard University, A.M. IN ASTRONOMY & ASTROPHYSICS

Aug 2012 - May 2014

Universidad de Chile, M.Sc. IN ASTRONOMY, WITH HIGHEST HONORS

Mar 2010 - Aug 2012

Thesis: A Study of Galactic Star Formation And Massive Black Hole Growth Through Simulations, Advisor: Andrés Escala.

Universidad de Chile, B.Sc. IN ASTRONOMY, WITH HIGHEST HONORS

Mar 2006 - Dec 2009

Work Experience

EdX, Web Developer

Jul - Sep 2017

NOVA | PBS, Digital Video Intern

Feb - May 2017

VII Nexos USA-Chile Conference, “Earth and Space Sciences” Symposium Organizer

Nov 2016

Observatorio Astronómico Nacional, Tour Guide

Aug 2011 - Jan 2012

Programa EXPLORA, CONICYT, “Noticias del Universo” Exhibition Guide

Oct - Nov 2009

Publications

First Author

1. Opacity Limit For Supermassive Black Hole Seeds

Becerra, F., Marinacci, F., Inayoshi, K., Bromm, V., Hernquist, L., Submitted

2. Formation of Massive Protostars in Atomic Cooling Haloes

Becerra, F., Greif T. H., Springel V., Hernquist, L., 2015, MNRAS, 446, 2380

3. The Interstellar Medium and Star Formation in Local Galaxies: Variations of the Star Formation Law in Simulations

Becerra, F., Escala, A., 2014, ApJ, 786, 56

Second Author

4. Radiative effects during the assembly of direct collapse black holes

Smith, A., Becerra, F., Bromm, V., Hernquist, L., Accepted

5. Unveiling the Role of Galactic Rotation on Star Formation

Utreras, J., Becerra, F., Escala, A., ApJ, 833, 1

6. Gravitational Fragmentation in Galaxy Mergers: A Stability Criterion

Escala, A., Becerra, F., del Valle, L., Castillo, E., 2013, ApJ, 763, 39

Honors & Awards

Philip Putnam Chase Fellowship, Harvard University

2014

Fulbright Fellowship (declined), Fulbright Chile

2012

CONICYT Fellowship, Comisión Nacional De Ciencia Y Tecnología, Chile

2010 - 2012

Universidad de Chile Fellowship, Universidad de Chile

2006 - 2009

Moisés Mellado Fellowship, Moisés Mellado Foundation

2006 - 2009

Outstanding student, Universidad de Chile

2006 - 2009

Teaching

Harvard University	SPU19: The Energetic Universe	<i>Spring 2013-2014, 2014-2015</i>
	Ay17: Galactic and Extragalactic Astronomy	<i>Fall 2014 -2015</i>
Universidad de Chile	AS750: Observational Astronomy	<i>Fall 2012</i>
	FI2001: Mechanics	<i>Summer 2009, Fall 2010, 2011</i>
	AS2001: Introductory Astronomy	<i>Fall 2011</i>
	AS3101: Stellar Astrophysics	<i>Spring 2010</i>
	FI1001: Introduction to Newtonian Physics	<i>Spring 2008, 2009, Fall 2008</i>
Universidad Andrés Bello	FMF021: Physics I	<i>Spring 2009, Fall 2009</i>
	FMF023: Introduction to Physics	<i>Fall 2009</i>
Escuela de Verano	Origin and Evolution of the Species	<i>May - Aug 2010</i>
	Origin of the Universe and Life on Earth	<i>May - Aug 2010</i>
	Online Physics	<i>May - Nov 2008</i>
	Physics I	<i>Jan 2008</i>

Conferences

Upcoming	.Astronomy 9 , Cape Town, South Africa	<i>Nov 2017</i>
Talks	VII Nexos Chile-USA Conference , Philadelphia, PA, USA	<i>Nov 2016</i>
	EWASS 2015 , Canary Islands, Spain	<i>Jun 2015</i>
	First Stars, Galaxies, and Black Holes: Now and Then , Groningen, Netherlands	<i>Jun 2015</i>
Posters	First Stars V , Heidelberg, Germany	<i>Aug 2016</i>
	The Physics of First Star and Galaxy Formation , Edinburgh, Scotland.	<i>Jun 2015</i>
Attended	Frontiers in Star Formation , New Haven, CT, USA	<i>Oct 2012</i>
	Multiwavelength Views of the ISM in High-Redshift Galaxies , Santiago, Chile	<i>Jun 2011</i>
	HIPACC International Summer School on Astro-Computing: Galaxy Simulations , Santa Cruz, CA, USA	<i>Jun 2010</i>

Press

Magazine	Science et Vie , China	<i>Jan 2017</i>
	Science et Vie , France	<i>Aug 2016</i>
Web	Phys.org , phys.org/news/2015-01-cosmic-seeds-black-holes.html	<i>Jan 2015</i>
	Istituto Nazionale di Astrofisica , www.media.inaf.it/2015/01/20/come-hanno-origine-i-buchi-neri-supermassicci/	<i>Jan 2015</i>
	Harvard-Smithsonian Center for Astrophysics , www.cfa.harvard.edu/news/su201503	<i>Jan 2015</i>

Skills

Programming	Python, C, IDL, MATLAB, Javascript, Java, LaTeX
Software	Adobe Photoshop, Adobe Illustrator, Microsoft Office Suite
Web	HTML5, CSS, jQuery, D3.js, Three.js, Processing
Languages	English, Spanish
Other	Photography