

Dr. Marie Ygouf

RESEARCH SCIENTIST

Jet Propulsion Laboratory - 4800 Oak Grove Dr, Pasadena, CA 91109

✉ marie.ygouf@jpl.nasa.gov

🏠 <https://science.jpl.nasa.gov/people/Ygouf/>

🌐 <https://www.linkedin.com/in/mygouf/>

Research and Work Experience

Jet Propulsion Laboratory

RESEARCH SCIENTIST

Pasadena, USA

Since 2023

Jet Propulsion Laboratory

TECHNOLOGIST

Pasadena, USA

2020-2023

- *Nancy Grace Roman Space Telescope Coronagraph*
 - Member of the Roman Coronagraph Project Science Team.
- *JWST NIRCcam*
 - Member of the JWST NIRCcam Science Team.
- *ExoExplorers*
 - Member of the ExoExplorers Organizing Committee.

California Institute of Technology / IPAC

POSTDOCTORAL RESEARCHER

Pasadena, USA

2016-2020

- *JWST (James Webb Space Telescope) project*
 - Preparation of direct imaging observations of exoplanets and disks for the NIRCcam Guaranteed Time Observations team. Development of data reduction and analysis pipelines.

STScI (Space Telescope Science Institute)

POSTDOCTORAL FELLOW

Baltimore, USA

2014 - 2016

- *WFIRST (Wide-Field Infrared Survey Telescope) project*
 - Algorithms development, validation and optimization for the analysis of imaging and multi-wavelength data.
- *JWST / NIRISS (James Webb Space Telescope / Near-Infrared Imager and Slitless Spectrograph) project*
 - Development of a post-processing technique for object reconstruction and calibration with the Non-Redundant Masking (NRM) mode of JWST.
- *JWST / JOST (James Webb Space Telescope / JWST Optical Simulation Testbed) project*
 - Alignment and setting up of a tabletop workbench to study aspects of wavefront sensing and control for the JWST, including both commissioning and maintenance activities.

IOL/UMD (Intelligent Optics Laboratory / University of Maryland)

RESEARCH ASSOCIATE

College Park, USA

2013 - 2014

- Research development of non-conventional adaptive optics imaging techniques with joint UMD / Army Research Laboratory (ARL) research team (MCAO for horizontal path propagation, WFS&C, modeling and optimization).

IPAG (Institut de Planétologie et d'Astrophysique de Grenoble, France)

PHD CANDIDATE

Grenoble, France

2011 - 2013

- *Projet VLT / SPHERE (Spectro Polarimetric High contrast Exoplanet REsearch)*
 - Validation tests of an advanced data processing algorithm called Medusae for high contrast multi-spectral imaging systems in the framework of the detection and characterization of exoplanets

ONERA (Office National d'Études et de Recherches Aérospatiales)

PHD CANDIDATE

Châtillon, France

2009 - 2011

- *Projet VLT / SPHERE (Spectro Polarimetric High contrast Exoplanet REsearch)*
 - Development of an advanced data processing algorithm called Medusae for high contrast multi-spectral imaging systems in the framework of the detection and characterization of exoplanets.

Sagem Défense Sécurité – Département REOSC

OPTICAL ENGINEER

St-Pierre-du-Perray, France

2007 - 2009

- *European – Extremely Large Telescope (E-ELT) project*
 - Optical design, characterization, integration, alignment and validation of an interferometric bench for the characterization of the E-ELT segmented primary mirror.

Observatoire de Paris-Meudon / LESIA (Laboratoire d'Études Spatiales et d'Instrumentation en Astrophysique)

Meudon, France

INSTRUMENTATION INTERNSHIP

Summer 2007

- *Darwin Project*
- Study of a new concept of achromatic phase shifter for nulling interferometry in the framework of terrestrial exoplanet direct detection.

Education

Université Joseph Fourier

Grenoble, France

PHD IN ASTROPHYSICS

2009-2012

- Thesis advisors: Dr. Jean-Luc Beuzit, Dr. Thierry Fusco, Dr. Laurent Mugnier, and Dr. David Mouillet.

