



Laurent Loinard

Curriculum Vitae

Personal and Professional Information

Name	Laurent Loinard
Birth	31 May 1970, France
Citizenships	French and Mexican
Family Status	Married, two children
Contact	office: +1 617-496-8956 — cell: +1 857-928-8990 laurent.loinard@fas.harvard.edu — l.loinard@irya.unam.mx — lloinard@gmail.com
Languages	Fluent in French (mother tongue), English, and Spanish. Basic level in German.
Academic positions	Professor of Astronomy , <i>Instituto de Radioastronomía y Astrofísica</i> , Universidad Nacional Autónoma de México Robert F. Kennedy Professor of Astronomy , <i>Black Hole Initiative and David Rockefeller Center for Latin American Studies</i> , Harvard University Chair, Calibration and Error Working Group , <i>Event Horizon Telescope Collaboration</i>

Education

1993–1998	PhD (Astrophysics) summa cum laude , <i>University Joseph Fourier, Grenoble, France</i> Thesis: The molecular gas in the Andromeda galaxy
1992–1993	Masters (Astrophysics) , <i>University Joseph Fourier, Grenoble, France</i> Thesis: Quantum effects on the crystallization of white dwarfs
1988–1992	Bachelor (Physics) , <i>University Joseph Fourier, Grenoble, France</i> 4 th year project: Optical indices of silicon and gold 3 rd year project: Spectroscopic study of TY-CrA

Main Research Areas and Interests

- Interstellar Medium; Astro-chemistry; Star-formation and early stellar evolution.
- Super-massive black holes (Member of the Event Horizon Telescope Collaboration).
- Radioastronomy, Interferometry (particularly VLBI) and high-precision astrometry.
- New radio facilities, techniques, and projects (ngVLA, ngEHT, ...).

Work Experience

09/2024 to date	Visiting Professor, Harvard University
02/2016–10/2023	Director, Astrophysics Graduate School, UNAM
08/2015–07/2016	Visiting professor, Max Planck Institut für Radioastronomie, Bonn, Germany
08/2011–07/2012	Visiting professor, Max Planck Institut für Radioastronomie, Bonn, Germany
07/2010	Visiting Astronomer, National Radio Astronomy Observatory, Socorro, USA
12/2008 to date	Full Professor, Instituto de Radioastronomía y Astrofísica, UNAM
07/2007	Visiting Astronomer, National Radio Astronomy Observatory, Socorro, USA
05/2005	Visiting Professor, Bordeaux Observatory, France
12/2003–12/2008	Associate Professor, Instituto de Radioastronomía y Astrofísica, UNAM
10/2000–12/2003	Assistant Professor, Instituto de Radioastronomía y Astrofísica, UNAM
05/1998–10/2000	Post-doctoral Researcher, Institut de Radio Astronomie Millimétrique, Grenoble, France
02/1996–05/1997	Researcher/PhD Student, Space Telescope Science Institute, Baltimore, USA
10/1994–01/1996	Researcher/PhD Student, Harvard-Smithsonian Center for Astrophysics, USA
05/1994–07/1994	Researcher/PhD Student, Space Telescope Science Institute, Baltimore, USA

Prizes and Distinctions

Received personally

03/2024	Robert F. Kennedy Visiting Professorship 2024-25 , <i>Harvard University, USA</i>
11/2023	2023 NAT Lectureship , <i>Universidade Cidade São Paulo, São Paulo, Brazil</i>
10/2023	Research Prize 2023 , <i>Mexican Physics Society, Mexico</i>
09/2023	State Science Prize 2023 , <i>ICTI, Michoacán, Mexico</i>
11/2020	TWAS Award 2022 , <i>The World Academy of Science, Trieste, Italy</i>
04/2013	Fellowship , <i>Foundation Marcos Moshinsky, Mexico</i>
07/2011	Friedrich Wilhelm Bessel Prize , <i>Foundation Alexander von Humboldt, Germany</i>
07/2010	Fellowship , <i>John Simon Guggenheim Memorial Foundation, USA</i>
07/2008	Affiliate Fellowship , <i>Third World Academy of Science, Trieste, Italy</i>
07/2007	National University Prize for young Researchers , <i>in the category of exact sciences, UNAM. This is the highest distinction awarded by UNAM for researchers younger than 40. It goes to an astronomer typically once every five years</i>

Received as a member of the EHT collaboration

03/2025	2025 Frontiers of Science Award , <i>International Congress of Basic Science, China</i>
01/2021	Royal Astronomical Society Group Award , <i>RAS (UK)</i>
05/2020	Albert Einstein Medal , <i>Switzerland</i>
03/2020	Nelson P. Jackson Aerospace Award (National Space Club and Foundation) , <i>USA</i>
01/2020	Bruno Rossi Prize of the American Astronomical Society , <i>USA</i>
12/2019	Smithsonian American Ingenuity Award , <i>USA</i>
09/2019	2020 Breakthrough Prize in Fundamental Physics , <i>USA</i>
05/2019	National Science Foundation Diamond Achievement Award , <i>USA</i>

