Gaël Chauvin

Curriculum Vitae

French Chilean Lab for Astronomy IRL-3386
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Education & Degrees

2016 **Habilitation à Diriger des Recherches**, at Grenoble Alpes University (France).
Title: *Direct Imaging of Exoplanets*

2003 **Ph. D. in Astrophysics**, at Grenoble Alpes University (France).
Title: *Study of the circumstellar environment to search for substellar objects and disks*
Supervisors: A.-M. Lagrange & D. Mouillet

2000 **Master of Sc. in Astrophysics**, at Grenoble Alpes University (France). with honors.

1999 **Engineer in Applied Materials**, National Polytechnics Institute in Applied Physics of Grenoble (France). with honors.

1996 **Cycle Préparatoire Polytechnique**, Grenoble (France).

1994 **Scientific Baccalauréat**, Lycée Mounier, Grenoble (France). with honors.

Professionnal Experience

Present **Deputy Director of the French – Chilean Laboratory for Astronomy (FCLA)**, *International Research Lab (IRL-3886)*, of the French National Center for Research in Science (CNRS). **CNRS Researcher** at FCLA, http://www.das.uchile.cl/FCLA-UMI/.

2013-2016 **CNRS Researcher**, at the Institute of Planetology & Astrophysics of Grenoble (IPAG), France, https://ipag.osug.fr/.

2011-2012 **CNRS Researcher**, affiliated to IPAG, Visiting Scientist at the Max Planck Institute for Astronomy, Heidelberg, https://www.mpg.de/mpia-en.

2007-2010 **CNRS Researcher**, at IPAG/France.

2004-2007 **European Southern Observatory Fellowship**, ESO support astronomer for the NaCo, SINFONI, ISAAC and FORS1/2 instruments at the VLT for a total of 240 nights over 4 years, member of the ESO Adaptive Optics group and of the NaCo & SINFONI Operation Science Team. https://www.eso.org/public/.

2004-2007 **Ph.D. at Grenoble Alpes University (UGA)**, Participation to the integration and test phases of the NAOS adaptive optics instrument. Responsible for observing programs aimed at searching for low mass companions, using high contrast and high angular resolution instruments: ADONIS (ESO3.6m), PUE'O (CFHT) and NaCo (VLT).

Scientific Interets

- **Physics and Atmosphere of Giant and Telluric Planets**.
- **Formation, Architecture and Evolution**, of Planetary Systems.
- **Instrumentation**, **High contrast imaging** and **low-medium resolution spectroscopy** in near and mid-infrared of substellar companions, exoplanets and brown dwarfs, & disks. **High resolution spectroscopy** in visible and infrared. **Interferometry**.

Management of Science, observing programs

2014-present **Member of E-ELT MICADO and MAORY Science Teams**, (IPAG representative).

2020-present **SPHERE+ Project Scientist**, SPHERE+ is a major upgrade aimed at opening a new and meaningful scientific window for the upcoming decade in synergy with ground-based facilities (VLTI/I, E-ELT, ALMA, and SKA) and space missions (*Gaia*, *JWST*, *PLATO* and *WFIRST*), to maintain the leadership of ESO in the exoplanetary field, and to prepare the advent of a Super-Earths XAO Imager for the E-ELT (PCS).

2014-present **SPHERE Project Scientist (*Exploitation Phase*)**, In charge of coordinating the SPHERE GTO (260 nights over 6 years) exploitation distributed between 9 European institutes for a consortium of more than 130 scientists. Achievement: 100 GTO publications (including Nature, A&A, MNRAS, ApJ) and 8 Press Releases (ESO, CNRS, INAF, MPIA) in 6 years. End of GTO foreseen in October, 2021, https://sphere.osug.fr/.

2008-present **PI of the SpHere INfrared survey for Exoplanets**, (200 GTO nights with SPHERE at VLT) to search for & characterize young Jovian planets with SPHERE at VLT, gathering 9 European institutes and 60 scientists.

2004-present **PI of Large Direct Imaging and Spectroscopic Programs for Exoplanets & Brown Dwarfs**, (JYNS, NaCo-LP, DUSTIES, X-SHYNE, SCALP, X-Tremes) representing more than 80 nights of Telescope Time as PI at VLT/VLTI (SPHERE, X-Shooter, MUSE, CRIRES, VISIR, NaCo, SINFONI, Gravity, Pionier, Amber, HARPS, SOFI), LBT (LMIRCam), CFHT (PUE'O), ESO3.6m (ADONIS), and leading to breakthrough discoveries, tens of publications, press releases in the domain of exoplanet and brown dwarf imaging and spectroscopic characterization.