Institut d'Optique Graduate School aka « École Supérieure d'Optique »

Palaiseau, France

MSC IN OPTICAL SCIENCES AND ENGINEERING, WITH HONORS

2007-2009

- With 12-months Internship at the Sagem Défense Sécurité Company (Sagem REOSC), working on interferometric metrology of the E-ELT primary mirror segments.y).

Université Pierre et Marie Curie, Paris VI

Paris, France

BSC IN FUNDAMENTAL PHYSICS, WITH HONORS

2003-2007

Summer Schools and Trainings

AAS Conference

Kissimee, USA

BAYESIAN METHODS IN ASTRONOMY: HANDS-ON STATISTICS

2016

- Bayesian approach in an astronomical context, starting with a brief overview of relevant background and moving into practical exercises in modeling increasingly complicated data using Markov Chain Monte Carlo (MCMC) methods.

Sagan Exoplanet Summer Workshop

Pasadena, USA

IMAGING PLANETS AND DISKS

2014

- The workshop explored current techniques and technology used to detect and image exoplanets and debris disks, as well as the underlying science driving the modeling of exoplanetary atmospheres and disk structure.

Observatoire de Haute-Provence

St-Michel-l'Observatoire, France

SYSTEM ENGINEERING FOR ASTRONOMY PROJECTS WORKSHOP

2010

- Roles and responsibilities of project actors. Systems Engineering Processes and Product development life-cycle. Functional analysis. System Design. Performance analysis and system optimization. Assembly, integration, installation and test.

Summer School in Signal and Image Processing

Porquerolles, France

INVERSE PROBLEMS IN SIGNAL AND IMAGE PROCESSING

2010

- Held annually since 2006, the Summer School in Signal and Image Processing is organized by the GRETSI (Research Group in Signal and Image Processing) and aimed at presenting a synthesis and the most recent advancements in a topical research theme).

Summer School Alpbach

Alpbach, Autriche

EXOPLANETS: DISCOVERING AND CHARACTERIZING EARTH TYPE PLANETS

2009

- Held annually since 1975, the Alpbach Summer School enjoys a long tradition in providing in- depth teaching on aspects of space science and space technology with the aim of advancing the training and working experience of European graduates, post-graduate students, young scientists and engineers.

Honors & Awards

2022	JPL Team Award , For providing LOC-SOC science leadership, organization, and coordination of the early career ExoExplorers activity under the ExEP Office	Pasadena, USA
2021	JPL Team Award , For engaging across functional and institutional boundaries to develop creative solutions for Roman Coronagraph observation calibrations	Pasadena, USA
2019	Candace Rypisi Outstanding Mentor Award , Recipient of the Mentor of the Year Award as part of my contribution to the Caltech Women Mentoring Women Program	Pasadena, USA

Invited Talks

- 2023 **Biomedical and Astronomical Signal Processing Froniers Conference** , Talk: *Space Starlight Suppression Technology Demonstration: The Nancy Grace Roman Space Telescope Coronagraph* **Villars-sur-Ollon, Switzerland**
- 2022 **International Conference on Computational Photography at Caltech**, Talk: *Space Starlight Suppression Technology Demonstration: The Nancy Grace Roman Space Telescope Coronagraph* **Pasadena, USA**
- 2018 **Combining high-resolution spectroscopy and high-contrast imaging for exoplanet characterization workshop at Caltech**, Talk: *Speckle chromatic noise and reduction of high-contrast data* **Pasadena, USA**
- 2018 **Technology for Direct Detection and Characterization of Exoplanets workshop at JPL**, Talk: *Synergies between Post-Processing, Wavefront Sensing and Coronagraph Design* **Pasadena, USA**
- 2017 **Optimal Optical Coronagraphs workshop at Lorentz Center (30 experts)**, Panel discussion: *Experience from current space-based coronagraph instruments and testbeds* **Leiden, Pays-Bas**