Membership in Scientific Organizations

Academia Mexicana de Ciencias (AMC)
Sociedad Mexicana de Física (SMF)
American Astronomical Society (AAS)
Internacional Astronomical Union (IAU)

Grants and Stipends

SNI (which goes from level 1/lowest to 3/highest) and PRIDE (which goes from level A/lowest to level D/highest) are productivity programs at Consejo Nacional de Ciencia y Tecnología (CONACyT) and Universidad Nacional Autónoma de México (UNAM), respectively. CONACyT is the main funding agency for science and technology in Mexico and is the equivalent of the NSF in the USA.

- 08/2015–01/2016 Stipend for sabbatical visit to Max Planck Institute, CONACyT
- 08/2015–01/2016 Stipend for sabbatical visit to Max Planck Institute, UNAM
- 01/2015 to date National Researcher Level III (highest level), SNI, CONACyT
- 08/2011–07/2012 Stipend for sabbatical visit to Max Planck Institute, UNAM
- 01/2006–12/2014 National Researcher Level II, SNI, CONACyT
- 01/2005 to date PRIDE Level D (highest level), UNAM
- 10/2000–12/2005 National Researcher Level I, SNI, CONACyT
- 10/2001–12/2004 PRIDE Level C, UNAM
- 10/2000–10/2001 PRIDE Level B, UNAM
- 05/1998–10/2000 Post-doctoral Fellowship, Institut de Radio Astronomie Millimétrique (IRAM), Grenoble, France
- 06/1997–03/1998 Doctoral degree stipend, University Joseph Fourier, Grenoble, France
- 02/1996–05/1997 Grant for the Director's Discretionary Research Funds, Space Telescope Science Institute (STScI), Baltimore, USA
- 01/1996 Harvard-Smithsonian Center for Astrophysics pre-doctoral fellowship (declined)
- 10/1994–01/1996 Doctoral degree stipend, University Joseph Fourier, Grenoble, France
- 10/1993–06/1994 Masters degree stipend, University Joseph Fourier, Grenoble, France
- 03/1992–06/1992 Bachelor's grant from an exchange program between the University Joseph Fourier, Grenoble (France) and the University of Karlsruhe (Germany)

Financed Research Projects (as PI or co-PI)

- 2024–2025 $\Delta\Sigma\Gamma\Phi X$ –**Protostars**, CNRS Emerging Action (France), co-PI: Dr. Emmanuel Caux
- 2024–2026 **Astrophysical applications of radio-interferometry**, PAPIIT – DGAPA/UNAM (2024)
- 2020–2023 **Astrophysical applications of VLBI**, CONACyT – Frontier Science Program (2019)
- 2020–2022 **VLBI in the centimeter and millimeter regimes**, PAPIIT – DGAPA/UNAM (2020)
- 2017–2020 **Using VLBI to track satellites**, CONACyT-Mexican Space Agency (2017)
- 2017–2019 **Analysis and extension of the Gould's Belt Distances Survey (GOBELINS)**, PAPIIT – DGAPA/UNAM (2017)
- 2015–2019 **Physical and kinematical structure of IRAS 16293–2422: molecules and continuum**, SEP-CONACyT-ANUIES-ECOS NORD France (2014), co-PI in France: Emmanuel Caux

- 2014–2015 **Imaging Black Holes with the Large Millimeter Telescope, *MITSI initiative* – Massachusetts Institute of Technology (MIT)**, co-PI at MIT: Shep Doeleman (MIT)
- 2013–2015 **Star-formation near and far, *PAPIIT – DGAPA/UNAM (2013)***, co-PIs: Rosa González and Luis Zapata
- 2010–2012 **Star-formation near and far, *PAPIIT – DGAPA/UNAM (2010)***, co-PI: Rosa González
- 2009–2012 **The distribution of star-formation in the Solar neighborhood and the extension of the VLBA, *CONACyT (2009)***
- 2008 **Mexican contribution to the expansion of the VLBA, *CONACyT (2008)***
- 2007–2009 **Interstellar matter and Stellar populations, *PAPIIT – DGAPA/UNAM (2007)***, co-PI: Rosa González
- 2004–2007 **Star-formation in multiple systems, *CONACyT (2004)***
- 2003–2005 **Interstellar matter and stellar population in galactic systems, *PAPIIT – DGAPA/UNAM (2003)***, co-PI: Rosa González
- 2002 **The chemistry of deuterium in low-mass protostars, *Bilateral Mexico-France projects (CONACyT/CNRS)***, co-PI in France: Alain Castets
- 2001–2003 **The chemistry associated with star-formation, *CONACyT (2001)***
- 2001–2002 **Gas and cold dust in disk galaxies, *DGAPA/UNAM (2001)***, co-PI: Rosa González

