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👤	in ORCID	MARSTA	Married	☎	(+1) 667-218-6510

I am currently **AURA Support Scientist**, member of the **Research Staff** at **STScI. High Contrast Specialist**, I am **Instrument Scientist** for **JWST/NIRCam/NIRCam** and the **Coronagraphs Working Group Lead** as well as the **Liaison** for **WFIRST/CGI**. I enjoy **supervising, teaching & outreach** activities and wish to do more to **engage the public**, especially young audiences & minorities. Following the **development of instruments** and putting them into **efficient operations** is my forte.

Research Interests

- ✧ **Planets & Star Formation:** Exoplanets, Brown Dwarfs, Protoplanetary & Debris Disks
- ✧ **High Contrast Imaging, Spectroscopy, Polarimetry: Adaptive Optics & Coronagraphy**
- ✧ **Astronomical Instrumentation & Observing Techniques/Strategies:** Ground & Space

Education

2001-2005	Ph.D in Physics & Astrophysics <i>Doctorat, mention très honorable</i> <i>Centre de Recherche Astronomique de Lyon (CRAL)</i>	<i>Université Claude Bernard Lyon 1</i> <i>(October 2005)</i>
2000-2001	Master's in & Astrophysics (<i>with focuses in plasmas & high angular resolution</i>) <i>D.E.A Astrophysique et Milieux Dilués</i> <i>Institut de Planétologie et d'Astrophysique de Grenoble (IPAG)</i>	<i>Université Joseph Fourier Grenoble 1</i> <i>(July 2001)</i>
1998-2000	Master of Science in Instrumentation Physics	<i>University of Utah</i>
1996-1998	D.U.T Mesures Physiques <i>Diplôme Universitaire de Technologie</i> Undergraduate studies in physics, measurement techniques and instrumentation	<i>Université de Savoie Mont-Blanc</i> <i>(June 1998)</i>

Professional & Research Appointments

08/2017 - Present	Space Telescope Science Institute (STScI) Instruments Division	Support Scientist 2 year, 2 months
	<ul style="list-style-type: none"> ✧ JWST NIRCam Branch member, Instrument Scientist, Coronagraphy Lead ✧ JWST Coronagraphs Working Group Lead (NIRCam, MIRI) ✧ WFIRST CGI Liaison to the Science and Technology Teams ✧ Member of the Research Staff: 20% of my time, including student supervision 	
2015 - Present	<i>Institut de Planétologie et Astrophysique de Grenoble</i> (IPAG)	Affiliate Researcher 4 years
2009 - 2017	European Southern Observatory (ESO) Directorates of Operations & Science	Staff Astronomer/Scientist 8 years

Professional & Research Appointments (cont.)

2008 - 2009	Instituto Politécnico Nacional (IPN, Mexico) ↗ <i>Profesor Titular A</i> ↗, <i>Escuela Superior de Física y Matemáticas</i>	Assistant Professor 1 year
2006 - 2008	Instituto de Astronomía (UNAM Mexico) ↗ <i>Investigador Post-doctoral, becario UNAM</i> ↗, <i>Instrumentation Department</i>	Postdoc Researcher 2 years
2001 - 2005	Centre de Recherche Astronomique de Lyon (CRAL) ↗ <i>Doctorant, boursier MENRT</i>	PhD Student 4 years
2001	Institut de Planétologie et d'Astrophysique de Grenoble (IPAG) ↗ <i>Stagiaire at IONIC team, in collaboration with the CEA/LETI</i>	Intern 4 months
1999 - 2000	University of Utah Physics Department, USA ↗ <i>RA, Graduate RA at HiRes Collaboration</i>	Research Assistant 1 year, 6 months