Accepted Proposals

JPL STRATEGIC INITIATIVE PROPOSAL FOR THE RESEARCH AND TECHNOLOGY DEVELOPMENT FUND FOR FY20

- 2019 Rocha, **Ygouf** et al., *Speckle Suppression for Coronagraphic Observations with the James Webb Space Telescope*

JAMES WEBB SPACE TELESCOPE (JWST) - DUE TO BE LAUNCHED IN 2021, THE JWST WILL BE NASA'S PREMIER OBSERVATORY OF THE NEXT DECADE

- 2021 **Ygouf** et al., *Realizing the Potential of JWST High Contrast Imaging with Coronagraphic Phase-Retrieval*
- 2021 Beichman, **Ygouf** et al., *Searching Our Closest Stellar Neighbor for Planets and Zodiacal Emission*
- 2021 Ricci, **Ygouf** et al., *Investigating the Disk-Planet Interaction in the HD 163296 System with JWST*
- 2018 Beichman, **Ygouf** et al., *Coronagraphic Imaging of Young Planets*
- 2018 Hodapp, Beichman, **Ygouf** et al., *Spectroscopy of Young Planets*
- 2018 Meyer et al., *Survey of nearby young M Stars*
- 2018 Gaspar et al., *Coronagraphic Imaging of Debris Disks*
- 2018 Roellig et al., *Observations of Brown Dwarfs*
- 2017 Hinkley et al., *High Contrast Imaging of Exoplanets and Exoplanetary Systems with JWST*

HUBBLE SPACE TELESCOPE (HST) - ONE OF THE LARGEST AND MOST VERSATILE SPACE TELESCOPE

- 2019 Gaspard, **Ygouf** et al., *The inner planetesimal families around the young solar-analog Eps Eri*
- 2019 Gaspard, **Ygouf** et al., *Resolving the Asteroid-belt of the Fomalhaut planetary system*
- 2017 **Ygouf** et al., *Revealing the birth environment of circumbinary exoplanets with STIS BAR5*

KECK II TELESCOPE - FEATURING A 33 FT PRIMARY MIRROR, CURRENTLY AMONG THE LARGEST ASTRONOMICAL TELESCOPES IN USE (KECK OBSERVATORY - MAUNA KEA - HAWAII)

- 2019 Mawet, **Ygouf** et al., Keck Planet Imager and Characterizer (KPIC): Science Verification of the Fiber Injection Unit to NIRSPEC - Observations to be performed in semester 2020A
- 2019 Mawet, Meshkat, Patel, **Ygouf** et al., Giant planets in dusty systems on Solar system scales: reboot with the Keck/NIRC2 L/M vortex coronagraph - Observations to be performed in semester 2019B
- 2018 Mawet, Meshkat, Patel, **Ygouf** et al., Giant planets in dusty systems on Solar system scales: reboot with the Keck/NIRC2 L/M vortex coronagraph - Observations to be performed in semester 2019A
- 2018 Mawet, Meshkat, Patel, **Ygouf** et al., Giant planets in dusty systems on Solar system scales: reboot with the Keck/NIRC2 L/M vortex coronagraph - Observations performed in semester 2018B
- 2017 Mawet, Meshkat, Patel, **Ygouf** et al., Giant planets in dusty systems on Solar system scales: reboot with the Keck/NIRC2 L/M vortex coronagraph - Observations performed in semester 2018A
- 2017 Mawet, Meshkat, Patel, **Ygouf** et al., Giant planets in dusty systems on Solar system scales: reboot with the Keck/NIRC2 L/M vortex coronagraph - Observations performed in semester 2017B
- 2017 Beichman, Patel, **Ygouf** et al., Observations of Circumstellar Disks Using NIRC2 - Observations performed in semester 2017B
- 2016 Beichman, Patel, **Ygouf** et al., Observations of Circumstellar Disks Using NIRC2 - Observations performed in semester 2017A

200-INCH HALE TELESCOPE (PALOMAR OBSERVATORY - CALIFORNIA)