Professional Services

- Referee for journals Nature, Nature Astronomy, The Monthly Notices of the Royal Astronomical Society, The Astrophysical Journal (Main Journal, Letters, Supplements), The Astronomical Journal, Astronomy & Astrophysics, Proceedings A of the Royal Society, Publications of the Astronomical Society of Japan, La Revista Mexicana de Astronomía y Astrofísica, El Boletín Anual de la Asociación Argentina de Astronomía, La Revista Mexicana de Física.
- Councils and Advisory committees Member of the Very Large Array Sky Survey (VLASS) Science Council (NRAO, 2018 to date); Member of the NRAO Users Committee (2018 to 2021; 2008-2011); Chair of the Publication Committee, Event Horizon Telescope (2018 to 2021); Member of the Next Generation Very Large Array Science Advisory Council (ngVLA, NRAO, 2016 to 2021); Representative member on the Council for Scientific Research (CTIC, UNAM, 2012-2015); Member of the academic council for mathematics, sciences and engineering (CAACFMI, UNAM, 2009-2014); Member of the internal council of the Instituto de Radioastronomía y Astrofísica (UNAM, 2012-2015, 2003-2005).
- Referee for research projects and education programs The Autonomous University of Sinaloa, The University of Puerto Rico, The European Science Foundation, Consejo Nacional de Ciencia y Tecnología (CONACyT) for projects in the categories of “fundamental science” and “frontier science”, Dirección General de Asuntos del Personal Académico (DGAPA, UNAM), Padrón Nacional de Posgrados de Calidad (PNPC, CONACyT), The University of Guanajuato, The World Academy of Science (TWAS), Fundación Marcos Moshinsky (Mexico).
- Evaluation committees for research and technical projects Member of the evaluation committee for the Institutional Fund for Regional Development in Science, Technology, and Innovation (FORDECYT, CONACyT, 2016); Member of the technical revision committee for the Large Millimeter Telescope (LMT), Instituto Nacional de Astronomía Óptica y Electrónica (INAOE, 2013); Member of the supervising committee for the Large Millimeter Telescope (LMT), Instituto Nacional de Astronomía Óptica y Electrónica (INAOE, 2008); Member of the expert committee in physics, mathematics and earth science for the evaluation of projects in fundamental science (CONACyT, 2006-2008).

Referee and Evaluation committees for academic promotions	Referee for Tenure/Promotion applications, The University of Texas Rio Grande Valle; Member of the promotion committee (“comisión dictaminadora”) of the Instituto de Astronomía, UNAM (2016 to 2022); Member of the evaluation and revision committees of National System of Researchers (SNI), CONACyT (2018); Member of the evaluation committee of National System of Researchers (SNI), CONACyT (2013-14); Member of the PRIDE evaluation committee at the Instituto de Radioastronomía y Astrofísica, UNAM (2010-2011).
Telescope time allocation committees	Chair of the Milky Way and Local Group panel for the evaluation of proposals submitted to the Large Millimeter Telescope (2021 and 2022). Chair of the Mexico-Spain Community Review Panel for proposals submitted to the Large Millimeter Telescope (2021 and 2022). Member of the International Time Allocation Committee (TAC) for proposals submitted to the Large Millimeter Telescope (2021 and 2022). Referee for proposals submitted to the Large Millimeter Telescope (2014). Member of the star-formation panel for the evaluation of proposals submitted to the National Radio Astronomy Observatory (USA, 2012–2014). Referee for proposals submitted to the National Radio Astronomy Observatory (USA, 2005–2007).
SOC and LOC for scientific meetings	SOC chair and LOC member, Event Horizon Collaboration Summer Meeting 2024, Mexico City, 19–24 May 2024; SOC member, Event Horizon Collaboration Meeting winter 2021, virtual, 6–10 December 2021; SOC chair and LOC member, Event Horizon Collaboration Meeting summer 2021, virtual, 18–25 June 2021; SOC member and LOC chair, Regional VLBI Workshop 2019, Mexico City, Mexico, 15 February – 1 March 2019; SOC member, Event Horizon Collaboration Meeting 2018, Nijmegen, The Netherlands, 5–9 November 2018; SOC member IAU Symposium 336 <i>Astrophysical Masers: Unlocking the Mysteries of the Universe</i> , Cagliari, Sardinia, Italy, 4–8 September de 2017; SOC member, Developing the ngVLA Science Program, Socorro, NM, USA, 26–29 June 2017; SOC member, Annual Astronomy Meeting, Mexico City, Mexico, 29 October – 1 November 2013; SOC member, New Science enabled by microarcsecond astrometry, Socorro, NM, USA, 21–23 July 2009.
Theses Defense Committees	Andrea Bonilla Barroso (PhD, UNAM, 06/2024); Miguel Ángel Vega (Masters, UNAM, 12/2023); Patricia Lara Cruz (PhD, UNAM, 09/2023); Norida Jazmín Ordóñez Toro (Masters, Universidad de Guanajuato, 10/2020); Geovanni Rangel (Masters, UNAM, 08/2020); Carolina Rodríguez (PhD, UNAM, 06/2019); Isabelle Ristorcelli (“Habilitation à diriger des thèses”, Université Paul Sabatier de Toulouse, France, 03/2019); Andrea Bonilla (Masters, UNAM, 01/2019); Ulises del Moral (Masters, UNAM, 12/2018); Marina Kounkel (PhD, University of Michigan, USA, 08/2017); David Quenard (PhD, Université Paul Sabatier de Toulouse, France, 09/2016); Patricia Lara (Masters, UNAM, 06/2014); Leticia Luis (PhD, UNAM, 01/2013); Audrey Coutens (PhD, Université Paul Sabatier de Toulouse, France, 11/2012); Gabriela Montés (PhD, Universidad de Andalucía, España, 10/2011); Manuel Fernández (PhD, UNAM, 06/2011); Noé Suárez (Masters, INAOE, 08/2010); Alfonso Trejo (PhD, UNAM, 08/2010); David Oseguera (Masters, UNAM, 03/2009); Daniel Tafoya (PhD, UNAM, 12/2008); Jeffrey Wagg (PhD, INAOE, 11/2006); Luis Zapata (PhD, UNAM, 10/2006).