Aeras of expertise & skills

<i>JWST</i>	<ul style="list-style-type: none"> ⇨ Proposal Preparation Tools for JWST ⇨ Exposure Time Calculator sprints & tests (Coronagraphy) ⇨ Pipeline tests (Coronagraphy) ⇨ Commissioning Rehearsals for NIRC<i>am</i>
<i>Observing & Operations</i>	<ul style="list-style-type: none"> ⇨ Large (>900 nights) Science Operations experience at the VLT, Lick, SPM, CFHT, OHP ⇨ Commissioning & Tests of modes/instruments (AO/coronagraphs/LGS upgrades) ⇨ Instruments Calibrations Plans, Procedures & Manuals (NACO, SPHERE) ⇨ Participation in proposals, strategy making and carrying out observations (countless) ⇨ Expert: NACO ("guru"), SPHERE, HAWKI & SINFONI ⇨ Certified: VIMOS, X-SHOOTER, CRIRES, MUSE, VISIR, KMOS & FORS2.
<i>Instrumentation</i>	<ul style="list-style-type: none"> ⇨ High Level requirement definitions, system engineering / error budget ⇨ Adaptive Optics, Image quality improvement (phase diversity) and assessment ⇨ Optics (basic design, alignments, waveguides), Fourier analysis, basics of control and electronics, detector characterisation, trouble-shooting, etc.
<i>Computing</i>	<ul style="list-style-type: none"> ⇨ Familiar with UNIX/Linux/OSX/Windows, L^AT_EX, some knowledge in C, html, etc. ⇨ Conversent with interpreted languages (Python, Yorick, IDL) for data analysis and plotting
<i>Teaching</i>	<ul style="list-style-type: none"> ⇨ 216h of Optics Th/Labs (IPN/ESFM, Mexico), 64h of Computer Labs (UCBL, France) ⇨ Taught AO for several Postgraduate Programs & Schools (Total of 12h) ⇨ Coordinated the 1st internal AO Training for ESO/LPO Engineers & Astronomers (16h)
<i>Supervizing Students</i>	<ul style="list-style-type: none"> ⇨ 2 PhD students (Jos de Boer, Leiden-2018, Blake Pantoja, U.Chile-2019) ⇨ 5 Master's and 6 Bachelor's students in engineering & astronomy
<i>Project management & Leadership</i>	<ul style="list-style-type: none"> ⇨ Coordination of a JWST Working Group (internal at STScI and external efforts) ⇨ Coordination of Instrument Operations Teams of VLT instruments (~ 15-25 people) ⇨ Several PM trainings completed while at ESO ⇨ PI/coI-ship of several funded/awarded projects (instrumentation/astronomy)
<i>"Soft" skills</i>	<ul style="list-style-type: none"> ⇨ Team player, leader, motivator, good interpersonal, interaction & communication skills

Language Proficiency

<i>French</i>	Mother tongue	<i>Portuguese</i>	Limited
<i>English</i>	Fluent	<i>German</i>	Limited (high school)
<i>Spanish</i>	Fluent		

Community Service & Committees

<i>Referee</i>	Astrophysics & Instrumentation Journals: ApJ, AJ, RevMex, RAS (2011 - Present) CONICYT/ALMA Fund (Confidential)
<i>Committees</i>	PhD Defense committee - Blake Pantoja - Univ. de Chile, Chile (2019) PhD Defense committee - Jozua de Boer - Leiden Observatory, Netherlands (2018) Gemini South CNTAC - National Time Allocation Committee (2014 - 2016) PhD Defense committee - Jose Luis Aviles Urbiola - INAOE, Mexico (2010)
<i>Conferences & Workshops</i>	SOC & LOC Member for the ALMA/ESO Workshop (May 2016) <u>Resolving planet formation in the era of ALMA and extreme AO</u> Chair/Organizer of the HCONIS-I (March 2012) <u>High CONTRast Imaging & Spectroscopy</u>
<i>at STScI</i>	STScI Fellowships committee (2019) Conducted Interviews for AURA Exoplanet Positions
<i>at ESO</i>	Science Operations "Adaptive Optics Group" (AOG) Coordinator (2009 - Present) Panel member for various projects reviews (SPHERE PAE, ERIS Phase A, AOF) Active Participant / Speaker to Observatory Reviews and at an ESO Overview