- 2019 **Ygouf**, Beichman et al., Validating Reference Stars needed for JWST Coronagraphic Observations of Exoplanet Systems - Observations performed in semester 2019B
- 2018 Beichman, **Ygouf** et al., Validating Reference Stars needed for JWST Coronagraphic Observations of Exoplanet Systems - Observations performed in semester 2018B
- 2017 Beichman, **Ygouf** et al., Validating Reference Stars needed for JWST Coronagraphic Observations of Exoplanet Systems - Observations performed in semester 2017B

Science Communication and Public Engagement

EQUITY, DIVERSITY, AND INCLUSION

- 2019 **Letters to a Pre-Scientist**, I have been matched with a 7-grade student pen pal for the school year 2019-2020. The mission of this program is to demystify STEM careers and empower all students to see themselves as future scientists by creating personal connections between students from high-poverty schools and real scientists.
- 2019 **Women in Science panel at the Altadena Public Library**, Panel member for this event held at the Altadena Public Library in August 2019. *Altadena, USA*
- 2019 **Women Mentoring Women**, I have been mentoring Olivia Wilkins who is a graduate student at Caltech since 2017. I was the recipient of the 2019 Caltech Mentor of the Year Award as part of this engagement. *Pasadena, USA*
- 2019 **White Dove Film**, I am an associate producer for the White Dove Film that increases representation and inclusion with a female writer/director/producer, cast and crew members that are Native American, multi-ethnic, and LGBTQ. *Los Angeles, USA*

OTHER SCIENCE COMMUNICATION ACTIVITIES

- 2023 **Photonic Focus Magazine**, I was interviewed for this SPIE-published article: "Digging the Dark Hole: Coronagraphy and the Quest to Find Other Worlds".
- 2022 **Kusi News**, I gave a live interview about the release of the first JWST images *San Diego, USA*
- 2019 **Astronomy Now Magazine (UK)**, I was interviewed for the May issue of the Astronomy Now Magazine in an article entitled "Capturing New Worlds: How to Image an Exoplanet".
- 2019 **"A Conversation with the Stars" lecture series at the Glendale Community College Planetarium**, Speaker - Outreach talk untitled: "Observing Aliens Worlds". *Glendale, USA*
- 2019 **Solar System Ambassador program**, NASA Solar System Ambassador for this program, which is a public engagement effort that works with motivated volunteers across the nation to communicate the science and excitement of NASA's space exploration missions and discoveries in their communities. *Pasadena, USA*
- 2019 **Portable Planetarium Visits at Chase Child Life @ UMCH**, Planetarium assistant. *Los Angeles, USA*
- 2019 **Astronomy on Tap**, Speaker - Outreach talk untitled: "Staggering with the Stars." *Pasadena, USA*
- 2018 **NASA's Universe of Learning**, Science advisor for two NASA's educational videos about habitability of exoplanets (Universe Unplugged video series).
- 2018 **Adopt-a-Physicist**, During a three-week period, I hosted a discussion forum populated by three classes that adopted me for this outreach program.
- 2018 **Caltech Astronomy**, Animator for various public outreach events (AstroFest 2018, Stargazing, Science Train). *Pasadena, USA*
- 2018 **Skype a Scientist**, Science communicator for classrooms around the world.
- 2018 **Arroyo Seco Weekend**, Speaker - Outreach talk untitled: "Observing Alien Worlds." *Pasadena, USA*
- 2018 **Arroyo Seco Weekend**, Exoplanet science expert for the "NASA Visions of the Future" exhibit. *Pasadena, USA*
- 2018 **JPL Open House**, Exoplanet science expert at the exoplanet booth. *Pasadena, USA*
- 2017 **Skype a Scientist**, Science communicator for classrooms around the world.
- 2017 **JPL Open House**, Exoplanet science expert at the exoplanet booth. *Pasadena, USA*
- 2012 **IPAG**, Telescope assistant at the Grenoble Observatory (public observing sessions). *Grenoble, France*
- 2007 **Telligo**, Astronomy adviser in a summer camp. *Aignan, France*