Selected Awards & Grants

2021-2022 **PI of LabEx OSUG-2020 MOAI "MOndes & HAbItabilité" program**, 2-years grant aimed at supporting the ELT (MICADO, MAORY, HARMONI, HIRES, PCS/SPHERE+) scientific preparation at IPAG/UGA.

2021-2022 **PI of the ECOS-SUD program "SPHERE upgrade for Planetary Formation" with Johan Mazoyer (LESIA), Laura Pérez (U. Chile)**, 2-years grant to support the French-Chilean cooperation on the exploration of planet-disk forming regions at LESIA/IPAG/U.Chile & FCLA.

April 2020 **"Co-Lauréat" Charles Defforey - Institut de France Foundation Scientific Grand Prize**, on the theme "Exoplanets", with Jean-Luc Beuzit, Anthony Boccaletti, Maud Langlois, David Mouillet & Thierry Fusco.

2015-2019 **Co-PI of the GIant Planet population & Statistics for Exoplanets ANR Grant**, 5-years Grant between IPAG and LESIA, Coordinator of the Exoplanets Demographics Working Package.

2013-2017 **PI of the CNRS-PICS French-German Grant "Dust to Planets"**, 3-years program to support collaboration between the MPIA and IPAG institutes in Exoplanetary Science.

2010-2015 **PI of the Giant ExoPlanet Atmospheres, oRigin & Dynamics ANR-Grant**, 5-years Grant aimed at gathering expertise of three French institutes, LAM, CRAAL and IPAG, to strengthen our leadership in the field of detection and characterization of giant planets.

2014-2017 **PI of the French SPHERE Coordinated Action**, from the Planetology & Stellar Physics National programs to support the SPHERE GTO exploitation for the French community (LESIA, Lagrange, IPAG, LAM), the organization of the consortium meetings, and of the SPHERE/Workshop (SF2A-2017).

June 2011 **SF2A Young Researcher Award**, from the French Society of Astronomy and Astrophysics.

Students Supervision

- **2 Post-docs**, Philippe Delorme (now CNAP/Astronomer, IPAG) & M. Bonnefoy (now CNRS/CR2, IPAG).
- **6 Ph. D. Students**, Partial supervision of Sebastian Jorquera (starting, with Pr. Laura Pérez), Simon Petrus (2018-now at UGA), Maxime Cudel (2014-2017 at UGA, not defended), Julien Rameau (defended in 2014 at UGA, now Chair d'Excellence Origin of Life at UGA), Mickael Bonnefoy (defended in 2011 at UGA, now CNRS/CR2). Partial supervision of Mariangela Bonavita PhD work (defended in 2011 at U. Padova, Assistant-Professor Edimburgh).
- **27 Undergraduated/M. Sc. Students**, Celia Desgrange (M2), Paulina Palma (M2), Constanza Villegas (M2), Marina Masson (M1), Anna Luashvilli (M2), Sebastian Jorquera (M1, M2), Nathan Florent (M1), Célia Desgrange (M1), Simon Petrus (M2), Aurélien Lagarrigue (M1), Maxime Lombart (M2), Cyril Pannetier (L3), Maxime Cudel (M2), Yohan Merien (L3), Justine Lannier (M2), Hugo Gilardy (M1), Julien Rameau (L3, M2), Mickael Bonnefoy (M2), Mariangela Bonavita (M2), Xavier Haubois (M1), Elisabeth Crespe (L3), Tania Sauma (L3), Loïc Maisonasse (L3), Mitchell Thomson (L3, M2).

International Expertise, Responsibilities & Committees

2020-present **Member of the Astronet-2020 Panel of experts for the Science Vision & Infrastructure Roadmap 2020-2030**, Objective to describe & prioritise the key astronomical questions which may be answered in the next twenty years by a combination of observations, simulations, laboratory experiments, interpretation and theory, https://www.astronet-eu.org/science-vision-infrastructure-roadmap-2020-2030.