Students Supervision

In the following, I include the information on each thesis I have supervised. In addition, for each student I indicate (following the ► sign) the professional or academic path they chose to follow immediately upon graduating and, if I know it, their current professional status.

- 08/2024 – **José Armando Yucra Olivera**, *Universidad Mayor de San Simón (Bolivia)*, *Bachelor*, Thesis: A study of the Güdel-Benz relation
- 08/2024 – **Karla Noemi Moo Herrera**, *Universidad Autónoma de Yucatán*, *Bachelor*, Thesis: A re-analysis of the GÖBELINS astrometric results
- 08/2023 – **Brissa Gómez Miller**, *UNAM*, *Masters*, Thesis: Calibration and analysis of EHT observations
- 05/2023 – **Eduardo Moyses Quiroz Arnez**, *Universidad Mayor de San Simón (Bolivia)*, *Bachelor*, Thesis: Statistical comparison between the Gaia DR3 and VLASS catalogs
- 09/2022 – **Ricardo Hernández Garnica**, *UNAM*, *PhD*, Thesis: Proper motions in young stellar systems
- 02/2021 – **Jazmin Ordoñez Toro**, *UNAM*, *PhD*, Thesis: Orbital motions in tight multiple systems observed with the VLBA
- 02/2020 – **Aurora de los Angeles Duran**, *UNAM*, *PhD*, Thesis: Young stellar systems observed with ALMA
- 08/2017 – **Ernesto García Valencia**, *Universidad de Sonora*, *PhD*, Thesis: Astrometric observations of the Chamaeleon star-forming region
- 05/2023–03/2025 **Selma Adriana Vasquez Barrios**, *Universidad Mayor de San Simón (Bolivia)*, *Bachelor*, Thesis: Nearby stars in the Very Large Array Sky Survey (VLASS), ► Continued with a Masters Degree in astronomy at UNAM
- 02/2022–02/2025 **Dante Peñaloza**, *UNAM*, *Masters*, Thesis: Recombination lines in MWC 349 A, ► Joined private sector
- 01/2019–06/2023 **Brissa Gómez Miller**, *UNAM*, *Masters*, Thesis: Phasing efficiency at ALMA during EHT observations, ► Continued with a PhD thesis in astronomy at UNAM
- 08/2019–08/2022 **Ricardo Hernández Garnica**, *UNAM*, *Masters*, Thesis: Proper motions in the young stellar system L 1551 IRS 5, ► Continued with a PhD thesis in astronomy at UNAM
- 08/2018–08/2020 **Aurora de los Angeles Duran**, *UNAM*, *Masters*, Thesis: Numerical simulations of astrometric observations, ► Continued with a PhD thesis in astronomy at UNAM
- 01/2017–03/2019 **Ricardo Hernández Garnica**, *Universidad de Guadalajara*, *Bachelor*, Thesis: Orbital motions on the young stellar system T Tauri, ► Continued with a Masters Degree in astronomy at UNAM
- 06/2015–01/2017 **Aurora de los Angeles Duran**, *Universidad de Guadalajara*, *Bachelor*, Thesis: Astrometry with radio interferometers, ► Continued with a Masters Degree in astronomy at UNAM
- 08/2014–01/2019 **Antonio Hernández**, *UNAM*, *PhD*, Thesis: Centimeter and millimeter observations of IRAS 16293–2422 and determination of its 3D structure, ► Currently research professor at the Technological Institute of Monterrey (ITESM), Mexico
- 02/2011–05/2017 **Juana Leticia Rivera**, *UNAM*, *PhD*, Thesis: On the origin of Gould's Belt, ► Currently instructor at Universidad del Valle de Mexico
- 08/2012–01/2017 **Gisela Noemí Ortiz León**, *UNAM*, *PhD*, Thesis: Ultra-high accuracy astrometry with Very Long Baseline Interferometry at centimeter and millimeter wavelengths, ► Currently permanent staff at the Instituto de Astronomía, Óptica and Electronics (INAOE), Puebla, Mexico

