

Javier A. García

Curriculum Vitae

1200 E. California Blvd, 290-17

Pasadena, CA 91125

☎ (202) 215 8798

☎ (626) 395 6609

✉ javier@caltech.edu

🏠 srl.caltech.edu/personnel/javier

Current Positions

- 2019–Present **Research Assistant Professor in Physics**, California Institute of Technology, Pasadena, CA.
- 2016–2022 **Alexander von Humboldt Senior Fellow (Visiting)**, Dr Karl-Remeis Observatory, Bamberg, Germany.

Previous Positions

- 2016–2019 **Postdoctoral Scholar**, California Institute of Technology, Pasadena, CA.
- 2012–2016 **Postdoctoral Fellow**, Harvard-Smithsonian Center for Astrophysics, Cambridge, MA.
- 2011–2012 **Research Associate**, Department of Astronomy, University of Maryland, College Park, MD.
- 2010–2011 **Research Associate**, Department of Physics, Western Michigan University, Kalamazoo, MI.
- 2005–2010 **Research Assistant**, CUA & NASA Goddard Space Flight Center, Greenbelt, MD.

Education

- 2005–2010 **PhD Physics**, *The Catholic University of America*, Washington, DC.
Thesis: Modeling High-Resolution Spectra from X-ray Illuminated Accretion Disks
Advisor: Timothy Kallman (NASA-GSFC)
Approved with Distinction
- 2003–2005 **Masters Physics**, *Venezuelan Institute for Scientific Research*, Caracas, Venezuela.
Thesis: K-shell Photoabsorption of Oxygen Ions
Advisors: Manuel Bautista & Claudio Mendoza (IVIC)
- 1998–2003 **Bachelor Physics**, *La Universidad del Zulia*, Maracaibo, Venezuela.

Fellowships & Awards

- 2021 AAS Laboratory Astrophysics Division Early Career Award
- 2016–2022 Senior Fellowship Alexander von Humboldt, Germany
- 2008 Sigma Pi Sigma Physics Honor Society
- 2003–2005 Academic Excellence Fellowship *IVIC*, Venezuela
- 1998–2002 Undergraduate Fellowship *Fundación Gran Mariscal de Ayacucho*, Venezuela

Mentoring

- 2022–Present **Postdoc Supervisor**, *Oluwashina Adegoke, Edward Nathan, Joanna Piotrowska*, CALTECH, Pasadena, CA.
- 2022–Present **Research Assistant Supervisor**, *Jameson Dong*, CALTECH, Pasadena, CA.
- Summer 2022 **Internship Advisor**, *Mayra Velazquez (WAVE Program), Qunfeng Jiang, Yash Gursahani, Sanyukta Agarwal (SURF Program)*, CALTECH, Pasadena, CA.
- Summer 2021 **Internship Advisor**, *Maryanne Xu (SRC Program), Eunice Beato, Jennifer Rodriguez (WAVE Program), Hanbai Lyu and Zhibo Yu (SURF Program)*, CALTECH, Pasadena, CA.
- 2021–Present **Postdoc Supervisor**, *Labani Mallick*, CALTECH, Pasadena, CA.
- 2020–2021 **Master Thesis Supervisor**, *Abhigna Revuru*, INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR, India.
- 2020–2021 **Postdoc Supervisor**, *Jerome Deprince*, CALTECH, Pasadena, CA.
- 2019–2022 **Postdoc Supervisor**, *Guglielmo Mastroserio*, CALTECH, Pasadena, CA.
- 2017–2022 **Postdoc Supervisor**, *Riley Connors*, CALTECH, Pasadena, CA.
- Summer 2020 **Internship Advisor**, *Undergrad Student Jessie Miller*, WAVE Program, Caltech.
- Summer 2019 **Internship Advisor**, *Undergrad Students Feiyang Liu and Yerong Xu*, SURF Program, Caltech.
- Summer 2018 **Internship Advisor**, *Undergrad Student Honghui Liu*, SURF Program, Caltech.
- Summer 2017 **Internship Advisor**, *Undergrad Students Jingyi Wang, Zhen Cao, and Navin Sridhar*, SURF Program, Caltech.
- 2015–2017 **Thesis Co-Advisor**, *Grad Student Kishalay Choundry*, FUDAN UNIVERSITY, Shanghai, China.
- 2010–2015 **Thesis Advisor**, *Grad Student Efrain Gatuzz*, VENEZUELAN INSTITUTE FOR SCIENTIFIC RESEARCH, Caracas, Venezuela.
- 2005–2007 **Thesis Advisor**, *Undergrad Student Raul Velasquez*, ZULIA UNIVERSITY, Maracaibo, Venezuela.