Supervising & Mentoring Students

<i>2015- Present</i>	PhD co-Director with Dr James Jenkins (U. de Chile/ESO) Blake Pantoja: <i>From brown dwarfs to exoplanets, the missing link between radial velocity and direct imaging</i> (Defended Sept 2019)
<i>2013- 2017</i>	PhD co-Director with Dr Christoph Keller (Leiden U./ESO) Jozua de Boer: <i>High Contrast Imaging of Protoplanetary Disks</i> (Defended Jan 2018)
<i>2014- 2015</i>	Bachelor's Thesis co-Director with Dr Daphne Stam@tudelft.nl (T.U. Delft/ESO) Rob van Holstein: <i>Accurate high-contrast imaging polarimetry with SPHERE/IRDIS</i>
<i>2013</i>	Master's Project Director (T.U. Munich/ESO) Elisabeth Brunner: <i>Estimation of the atmospheric coherence time with FADE</i>
<i>2012- 2014</i>	Master's Internship and sub-contract Mentor/Director(X-Polytechnique/PUC/ESO) Martin Tourneboeuf: <i>Development of an Image Quality assessment Tool, Strehl Meter</i>
<i>2012</i>	Master's Instrumentation project co-Director with Dr Dimitri Mawet (U. Liege/ESO) Valentin Christiaens: <i>Improving the NACO image quality (PSF) thanks NCPA compensation and via phase diversity</i>
<i>2011</i>	Undergraduate Co-mentor/Director with Dr. Petr Kabath (T.U. Munich/ESO) Felix Rucker: <i>Stellar variability survey in the OGLE2-TR-L9b field & exoplanet transits</i>
<i>2009</i>	Undergraduate Student in Physics: mentor (ESFM-IPN, Mexico) Jurij Mendoza Valencia: <i>Roddier curvature technique and actives optics</i>
<i>2004</i>	Graduate Student Mentor, Master in Physical Engineering (INP Grenoble) Xavier Rondeau: <i>High Angular Resolution in Astronomy</i>
<i>2004</i>	Graduate Student Mentor, Master in Electrical Engineering (INSA Lyon) Belkacem Aberache: <i>Optimization of a pendular seismometer.</i>
<i>2003</i>	Graduate Student Mentor, Master in Electrical Engineering (INSA Lyon) David Grenet: <i>Study of a pendular seismometer to track telescope vibrations.</i>
<i>2003</i>	Undergraduate Student Mentor, Bachelor in Electrical Engineering (I.U.T Lyon) Thierry Jacquemin: <i>Positioning control of a pendular seismometer.</i>

Honors, Awards & Grants

2015 - Present	Affiliate Researcher (IPAG, Grenoble)
2018 - 2019	DDRF-JDF Grant PI (STScI): \$USD 44,325
2018	Bonus award (STScI): \$USD 2,500
2013 - 2018	Principal Investigator for ESO VLT-VLTI programs: ~ 147h of 8.2m telescope (equivalent to ~ €400-600k worth in operational cost)
2015-2016	1-year ESO PhD Studentship (for Blake Pantoja ~ €21,000
2014	<u>ESO DGDF Grant PI</u> : €2600 (Science Leave)
2013-2014	2-year ESO PhD Studentship (for Jos de Boer ~ €45,000
2012	Exceptional Performance Award (ESO)
	<u>ESO DGDF Grant PI</u> : €4600 (Student Internship + overseas travel)
2009	SNI Nivel I (Mexico's <i>Sistema Nacional de Investigadores</i>)
2009	<u>ICyTDF Grant co-I</u> : \$MXN 550k /\$USD 40k (robotize the OAN 84cm telescope)
2006-2008	<u>Beca postdoctoral</u> (Postdoc UNAM Fellowship) (UNAM, Mexico)
1999-2000	<u>Graduate Research Assistantship</u> (University of Utah, USA)
2001-2004	<u>Bourse d'Études Doctorales M.E.N.R.T</u> (French Government)
1998-1999	<u>Bourse d'Étude de la Région Rhône-Aples</u> (French Government)