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- 08/2011–02/2016 **Gerardo Pech**, *UNAM, PhD*, Thesis: A study of the Perseus star-forming region, ▶ Currently director of the planetarium of Playa del Carmen, QR, Mexico
- 08/2009–12/2013 **Sergio Abraham Dzib Quijano**, *UNAM, PhD*, Thesis: High accuracy astrometry of young stellar objects, ▶ Currently long-term staff at the Max Planck Institute of Radio Astronomy (MPIfR), Bonn, Germany
- 02/2009–10/2009 **Erandy González**, *Universidad Tecnológica de la Mixteca (Oaxaca), Bachelor*, Thesis: Development of a Bayesian code for astrometric fitting, ▶ Continued with a Masters Degree at Instituto Politécnico Nacional, Mexico
- 09/2007–11/2008 **Gerardo Pech**, *Universidad Autónoma de Yucatán, Bachelor*, Thesis: The young stellar object IRAS 16293–2422, ▶ Continued with a PhD thesis in astronomy at UNAM
- 02/2007–09/2009 **Rosa Martha Torres**, *UNAM, PhD*, Thesis: Measuring nearby star-forming regions with the VLBA: from distance to dynamics, ▶ Currently professor of astronomy at Universidad de Guadalajara, Mexico
- 10/2006–09/2008 **Guillermo Manjarrez**, *UNAM, Masters*, Thesis: High resolution observations of the dense core L1517B, ▶ Continued with a PhD thesis in astronomy at the Instituto de Astrofísica de Andalucía
- 09/2005–09/2006 **Virgilio Vázquez Hipólito**, *Universidad Tecnológica de la Mixteca (Oaxaca), Bachelor*, Thesis: Improvement to an astrometric fitting code, ▶ Currently professor of applied mathematics at Universidad Tecnológica de la Mixteca, Mexico
- 08/2005–05/2006 **Susana Pacheco**, *Benemérita Universidad Autónoma de Puebla, Bachelor*, Thesis: Radio observations of the young stellar object HH24MMS, ▶ Continued with a PhD thesis in astronomy at Université Joseph Fourier
- 02/2004–09/2008 **Mónica Rodríguez Martínez**, *UNAM, PhD*, Thesis: Two contributions to the study of dense interstellar medium in the Galaxy, ▶ Continued with post-doctoral positions at the Instituto de Astrofísica de Andalucía
- 01/2002–05/2003 **Brenda Arias**, *Universidad de Guadalajara, Bachelor*, Thesis: The chemistry of sulfur as a chemical clock, ▶ Currently head of outreach at UNAM's Instituto de Astronomía
- 09/1999–06/2003 **Sébastien Muller**, *Université Joseph Fourier (Grenoble, Francia), PhD*, Thesis: Characterization of extragalactic interstellar matter: physical properties, dust mass and molecular gas mass, ▶ Currently staff scientist at the Nordic ALMA Regional Center node, Sweden
- 04/1999–06/1999 **Sébastien Muller**, *Université Joseph Fourier (Grenoble, Francia), Masters*, Thesis: Contribution of HST/WFPC2 images to the study of extragalactic interstellar matter, ▶ Continued with a PhD thesis in astronomy at Université Joseph Fourier

Teaching

Crash course in Electrodynamics, 15 hours weekly – 30 hours total, UNAM (undergraduate level), Offered twice (2023–1, 2024–1)

Numerical methods, 3 hours weekly – 24 hours total, UNAM (Undergraduate level), Offered three times (2017–1, 2018–1, 2019–1)

Galactic Structure and Stellar Dynamics, 6 hours weekly – 40 hours total, UNAM (Graduate level), Offered twelve times (2003–1 to 2020–2)