Teaching Experience

- 2021-2022 **Invited Lecturer**, *Atoms and Black Holes*, LA-CONGA PHYSICS GRADUATE COURSES, Erasmus Mundus Virtual Program.
- May 2017 **Invited Lecturer**, *Models of X-ray Emission*, NEBULATOM-3: A SCHOOL FOR LATIN AMERICAN ASTRONOMERS ON EMISSION-LINE OBJECTS, Baia Formosa, Brazil.
- January 2017 **Invited Lecturer**, *X-ray Reflection Spectroscopy*, 2ND FUDAN WINTER SCHOOL ON ASTROPHYSICAL BLACK HOLES, Shanghai, China.
- April 2015 **Invited Lecturer**, *Emission Lines in X-rays*, NEBULATOM-2: A SPRING SCHOOL FOR LATIN AMERICAN ASTRONOMERS ON EMISSION-LINE OBJECTS, Zihuatanejo, Mexico.
- Fall 2014 **Teaching Fellow**, *SPU 19: The Energetic Universe*, HARVARD UNIVERSITY, Cambridge, MA.

- 2001–2002 **Teaching Assistant**, *Physics II*, ZULIA UNIVERSITY, Maracaibo, Venezuela.
- 2000–2001 **Teaching Assistant**, *Physics I*, ZULIA UNIVERSITY, Maracaibo, Venezuela.
- 1999–2000 **Teaching Assistant**, *Introduction to Physics (lab)*, ZULIA UNIVERSITY, Maracaibo, Venezuela.

Funded Grants and Observational Proposals

Total number of awarded grants 18, (Total amount: \$4.2 million).

- **2021 NASA APRA** *Relativistic Accretion Disk Reflection Models for the New Era of X-ray Astronomy*; Award Amount: \$605,180; Role: PI
- **2022 XMM-Newton Cycle 21** *Truncated Accretion Disks in Black Hole Binaries*; Award Amount: \$50,656; Role: PI
- **2022 NICER Cycle 4** *The Properties and Evolution of Accretion Disks in Black Hole Binaries*; Award Amount: \$44,000; Role: PI
- **2021 NASA ADAP** *Bridging the gap between X-ray and UV/optical disk reverberation mapping in Active Galactic Nuclei*; Award Amount: \$517,902; Role: Co-I
- **2020 NASA ADAP** *A Detailed Study of Accretion Disks in AGN: High-Density Effects, Iron Abundance, and the Origin of the Soft-Excess*; Award Amount: \$557,726; Role: PI.
- **2019 NASA ATP** *Modeling X-ray Polarization in the Strong-Field Region around Black Holes*; Award Amount: \$421,891; Role: PI.
- **2019 NuSTAR GOP** *The Properties and Evolution of Accretion Disks in Black Hole Binaries*; Award Amount: \$88,000; Role: PI.
- **2018 NASA ADAP** *Probing the accretion physics of black holes through spectral-timing data analysis*; Award Amount: \$508,137; Role: PI.
- **2018 Chandra Archival** *A Complete 3D map of the Milky Way using X-rays: The Chandra and Gaia Synergy*; Award Amount: \$55,000; Role: PI.
- **2018 NASA ADAP** *Broad Application of High-Density Reflection Models to Black Hole Spectra*; Award Amount: \$253,940; Role: Co-I.
- **2017 Chandra Theory** *Modeling Reflection Spectra of Ultra-Compact X-ray Binaries*; Award Amount: \$55,000; Role: PI.
- **2016 NASA ADAP** *A Global Spectral Study of Stellar-Mass Black Holes*; Award Amount: \$435,706; Role: PI.
- **2016 NASA APRA** *Atomic Data for Modeling X-rays in High-Density Plasmas*; Award Amount: \$268,636; Role: PI.
- **2016 NuSTAR GOP** *Reflection Spectroscopy of the Seyfert 1.5 AGN ESO 362-G18*; Award Amount: \$47,069; Role: PI.
- **2016 XMM-Newton GOP** *Reflection Spectroscopy of the Seyfert 1.5 AGN ESO 362-G18*; Award Amount: \$24,114; Role: PI.
- **2015 NuSTAR GOP** *Observing the strong-field region of the AGN in Mrk 509*; Award Amount: \$45,754; Role: PI.
- **2014 Smithsonian Institution** *Constraining the Spins and Inclinations of Stellar-Mass Black*; Award Amount: \$40,287; Role: Co-PI.
- **2013 Chandra Theory** *A New Model for Interstellar X-ray Absorption*; Award Amount: \$49,343; Role: Co-PI.

Publication Metrics

Peer Reviewed Papers, 157.

H-Index, 39.

ADS link, <https://tinyurl.com/rjhd6cx>.