Science communication & Outreach: selected media/social appearances

Events	⇨ <i>First Noche de las Estrellas</i> ↗ : National Committee Member (Mexico: 2009)
Organization	⇨ CosmoWiki Initiator with A. Farah Simón (Platform to link Amateur & Pro astronomers)
	⇨ <i>Ella es Astrónoma</i> ↗ Photo Exhibition for the She's an Astronomer ↗ IAU Corner Stone Project (2009, International Year of Astronomy): Curator (Photographer: Robin Cerutti)
Outreach Talks	<i>Planetario de Playa del Carmen "SAYAB"</i> Invited Talk (Mexico, Jan 2016)
	⇨ <i>"800 noches en el desierto de Atácama"</i> (Spanish, 50 min)
	<i>Gemini South's AstroDay</i> Public Talk (Chile, Jan 2010)
	⇨ <i>"Hoy, 2010 la astronomía, en Chile"</i> (Spanish, 40 min)
	<i>Lycée Franco-Mexicano</i> Public Talk (Mexico, 2009)
	<i>Museo de la Luz</i> Invited Talk (Mexico, 2009)
	& many schools (Mexico, 2008-2009)
	⇨ <i>"Hoy, la astronomía, en Mexico"</i> (Spanish/French, 40 min)
Television/Radio	⇨ <i>Des Nouveaux Mondes Par Milliers</i> (EOL Prod, Science&Vie TV, 52' Documentary, 2015)
	⇨ <i>Radio France International</i> (RFI) Interview (French, C. Martin, 2015)
	⇨ <i>Globo News</i> : mainstream News (Brazil, 9' Subject, N., 2014)
	⇨ <i>Journal de 20h de France 2</i> : mainstream News (France, 4' Subject, N. Chateaufneuf, 2013)
	⇨ <i>Tele13 en Terreno: Chile y el mayor telescopio del Mundo</i> : (Chile, 6' Subject, M. Puigredón, 2013)
	⇨ <i>World Space Week Podcast</i> ↗ (New-Zealand, H. Mogosanu, 2011)
Press	⇨ <i>Radio France International</i> (RFI) & <i>The Good Life</i> Articles (French, C. Martin, 2015)
	⇨ Appearance in Book Chapter "The Milky Way" (English, Gary Fildes, 2016)
	etc.
Social	Cosmic Diary blog hosted by the SETI Institute ↗ Scientist/contributor (2012 -)
	ESO Photo Ambassador ↗ (2012-)

Collaborations, Professional Memberships

	WFIRST SIT (PI: Turnbull, CGI Tech Demo, 2019 - Present)
Main Scientific Collaborations	NACO Filler Survey (PI: Girard, ESO, 40h, 2013 - 2016)
	NACO GTO : Invited Member (PI: Launhardt, MPIA, 100 nights, 2015-2019)
	⇒ ISPY Survey : Exoplanets
	SPHERE GTO : IPAG Affiliate Scientist (PI: Beuzit, IPAG, 300 nights, 2014-2019)
	⇒ SHINE Survey : Exoplanets
	⇒ Disk Group : Debris & Protoplanetary Disks
	SHARDDS Project : External Collaborator (PI: J. Milli, Liège, 2014 - 2016)
	VORTEX Project 🚀: External Collaborator (PI: O. Absil, Liège, 2014 - 2016)
Societies	IAU : International Astronomical Union Individual Member (2011 - present)
	AAS : American Astronomical Society Full Member (2017 - present)
	SPiE : International Society for Optical Engineering (2008 - 2011)
	SF2A (<i>Société Française d'Astronomie et Astrophysique</i>) (2001 - 2005)
Networking	"Direct Imaging Group" (DIG) co-founder and active member (2012)
	Adaptive Optics facebook group🚀 Founder/Admin, 136 pro. members (2013 -)