Other Duties

PROPOSAL EVALUATIONS

2019	Panel Member , Future Investigators in NASA Earth and Space Science and Technology	
2019	Panel Monitor , NASA Keck Time Allocation Committee	<i>Pasadena, USA</i>
2019	Judge at the #233 AAS Meeting , Chambliss Astronomy Achievement Student Award	<i>Seattle, USA</i>
2018	Panel Member , Second round of Mid-Cycle 25 review of proposals for the Hubble Space Telescope	
2018	Panel Member , NASA Earth and Space Science Fellowship Program	
2017	Panel Member , First round of Mid-Cycle 25 review of proposals for the Hubble Space Telescope	
2017	Panel Member , NITARP, the NASA/IPAC Teacher Archive Research Program	<i>Pasadena, USA</i>
2017	Session chair , Exoclipse Conference	<i>Boise, USA</i>
2017	Session chair , #230 AAS Meeting - 402 Extrasolar Planets: Characterization and Theory	<i>Austin, USA</i>
2016	Panel Support Member , Cycle 24 review of proposals for the Hubble Space Telescope	<i>Baltimore, USA</i>

SEMINARS AND WORKSHOPS ORGANIZATION

Since 2021	Organizing Committee Member , <i>Roman Virtual Lectures Series</i>	<i>Virtual</i>
Since 2020	Organizing Committee Member , <i>ExoExplorers</i>	<i>Virtual</i>
2018	Science Organizing Committee Member , <i>ExSoCal 2018 - The 4th Annual Gathering of Southern California Exoplaneteers (85 participants)</i>	<i>Pasadena, USA</i>
2018	Science and Local Organizing Committee Member , <i>Combining high-resolution spectroscopy and high-contrast imaging for exoplanet characterization (48 participants)</i>	<i>Pasadena, USA</i>
2018	Science Organizing Committee Member , <i>JPL-MPIA Meeting on Direct Imaging</i>	<i>Pasadena, USA</i>
2018	Organizing Committee Member , <i>Pasadena Astronomy Post-doc Retreat 2018 (40 participants)</i>	<i>Pasadena, USA</i>
2017	Co-Organizer , Post-processing for High-Contrast Imaging with JWST workshop at IPAC (22 experts)	<i>Pasadena, USA</i>
2017	Local Organizing Committee Member , <i>ExSoCal2017 conference: the 3rd Annual Gathering of Southern California Exoplaneteers at NASA Exoplanet Science Institute (90 participants)</i>	<i>Pasadena, USA</i>
2017	Science Organizing Committee Member , <i>High Contrast Imaging with Space-based Coronagraphs workshop at STScI (76 participants)</i>	<i>Baltimore, USA</i>
2016	Science Organizing Committee Member , <i>Exoplanets and Disks: Bridging their Composition and Communities workshop at STScI (64 participants)</i>	<i>Baltimore, USA</i>