Scientific Products (Developer/Contributor)

XILLVER	X-ray Reflection Model for Ionized Accretion Disks
RELXILL	Relativistic X-ray Reflection Model for Accretion onto Compact Objects
RELTRANS	Spectral-Timing Relativistic X-ray Reflection Model
XSTAR	Photoionization Model for Optically-thin Plasmas
UADB	Universal Atomic Data Base
ISMabs	High-Resolution X-ray Absorption Model for cold/warm ISM
PCACORR	Calibration tool for the Proportional Counter Array (PCA) in RXTE
HEXBCORR	Calibration tool for the HEXTE instrument in RXTE

Collaboration Membership

NuSTAR Science Operations Team

HEX-P Project Scientist

IXPE Science Team

Athena, StrobeX, Lynx Science Working Groups

Professional Service

- **Organizer**, 19th HEAD Meeting Special Session: "Theory and Observations of Accretion Disks around Compact Objects", Pittsburg, PA, March 2022
- **Chair**, "First Latin American School on Relativity and Astrophysics" (ELCRA), Virtual Event, December 2021
- **SOC Member**, Chandra science workshop "Chandra Data Science: Novel Methods in Computing and Statistics for X-ray Astronomy", Virtual Meeting, August 2021
- **Chair**, "Latin American Conference on Relativity and Astrophysics", Bogota, Colombia July 2021
- **Co-Chair**, "The Birth, Life, and Death of Black Holes", Symposium at the EAS, Virtual Meeting, June 2020
- **Organizer**, 18th HEAD Meeting Special Session: "Theory and Observations of Accretion Disks around Compact Objects", Tucson, AZ, September 2020
- **Organizer**, 17th HEAD Meeting Special Session: "Accreting Black Holes: Recent Transients and Advances to Spectral Models", Monterey, CA, March 2019
- **SOC Member**, ISSI Meeting "Sombreros and lampposts: The Geometry of Accretion onto Black Holes", Bern, Switzerland, 2020-2021
- **SOC Member**, ISSI Meeting "Can We Use X-Ray Reflection Spectroscopy For Precision Measurements Of Accreting Black Holes?", Bern, Switzerland, 2020-2021
- **SOC Member**, "NuSTAR Science Team Meeting", Pasadena, CA, Nov 2016
- **SOC Member**, ISSI Meeting "There it Spins: the Hunt for Black Hole Spins", Bern, Switzerland, 2016-2017

- Regular **Referee** for ApJ, ApJ Letters, A&A, PASJ, MNRAS, Nature Astronomy
- Peer **Reviewer** for: NASA APRA Lab Astro, NASA TCAN, NASA Postdoctoral Program, VENI grants (The Netherlands) NSF grants, Czech Rep. National grants, Polish Academy of Science, Hawking Fellowship (UK), NuSTAR and Chandra Guest Observer Programs

Outreach

- May 2021 Outreach Public Lecture "Noches de Astronomia", Grupo Halley, Universidad Industrial de Santander, Colombia
- Feb 2020 Caltech Astronomy Outreach Public Lecture "De los Atomos a los Agujeros Negros" (First public talk in Spanish)
- Jun 2015 MIT-Cambridge Science Festival (Representing Harvard-Smithsonian)
- Mar 2012 Observatory Open House, University of Maryland "An X-ray view of Black Holes"

Professional Affiliations

- 2015 International Astronomical Union
- 2014 American Physics Society
- 2008 Sigma Pi Sigma Physics Honor Society
- 2005 American Astronomical Society
- 2002 Venezuelan Physics Society

List of References

- **Prof. Fiona A. Harrison**—Current Supervisor
California Institute of Technology, Pasadena, CA
Phone: +1 (626) 395-6601
eMail: fiona@srl.caltech.edu
- **Dr. Daniel Stern**—NuSTAR Project Scientist
NASA, Jet Propulsion Laboratory
Phone: +1 (818) 354-7264
eMail: daniel.k.stern@jpl.nasa.gov
- **Prof. Jörn Wilms**—Humboldt Fellowship Supervisor
Dr. Karl-Remeis-Sternwarte
Sternwartstr. 7, 96049 Bamberg, Germany
Phone: +49 (951) 95222-13
eMail: joern.wilms@sternwarte.uni-erlangen.de
- **Prof. Christopher Reynolds**—Postdoc Supervisor
Institute of Astronomy, University of Cambridge, Cambridge, UK
Phone: +44 (1223) 766668
eMail: csr12@ast.cam.ac.uk
- **Dr. Timothy R. Kallman**—PhD Advisor
NASA Goddard Space Flight Center, Greenbelt, MD
Phone: +1 (301) 286-3680
eMail: timothy.r.kallman@nasa.gov