Extragalactic Astronomy and Observational Cosmology, 6 hours weekly – 40 hours total, UNAM (graduate level), Offered once (2009–1)

Introduction to Astrophysics, 6 hours – 40 hours total, UNAM (undergraduate level), offered once (2002–2)

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Crash course in Analytical Classical Mechanics, 15 hours weekly – 30 hours total, UNAM (undergraduate level), Offered five times (2010–1, 2010–2, 2013–1, 2013–2, 2014–1, 2015–2, 2021–2)

Crash course in undergraduate physics, 10 hours weekly – 80 hours total, UNAM (undergraduate level), Offered ten times (2004–2 to 2009–1)

Radioastronomy, 3 hours weekly – 12 hours total, UNAM (graduate level), Offered four times (2006–2, 2008–2, 2010–1, 2013–2)

Research seminars, UNAM (graduate level), more than 20 times (from 2004–2 to date)

Weekly oral exams (“khôlles”) for undergraduate physics students, 2 hours weekly – 50 hours total, Lycée Champollion (Grenoble – France), Offered once (academic year 1997–1998)

Physics Labs for undergraduate biology students, 4 hours weekly – 100 hours total, Université Joseph Fourier (Grenoble, France), Offered once (academic year 1993–1994)

Colloquiums and Seminars

- 03/2025 Robert F. Kennedy Professor Distinguished Lecture, David Rockefeller Center for Latin American Studies, Harvard University
- 03/2025 Physics and Astronomy Department, University of New Hampshire, Durham (colloquium)
- 02/2025 Physics Department, University of Illinois, Urbana-Champaign (CAPS Seminar)
- 11/2024 Physics Department, University of Massachusetts, Boston (colloquium)
- 10/2024 Black Hole Initiative, Harvard University (colloquium)
- 10/2024 David Rockefeller Center for Latin American Studies, Harvard University (colloquium)
- 04/2024 Max Planck Institut für Extraterrestrische Physik (colloquium)
- 02/2024 Instituto de Radioastronomía y Astrofísica, UNAM, Morelia, Mexico (colloquium)
- 05/2023 Max-Planck-Institut für Radioastronomie, Bonn, Germany (colloquium)
- 05/2021 Centro de Física Aplicada y Tecnología Avanzada, UNAM (colloquium)
- 04/2021 Inaugural colloquium in a series organized by the Fundación Marcos Moshinsky in celebration of the 100th anniversary of Marcos Moshinsky's birth and the 10th anniversary of the Fundación Marcos Moshinsky
- 11/2020 Instituto de Física, UNAM, Ciudad de México, Mexico (seminar “Sandoval Vallarta”)
- 10/2020 Instituto de Ciencias Físicas, Cuernavaca, Morelos (colloquium)
- 01/2020 Instituto Nacional de Astronomía, Óptica y Electrónica, Puebla, Mexico (colloquium)
- 11/2019 Universidad Autónoma Metropolitana, Physics Dept., Mexico City, Mexico (colloquium)
- 09/2019 Universidad Michoacana de San Nicolas de Hidalgo, Morelia, Mexico (colloquium)
- 07/2019 Institute for Advanced Cosmology, UNAM, Mexico City, Mexico (colloquium)
- 06/2019 Instituto de Astronomía, UNAM, Mexico City, Mexico (colloquium)
- 06/2019 CINVESTAV, Mexico City, Mexico (colloquium)
- 05/2019 Instituto de Radioastronomía y Astrofísica, UNAM, Morelia, Mexico (colloquium)
- 06/2018 Cornell University, Ithaca, USA (colloquium)
- 06/2018 Instituto de Astronomía, UNAM, Ensenada, Mexico (colloquium)
- 02/2018 Instituto de Radioastronomía y Astrofísica, UNAM, Morelia, Mexico (colloquium)
- 10/2017 University of Texas in Austin, USA (group colloquium)
- 02/2017 National Radio Astronomy Observatory, Socorro, USA (colloquium)
- 08/2016 Harvard-Smithsonian Center for Astrophysics, USA (lunch colloquium)
- 08/2016 University of Massachusetts, Amherst, USA (lunch colloquium)