References

AO & High Contrast	Dr. Dimitri Mawet , Associate Professor & High Contrast Expert California Institute of Technology (Caltech) dmawet@astro.caltech.edu
Science & Inst. Program	Dr. Sascha Quanz , Associate Professor & METIS Project Scientist Swiss Federal Institute of Technology (ETH Zurich), Institute for Astronomy sascha.quanz@astro.phys.ethz.ch
Exoplanets & Disks	Dr. Anne-Marie Lagrange , CNRS Research Director Institut de Planétologie et d'Astrophysique de Grenoble (IPAG) lagrange@obs.ujf-grenoble.fr
Missions Support	Dr. Laurent Pueyo , Associate Astronomer Space Telescope Science Institute (STScI) pueyo@stsci.edu
Science Operations	Dr. Jean-Philippe Berger , Astronomer & former ESO VLT Program Scientist Institut de Planétologie et d'Astrophysique de Grenoble (IPAG) jean-philippe.berger@univ-grenobles-alpes.fr
ESO / Obs. Support	Dr. Christophe Dumas , Observatory Scientist Thirty-Meter Telescope Observatory Corporation (TMT) (Pasadena, CA) cdumas@tmt.org
Outreach	Dr. José Franco , Director of Outreach at UNAM & former IA-UNAM Director Dirección General de la Divulgación de la Ciencia (DGDC) Universidad Nacional Autónoma de México (UNAM) pepe@astro.unam.mx

Selected Talks, Seminars & Coloquia

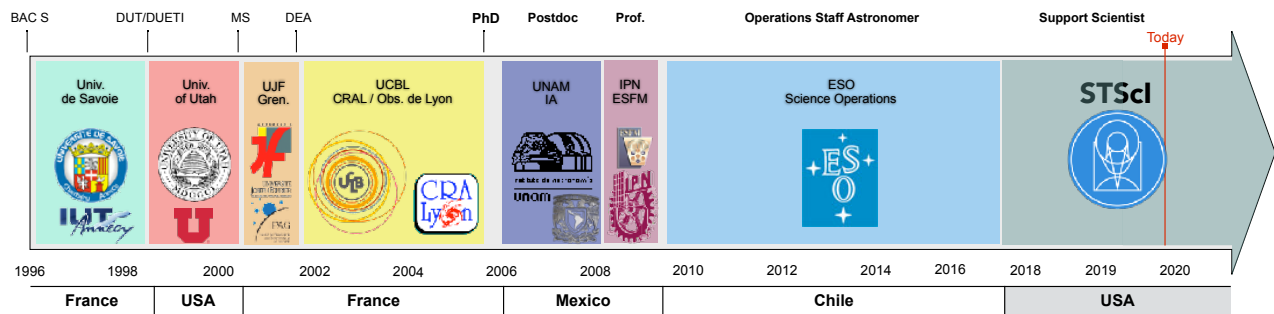
- 2019 | **AMNH:** Invited Talk (New York, USA)
Imaging Gap Carving Planets
- **Caltech:** Contributed Talk (Quebec City, Canada)
The 2019 WFIRST Exoplanet Imaging Data Challenge
 - **AO4ELT:** Contributed Talk (Quebec City, Canada)
Original Use of MUSE's LTAO To Image Accreting Planets
 - **CHEXO:** Contributed Talk (JHU APL, USA)
A New Accreting Planet
- 2018 | **STScI:** TIPS Talk Instruments Division (Baltimore, USA)
JWST/NIRCam Coronagraphy
- **Leiden Observatory:** Lunch Talk (Leiden, Netherlands)
- 2017 | **Caltech:** JWST Proposal Planning Workshop (Pasadena, USA)
Preparing a proposal with JWST Coronagraphy
- **EXOCLIPSE:** Contributed Talk (Boise, USA)
Reaching a good contrast at small angles: high pace reference differential imaging
 - **LAM: Invited Review Colloquium** (Marseille, France)
VLT(I) Adaptive Optics Review: Science Machines from NACO to SPHERE & beyond
 - **ESO Calibration Workshop:** Contributed Talks (Santiago, Chile)
Adaptive Optics Metrics & QC Scheme
SPHERE : Spectro-Polarimetric High-Contrast Exoplanet Research
- 2016 | **Caltech:** Exoplanet Group Meeting Talk (Pasadena, USA)
- **TMT HQ:** General Seminar (Pasadena, USA)
Ground based high contrast exploration of exoplanets & their formation site
 - **Leiden Observatory:** Colloquium, (Leiden, Netherlands)
Exoplanet Exploration from the Ground
- 2015 | **ESO HQ** ESO Adaptive Optics Prospective Meeting (Garching, Germany)
The VLT AO Systems & LGS
- **IPAG** Exoplanets Group's Seminar (Grenoble, France)
High contrast & Interferometric pathfinder search around Luhman 16AB
 - **ESO Overview** Talk (Chile / Germany)
Paranal stories, small actions, big outcome!
- 2014 | **IA-UNAM Instituto de Astronomía: Invited Coloquium** (D.F., Mexico)
High Contrast & High Angular Resolution Astronomy: Past, Present, Future
- **Santander International Summer School: 2 Invited Lectures** (Santiago, Chile)
The VLT Adaptive Optics Systems & LGS
The Adaptive Optics "zoo": SCAO, GLAO, MCAO, XAO, LTAO, MOAO...
 - **SPIE Adaptive Optics Systems IV:** Contributed Talk (Montreal, Canada)
NACO, an on-going history: scientific demand & astrometric calibration through the years
 - **STScI:** High Contrast Group Meeting Talk (Baltimore, USA)
Direct imaging and interferometric followup of our closest low-mass stellar neighbors
 - **CALAN U. de Chile** Star Formation Group: **Invited Seminar** (Santiago, Chile)
Star & Planet Formation at High Contrast, from the Ground
- 2013 | **ETH** Institute of Astronomy: Invited Talk (Zurich, Switzerland)
High Contrast & High Angular Resolution Astronomy: Past, Present, Future
- Joint **ALMA/ESO** Workshop, (Santiago, Chile)
UT4 "Yepun": Past, Present & Future an Adaptive Adventure