Publications

- 2023 **G. Andras, [...], M. Ygouf, et al.**, Spatially resolved imaging of the inner Fomalhaut disk using JWST/MIRI, *Accepted for publication in Nature Astronomy*
- 2023 **P. Calissendorff, [...], M. Ygouf, et al.**, JWST/NIRCam discovery of the first Y+Y brown dwarf binary: WISE J033605.05–014350.4, *Accepted for publication in Astrophysical Journal Letters*
- 2023 **B. Miles, [...], M. Ygouf, et al.**, The JWST Early-release Science Program for Direct Observations of Exoplanetary Systems II: A 1 to 20 μm Spectrum of the Planetary-mass Companion VHS 1256-1257 b, *The Astrophysical Journal Letters*
- 2023 **A. Greenbaum, [...], M. Ygouf, et al.**, First Observations of the Brown Dwarf HD 19467 B with JWST, *The Astrophysical Journal Letters*
- 2023 **S. Wolff, [...], M. Ygouf**, Hiding Dust around ϵ Eridani, *The Astrophysical Journal*
- 2023 **M. De Furio, [...], M. Ygouf**, JWST Observations of the Enigmatic Y Dwarf WISE 1828+2650: I. Limits to a Binary Companion, *The Astrophysical Journal*
- 2023 **B. Ren, [...], M. Ygouf**, Planet search with the Keck/NIRC2 vortex coronagraph in the Ms band for Vega, *Astronomy and Astrophysics*
- 2022 **S. Hinkley, [...], M. Ygouf**, The JWST Early Release Science Program for the Direct Imaging and Spectroscopy of Exoplanetary Systems, *Publications of the Astronomical Society of the Pacific*
- 2022 **A. Carter, [...], M. Ygouf**, The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems I: High Contrast Imaging of the Exoplanet HIP 65426 b from 2-16 μm , *Publications of the Astronomical Society of the Pacific*
- 2022 **J. Girard, [...], M. Ygouf, et al.**, JWST/NIRCam coronagraphy: commissioning and first on-sky results” in SPIE Conference Series, in SPIE Conference Series
- 2022 **B. Mennesson, [...], M. Ygouf, et al.**, The Roman Space Telescope coronagraph technology demonstration: current status and relevance to future missions, in SPIE Conference Series
- 2022 **R. Zellem, [...], M. Ygouf, et al.**, Nancy Grace Roman Space Telescope coronagraph instrument observation calibration plan, in SPIE Conference Series
- 2022 **L. Payne, R. Zellem, M. Ygouf, and B. Macintosh**, Absolute flux calibrations for the Nancy Grace Roman Space Telescope Coronagraph Instrument, in SPIE Conference Series
- 2022 **E. Maier, R. Zellem, [...], M. Ygouf et al.**, Flatfield Calibrations with Astrophysical Sources for the Nancy Grace Roman Space Telescope’s Coronagraph Instrument
- 2021 **J. Llop-Sayson, , [...], M. Ygouf**, Constraining the Orbit and Mass of epsilon Eridani b with Radial Velocities, Hipparcos IAD-Gaia DR2 Astrometry, and Multiepoch Vortex Coronagraphy Upper Limits, *The Astronomical Journal*
- 2021 **J. Wang, , [...], M. Ygouf**, Detection and Bulk Properties of the HR 8799 Planets with High-resolution Spectroscopy, *The Astronomical Journal*
- 2021 **B. Mennesson, [...], M. Ygouf, et al.**, The Roman Space Telescope coronagraph technology demonstration: current status and relevance to future missions, in SPIE Conference Series
- 2021 **T. Meshkat, [...], M. Ygouf, et al.**, Characterization of HD 206893 B from Near- to Thermal-infrared, *The Astrophysical Journal*
- 2021 **C. Patricio, [...], M. Ygouf, et al.**, Longitudinally Resolved Spectral Retrieval (ReSpect) of WASP-43b, *The Astrophysical Journal*
- 2020 **M. Ygouf, et al.**, Data processing for high-contrast imaging with the James Webb Space Telescope, in SPIE Conference Series
- 2020 **J. Kasdin, [...], M. Ygouf, et al.**, The Nancy Grace Roman Space Telescope Coronagraph Instrument (CGI) technology demonstration, in SPIE Conference Series
- 2020 **T. Uyama, [...], M. Ygouf, et al.**, SCAO/CHARIS High-contrast Imaging of Spirals and Darkening Features in the HD 34700 A Protoplanetary Disk, *The Astrophysical Journal*
- 2020 **J. Wang, [...], M. Ygouf, et al.**, Keck/NIRC2 L'-band Imaging of Jovian-mass Accreting Protoplanets around PDS 70, *The Astronomical Journal*
- 2020 **C. Beichman, M. Ygouf, et al.**, Searching for Planets Orbiting α Cen A with the James Webb Space Telescope, *PASP*
- 2019 **D. Mawet, L. Hirsch, E. J. Lee, J.-B. Ruffio, M. Bottom, B. J. Fulton, O. Absil, [...], M. Ygouf**, Deep exploration of ϵ eridani with Keck M_s -Band vortex coronagraphy and radial velocities: mass and orbital parameters of the giant exoplanet, *The Astronomical Journal*