2012-present **Member of the ESO/E-ELT Project Science Team**, gathering European experts advising/defining the scientific requirements for the ELT (MICADO-MAORY, HARMONI, METIS, HIRES, MOSAIC and PCS) instruments, https://www.eso.org/sci/facilities/eelt/science/pst/.

2018-present **Member of the ESO/La Silla-Paranal Science & Technology Sub-Committee**, Mission to monitor VLT operations, instruments & prospective to advise the ESO Scientific Technical Committee, https://www.eso.org/public/about-eso/committees/stc-lsp.html.

2016-2019 **Expert member of the LBT Scientific Advisory Committee**, second generation instrument of LBT (iLocater, VIS and NIR SHARKS).

2009-present **Time Allocation Committees**, Gemini (2009-2018), ESO CNRS-VLTI-INSU Time (2012-2013), ESO (2009-2010), ALMA (2018), HST (2012, 2017) and JWST (2021).

2004-present **Peer-to-peer journal reviewer**, A&A, MNRAS, ApJ, AJ, PASP, Science & Nature.

2012-present **Grant Panelist**, for the Natural Sciences and Engineering Re-search Council of Canada (NSERC), National Commission for Scientific and Techno-logical Research (CONICYT), European Research Council (ERC) programs *Starting Grant*, *Consolidating Grant* & *Advanced Grant*, and the Swiss National Science Foundation (SNSF).

2012-present **Conference/Workshop Science and Local Organizing Committees**, Spirit of Lyot (Berkeley 2007, SOC), Observing Planetary Systems (Santiago 2007, LOC), Spirit of Lyot II (Paris 2010, LOC), Dust2Planets Workshops (Initiator/Chair, Grenoble 2012, Ringberg 2014), Shaping the ELT (SOC, Garching 2013), Exo-Abundances Workshop (SOC, Grenoble 2014), Proto-stars and Planets IV (SOC, Heidelberg 2014), Observing Exoplanets with the ELT (Initiator/SOC, Garching 2015), SPHERE 3 years SF2A Workshop (Initiator/SOC, Paris 2017), ExoSystems-I Workshop (SOC, Paris 2020), SPHERE consortium meeting (Initiator/Chair, 2014, 2015, 2016, 2017, 2018, 2019, 2021).

2012-present **Ph. D. Jury Member**, Charles Hanot (U. Liège, 2011), Maddalena Reggiani (ETHZ, 2014), Alice Zurlo (LAM Aix-Marseille University, 2015), Jean-Loup Baudino (Observatoire de Paris, LESIA, 2015), Marie-Eve Naud (U. Montréal, 2017), Nina Mansir (U. Chile, 2019), Ben Gerard (U. Victoria, 2020), Cecilia Lazzoni (U. Padova, 2021), Jens Kammerer (Australian National University, 2021), Nicolas Godoy (U. Valparaiso, 2021).

2012-present **IAU Member of the Division III Commission 53 Extrasolar Planets (WGESP)**.

Local/National Expertise & Responsibilities

2019-present **Deputy Director of the French Chilean Lab for Astronomy**, including activities of: i/ Animation (monthly meeting with the FCLA board and director, monthly meeting with FCLA members), ii/ Administration and management (in relation with the CNRS, and the French & Chilean universities), iii/ Representation (CNRS Cono sur & CNRS, Institut de France, French Embassy, UChile, PUC, UdeC, ESO, INRIA-Chile), iv/ Workshop organization of the 80 years anniversary of CNRS in South America (http://www.cmm.uchile.cl/) and preparation of the FCLA 10-years Anniversary, v/ Negotiation and writing of the new FCLA Convenion in 2019, vi/ Scientific animation (FCLA visiting programs, FCLA student "science" day, Disk & Planet seminars, FCLA Yearly workshop...), vii/ Communication (website, seminars, posters, CNRS newsletters...) & Outreach ("Touching the stars" project).

2014-2017 **Coordination of the IPAG/Exoplanètes Team**, with X. Delfosse.

2015-2017 **President of the FOCUS-Labex scientific committee**, Laboratory of excellence for the development of detectors in Astronomy, https://labexfocus.osug.fr/.

2012-2017 **Coordinator of the Heidelberg – Grenoble Collaborative Network**.

2017-present **Co-Organizer of the Disk and Exoplanets Seminars**, U. Chile, PUC, UDP, USACH & ESO joined seminars.