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06/2016 Université de Toulouse, France (colloquium)
 05/2016 Max-Planck-Institut für Radioastronomie, Bonn, Germany (colloquium)
 11/2014 Universidad de Barcelona, Spain (colloquium)
 05/2014 ESA-ESTEC, Noordwijk, The Netherlands (colloquium)
 03/2014 University of California, San Diego, USA (colloquium)
 09/2013 National Radio Astronomy Observatory, Socorro, USA (colloquium)
 08/2013 Instituto de Astronomía, UNAM, Mexico City, Mexico (colloquium)
 06/2013 Departamento de Astronomía, Universidad de São Paulo, Brazil (colloquium)
 05/2013 Centro de Radioastronomía y Astrofísica, UNAM, Morelia, Mexico (colloquium)
 04/2013 Instituto Nacional de Astronomía, Óptica y Electrónica, Puebla, Mexico (colloquium)
 11/2012 Université de Toulouse, France (colloquium)
 05/2012 Departamento de Astronomía, Universidad de Chile (colloquium)
 05/2012 Max-Planck-Institut für Astronomie, Heidelberg, Germany (colloquium)
 04/2012 Universidad de Nijmegen, The Netherlands (colloquium)
 03/2012 ASTRON, Dwingeloo, The Netherlands (colloquium)
 10/2011 Instituto de Astronomía de Andalucía, Granada, Spain (colloquium)
 06/2011 Centro de Radioastronomía y Astrofísica, UNAM, Morelia, Mexico (colloquium)
 01/2011 Herzberg Institute of Astrophysics, Victoria, Canada (colloquium)
 06/2010 Johns Hopkins University, Baltimore, USA (colloquium)
 06/2010 National Radio Astronomy Observatory, Charlottesville, USA (colloquium)
 04/2010 National Astronomy Observatory of Japan, Tokyo, Japan (seminar)
 04/2010 Hong Kong University, Hong Kong (colloquium)
 03/2010 Institut de Radio Astronomie Millimétrique, Grenoble, France (colloquium)
 12/2009 Observatorio Nacional de Brazil, Rio de Janeiro, Brazil (colloquium)
 10/2009 University of California, Berkeley, USA (colloquium)
 06/2009 Centro de Radioastronomía y Astrofísica, UNAM, Morelia, Mexico (colloquium)
 12/2008 University of Texas in Austin, USA (colloquium)
 05/2008 University of Michigan at Ann Arbor, USA (seminar)
 07/2007 National Radio Astronomy Observatory, Socorro, USA (lunch talk)
 04/2006 Instituto de Astronomía, UNAM, Mexico City, Mexico (colloquium)
 05/2005 Observatoire de Bordeaux, France (colloquium)
 02/2005 Space Telescope Science Institute, Baltimore, USA (lunch talk)
 01/2005 National Radio Astronomy Observatory, Socorro, USA (lunch talk)
 06/2004 Instituto Nacional de Astronomía, Óptica y Electrónica, Puebla, Mexico (colloquium)
 06/2003 Institut de Radio Astronomie Millimétrique, Grenoble, France (colloquium)
 05/2001 Universidad de Guanajuato, Guanajuato, Mexico (colloquium)
 04/2000 Observatoire de Bordeaux, France (colloquium)
 02/2000 Instituto de Astronomía (Campus Morelia), UNAM, Morelia, Mexico (colloquium)
 01/2000 Space Telescope Science Institute, Baltimore, USA (ISM/IGM Journal Club)
 03/1998 Institut de Radio Astronomie Millimétrique, Grenoble, France (colloquium)