- 2019 **R. Bin, [...], M. Ygouf, et al.**, An Exo-Kuiper Belt with an Extended Halo around HD 191089 in Scattered Light, *The Astrophysical Journal*
- 2018 **T. Meshkat, R. Nilsson, J. Aguilar, G. Vasisht, R. Oppenheimer, K.Y.L. Su, [...], M. Ygouf et al.**, A deep search for planets in the inner 15 AU around Vega, *Astrophys. J.*
- 2018 **T. J. David, E. E. Mamajek, A. Vanderburg, J. E. Schlieder, M. Bristow, [...], M. Ygouf**, Discovery of a Transiting Adolescent Sub-Neptune Exoplanet in the Cas-Tau Association with K2, *The Astronomical Journal*
- 2018 **G. Ruane, A. Riggs, J. Mazoyer, E. H. Por, M. N'Diaye, E. Huby, P. Baudoz, [...], M. Ygouf**, Review of high-contrast imaging systems for current and future ground- and space-based telescopes I: coronagraph design methods and optical performance metrics, in SPIE Conference Series
- 2018 **N. Jovanovic, O. Absil, P. Baudoz, M. Beaulieu, M. Bottom, E. Cady, B. Carlomagno, [...], M. Ygouf**, Review of high-contrast imaging systems for current and future ground-based and space-based telescopes II. Common path wavefront sensing/control and Coherent Differential Imaging, in SPIE Conference Series
- 2018 **F. Snik, O. Absil, P. Baudoz, M. Beaulieu, E. Bendek, E. Cady, B. Carlomagno, [...], M. Ygouf**, Review of high-contrast imaging systems for current and future ground-based and space-based telescopes III: technology opportunities and pathways, in SPIE Conference Series
- 2017 **M. Ygouf et al.**, High-contrast imaging with the JWST-NIRSpec Integral Field Unit, in SF2A
- 2017 **S. Egron, C.-P. Lajoie, V. Michau, A. Bonnefois, C. Escolle, L. Leboulleux, M. N'Diaye, [...], M. Ygouf et al.**, James Webb Space telescope optical simulation testbed: experimental results with linear control alignment, in SPIE Conference Series
- 2016 **M. Ygouf et al.**, Data processing and algorithm development for the WFIRST-AFTA coronagraph, in SPIE Conference Series
- 2016 **S. Egron R. Soummer, M. D. Perrin, E. Choquet, M. N'Diaye, C.-P. Lajoie, M. Ygouf et al.**, James Webb Space Telescope optical simulation testbed III first experimental results with linear-control alignment, in SPIE Conference Series
- 2015 **J. H. Debes, M. Ygouf et al.**, WFIRST-AFTA Coronagraphic Operations: Lessons Learned from the Hubble Space Telescope and the James Webb Space Telescope, in JATIS
- 2015 **M. Ygouf et al.**, Data Processing and Algorithm Development for the WFIRST-AFTA Coronagraph: Reduction of Noise Free Simulated Images, Analysis and Spectrum Extraction with Reference Star Differential Imaging, in SPIE Conference Series
- 2015 **B. Mennesson, J. Krist, B. Nemati, M. Ygouf et al.**, WFIRST- AFTA coronagraph performance: feedback from post-processing studies to overall design, in SPIE Conference Series
- 2014 **M. Perrin, R. Soummer, E. Choquet, M. N'Diaye, O. Levecq, C.-P. Lajoie, M. Ygouf et al.**, James Webb Space Telescope Optical Simulation Testbed I: Overview and First Results, in SPIE Conference Series
- 2014 **M. Ygouf et al.**, Wavefront Sensorless Multi-Conjugate Adaptive Optics for Imaging in Deep Atmospheric Turbulence: Preliminary Numerical Analysis, in IEEE Aerospace Conference
- 2014 **M. Aubailly, M. Ygouf et al.**, Multi-Aperture Imaging Based on Complex-Field Sensing: Numerical Analysis of Key Requirements, in IEEE Aerospace Conference
- 2013 **M. Ygouf et al.**, Simultaneous exoplanet detection and instrument aberration retrieval in multispectral coronagraphic imaging, in Astronomy and Astrophysics
- 2013 **M. Ygouf et al.**, New method of multispectral image post-processing based on instrument model for high contrast imaging systems: Application to exoplanet detection. PhD Thesis, Université Joseph Fourier
- 2012 **M. Ygouf et al.**, Myopic exoplanet detection algorithm based on an analytical model of AO-corrected coronagraphic multispectral imaging, in Adaptive Optics for Extremely Large Telescopes (AO4ELT)
- 2011 **M. Ygouf et al.**, Restauration myope d'images coronographiques pour la détection d'exoplanètes, in 23ème Colloque sur le Traitement du Signal et des Images
- 2010 **M. Ygouf et al.**, Approximate analytical expression for AO-corrected coronagraphic imaging in preparation of exoplanet signal extraction, in SF2A