Selected Talks, Seminars & Coloquia (cont.)

- 2012 **SPIE Adaptive Optics Systems III: Contributed Talk** (Amsterdam, Netherlands)
Image Quality & High Contrast Improvement on VLT/NACO
- **ESO Observatory Review: Invited Talk**, (Paranal Observatory, Chile)
AGPM 4-micron "vortex" Coronagraph on VLT/NACO: SPHERE before SPHERE
- **AURA/Gemini/CTIO: Invited Coloquium** (La Serena, Chile)
Improvement on VLT/NACO and AO activities on Paranal
- 2011 **IA-UNAM Instituto de Astronomía: Instrumentation Seminar** (D. F., Mexico)
HAR techniques at the VLT: direct detection of exoplanets
- 2010 **ESO Chile Instrument Scientist Talk**, (Santiago, Chile)
NACO, VLT/UT4 AO-fed NIR Imager & Spectrometer and more
- 2008 **INAOE Guillermo Haro Workshop "Science with SASIR"**, (Puebla, Mexico)
Adaptive Optics Follow-ups & Future AO facilities
- 2007 **Keck Telescope Headquarters** (Waimea, Hawaii, USA)
Polychromatic approach to visible AO & GUIELOA, Mexican AO system
- **CfAO: Center for Adaptive Optics** (Santa-Cruz, USA)
Full sky visible AO observations & HAR panorama in Mexico
- **CRyA-UNAM (Centro de Radioastronomía y Astrofísica)** (Morelia, México)
Instituto de Astronomía (IA-UNAM, Distrito Federal, Mexico)
- **LNA (Laboratorio Nacional de Astrofísica Invited Coloquium** (Itajuba, Brazil)
- **Stockholm Observatory Astronomy Department Seminar** (Stockholm, Sweden)
Experimental progress towards full sky visible AO observations

Publication Record: Summary

Graphical representation of my academic career and how my publication record evolved through the years. Note, the dramatic increase since 2010, after moving from R&D to operations and observational astronomy. View my full [publication record](#) interactively on [NASA/ADS](#) (112 accepted referred articles, 4225 citations, H-index=36) as of October 2019:



Publications / year