Invited Talks in International Meetings

- 20–24/05/2024 **Event Horizon Collaboration Meeting, Mexico City, Invited Talk:** Overview of the EHT M87 results
- 25–27/10/2023 **First Mexican meeting in route to the Next Generation Very Large Array (ngVLA), Morelia, Mexico, Invited talk:** *Synergies between the ngVLA and the ngEHT*
- 22–26/05/2023 **Bologna VLBI: Life begins at 40! New frontiers and scientific challenges for VLBI with enhanced frequency/time/space dynamic ranges, Bologna, Italy, Invited talk:** *VLBI astrometry in the era of Gaia*
- 09–13/03/2020 **XV Symposium of the Cuban Physical Society, La Habana, Cuba, Invited plenary talk:** *The first image of a black hole*
- 04–08/11/2019 **XIII Workshop of the division of gravitation and mathematical physics of the Mexican Physics Society, León, Guanajuato, Invited plenary talk:** *The first image of a black hole*
- 18–20/09/2019 **Humboldt Kolleg 2019 meeting, Colegio Nacional, Mexico City, Mexico, Invited talk:** The first image of a black hole
- 31/07–03/08/2019 **VIII Meeting of Mexican Astronomy students, Cuernavaca, Mexico, Invited plenary talk:** The Event Horizon Telescope
- 08–12/10/2018 **Annual meeting of the physics society 2018, Puebla, Mexico, Invited plenary talk:** How astronomers measure the Universe
- 10–13/10/2017 **XXVI Annual meeting of Astronomy, Monterrey, Mexico, Invited plenary talk:** Measuring the Universe with Radiotelescopes... and a few other things VLBI can do for you
- 02–03/11/2017 **Radio Stars from kHz to THz (an MIT Haystack Observatory Workshop), Westford, MA, EUA, Invited review talk:** Radio Emission from Pre-Main Sequence Stars
- 25–28/01/2015 **Revealing the structure of protoplanetary disks, Morelia, Mexico, Invited talk:** The youngest protoplanetary disks
- 02–04/01/2015 **Next Generation VLA workshop, 225th Meeting of the American Astronomical Society, Seattle, WA, EUA, Invited talk:** Low-mass young stars with the Next Generation VLA: multiplicity and the small-scale architecture of multiple systems
- 30/06–11/07/2014 **GH 2014: Observations and Modeling of Circumstellar Disks –A Workshop in Memory of Paola D’Alessio, Tonantzintla, Mexico, Invited talk:** The Gould’s Belt Distances Survey
- 19–23/05/2014 **Galactic Science with the SKA & Its Pathfinders, Leiden, Holanda, Invited talk:** Radio emission from low-mass young stars
- 27–31/08/2012 **IAU Symposium 289: Advancing the Physics of Cosmic Distances, Beijing, China, Invited talk:** The Gould’s Belt Distances Survey
- 27–28/01/2011 **The future of the VBLA, Charlottesville, VI, EUA, Invited talk:** The Gould’s Belt Distance Survey
- 08–12/11/2010 **XIII Latin American Regional IAU Meeting, Morelia, Mexico, Invited talk:** Mapping star-formation in the Milky Way
- 30/11–03/12/2009 **Sixth Regional Conference of Young Scientists of TWAS-ROLAC, Brazilian Academy of Sciences, Río de Janeiro, Brazil, Invited talk:** The distance to nearby star-forming regions
- 21–23/07/2009 **New Science Enabled by microarcsecond astrometry, Socorro, NM, EUA, Invited talk:** The distance to nearby star-forming regions
- 16–17/06/2009 **Annual Meeting of the Astrobiology society of Mexico, Mexico City, Mexico, Invited talk:** Looking for complex molecules in a Solar type protostar

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- 26–28/05/2009 **The EVLA vision: stars on and off the main sequence**, *Socorro, NM, EUA*, **Invited talk**: Proper motions of thermal radio sources
- 15–18/04/2008 **Annual Astronomy Meeting**, *Mexico City, Mexico*, **Invited review talk**: The distribution of star-forming regions in the Galaxy
- 12–16/02/2008 **IV meeting on dynamic astronomy in Latin America**, *Mexico City, Mexico*, **Invited talk**: Radio astrometry of low-mass star-forming regions
- 28–30/03/2007 **17th International Science Steering Committee for the Square Kilometer Array**, *San Juan, Argentina*, **Invited talk**: Radioastronomy in Mexico
- 17–21/10/2005 **Annual meeting of the physics society 2005**, *Guadalajara, Mexico*, **Invited plenary talk**: Measuring the Universe with radio-telescopes
- 21–22/08/2003 **LMT Operations Workshop**, *Amherst, MA, EUA*, **Invited talk**: Constraints for spectroscopic observations with the LMT
- 16–18/10/2002 **Annual Astronomy Meeting**, *Guadalajara, Mexico*, **Invited talk**: Orbital motions in protostars
- 16–18/06/1999 **Le milieu interstellaire des galaxies vu par ISO (a meeting in honor of Prof. James Lequeux)**, *Paris observatory, France*, **Invited talk**: The molecular gas in the Andromeda galaxy

Outreach Activities

I have been involved in more than 100 outreach activities. These include several press conferences. For instance, on 10 April 2019 and 12 May 2022, LMT director David Hughes and myself co-chaired the press conferences hosted by CONACyT when the first EHT images of the supermassive black holes at the center of M87 and Sgr A* were revealed. They also include many TV and radio interviews and tens of oral presentations in many different context (from pre-schools to universities, in planetariums, in conference cycles organized by civil associations, etc.) I also co-organized the first edition of the “Noche de las Estrellas” in the pre-hispanic site of Tzin Tzun Tzan that attracted a public of many thousands. This event was imported from the French “Nuit des Étoiles” and has now become a yearly event in Mexico.

Publications — see complete bibliography

- 2 review articles
- 11 white papers
- 29 refereed science articles
- 7 book chapters
- 233 refereed articles
- 8 outreach articles

Citations in the International Literature — from NASA/ADS

In addition to the total number of citations, I include here various indices. The Hirsch citation index, h , is the number of articles that have received more than h citations. The m -index is equal to the h -index divided by the number of years since the first publication (1995 in my case). The indices i_{10} , i_{100} , and i_{1000} are the number of papers that have received, respectively, more than 10, 100, and 1000 citations.

Total number of citations:		22,819			
h-index:	65	m-index:	2.0	g-index:	148
i_{10} index:	194	i_{100} index:	44	i_{1000} index:	5