2012-2015 **Organizer of the IPAG-IRAM seminars**.

2007-2011 **IPAG Public & School Outreach Coordinator**.

Teaching & Outreach

2007-present **Lectures in several advanced schools of Astronomy**, for PhD students about techniques of high contrast imaging, the state of art of exoplanetary science, the formation and evolution of exoplanets, the physics and description of the Earth's atmosphere or turbulence and the basic principles of adaptive optics among others..

2006 ***"Qualification Maître de Conférence"* at the Grenoble Alpes University**, to apply to Assistant-Professor positions in France.

2000-2003 ***"Monitorat"* at the Grenoble Alpes University**, during the PhD to teach 240 hours of basic concepts of physics to Bachelor's students, including electrostatics, electromagnetism, optics, wave propagation, fluid mechanics and electrotechnics (engineering major).

continuous **Outreach talks & Activities**, in average two outreach seminar/talks per year, and two school interventions per year. Responsible for guiding the monthly visits at the UGA Planetarium for primary and high schools kids (2007-2011). Various Outreach Activities (*Solar, Venus, Mercure Eclipses*, *Fête de la Science*, *AMA09*, *Touching the Stars project*), and press articles (*La Recherche*, *Science & Avenir*, *Pour La Science*, *Ciel & Espace*, *Sky & Telescopes*...). A dozen of press releases written in collaboration with ESO, CNRS/INSU, FOCUS, OSUG & IPAG.

Key Publications & Summary

First Author Publications	19	
Second/Third Author Publications	38	(including 20 from Direct Supervision of Ph. D. projects)
Other Co-Author Publications	121	
Total Publications	178	
Total citations	8152	
H-index	48	

Publication highlights:

- Desidera S., **Chauvin G**. 2021, A&A, accepted: "The SPHERE infrared survey for exoplanets (SHINE): I- Sample definition and target characterization"
- Jorquera S., Pérez L., **Chauvin G**. et al. 2020, AJ, accepted, arXiv:2012.10464: "A search for companions via direct imaging in the DSHARP planet-forming disks"
- Lombart M., **Chauvin G**. et al. 2020, A&A, 639, 12: VLT/SPHERE survey for exoplanets around young early-type stars, including systems with multi-belt architectures "
- **Chauvin G**. 2018, SPIE, 10703, 05: "Two Decades of Explanetary Science with AO"
- **Chauvin G.**, Gratton R., Bonnefoy M. et al. 2018, A&A, 617, 76: "Investigating the young Solar System analog HD 95086"
- **Chauvin G.**, Desidera D., Lagrange A.-M. et al. 2017, A&A, 605, L9 (ESO-ANN-17041): ''Discovery of a warm, dusty giant planet around HIP 65426"
- **Chauvin G.**, Vigan A.; Bonnefoy M.; Bonavita M. et al. A&A, 2015, 573, 127: "VLT/NaCo large program for the occurrence of exoplanets at wide orbits"
- Rameau, J., **Chauvin G.**, Lagrange A.-M.; Boccaletti A.; Quanz S. et al., ApJ, 2013, 772, L15, (ESO-PR1324): "Discovery of a 4-5 probable planet to HD95086"
- **Chauvin G.**; Lagrange A.-M.; Beust, H.; Bonnefoy, M.; Boccaletti, A. et al., A&A, 2012, 542, 41 : "Orbital characterization of the Pictoris b giant planets"
- **Chauvin G.**; Beust H.; Lagrange A.-M.; Eggenberger A 2011, A&A: ''Planetary systems in close binary stars: the case of HD 196885. The most extreme planetary system?"
- **Chauvin G.**; Lagrange A.-M.; Bonavita M.; Zuckerman B.; Dumas C.; Bessell M. S.; Beuzit, 2010, A&A, 509, 52: "Deep imaging survey of young, nearby austral stars"
- Lagrange A.-M. Bonnefoy M. **Chauvin G.** et al. 2008, Science, 329, L57, (ESO-PR0842, ESO-PR1024): ''A giant planet imaged in the disk of the young star β Pictoris"
- **Chauvin G.**, Lagrange A.-M., Dumas, C. et al. 2004, A&A, 425, L29, (ESO-PR0428, ESO-PR0515): ''A giant planet imaged in the disk of the young star β Pictoris"