- 2010 **V. Eybl, M. Xiang-Grüß, H. Lammer, J. Antoniadis, G. Barentesen, [...], M. Ygouf et al.**, A new approach to investigate star-planet-interaction based on UV transit observations of terrestrial planets around M-dwarfs, in European Planetary Science Congress
- 2007 **D. Rouan, D. Pelat, M. Ygouf et al.**, A new concept of achromatic phase shifter for nulling interferometry, in SPIE Conference Series

PAPERS WITH CONTRIBUTIONS CREDITED IN THE ACKNOWLEDGMENTS

- 2010 **Sauvage, Mugnier, Rousset, Fusco**, Analytical expression of long-exposure AO-corrected coronagraphic image. First application to exoplanet detection, in JOSAA
- 2008 **Rouan, Pelat**, The achromatic chessboard, a new concept of a phase shifter for nulling interferometry. I. Theory, in A&A

Technical Reports

- 2016 **M. Ygouf, N. Zimmerman, L. Pueyo, M. Perrin, R. Soummer**, "Data Post Processing and Algorithm Development for the WFIRST-AFTA Coronagraph", FY15 final report, Space Telescope Science Institute
- 2015 **M. Ygouf, L. Pueyo, M. Perrin, R. Soummer**, "Data Post Processing and Algorithm Development for the WFIRST-AFTA Coronagraph", First Progress Report, Space Telescope Science Institute
- 2014 **M. Ygouf et al.**, "AFTA Coronagraphic Technology – Data Post-Processing and Algorithm Development", FY14 final report, Space Telescope Science Institute
- 2009 **M. Ygouf**, "Quality approach applied to the optical metrology of the E-ELT primary mirror prototype segments," End of study report – Part 2, Sagem REOSC
- 2009 **M. Ygouf**, "Optical metrology of the E-ELT primary mirror prototype segments," End of study report – Part 1, Sagem REOSC
- 2009 **M. Ygouf**, "Commissioning plan of the interferometric test bench of the E-ELT prototype segments," Technical note, Sagem REOSC
- 2009 **M. Ygouf**, "Commissioning report of the optical substrates for the interferometric test bench of the E-ELT prototype segments," Technical note, Sagem REOSC
- 2008 **M. Ygouf**, "Statement of work for the study of an optical test bench which will be used to control the E-ELT primary mirror segments," Project specifications, Sagem REOSC
- 2008 **M. Ygouf**, "Measurement principle of optical substrates for the interferometric test bench of the E-ELT prototype segments," Technical note, Sagem REOSC
- 2008 **M. Ygouf**, "Test report on the imaging correction WFE impact for the interferometric test bench of the E-ELT prototype segments," Technical note, Sagem REOSC
- 2008 **M. Ygouf**, "Implementation of the interferometric test bench of the E-ELT prototype segments with the Zemax software," Technical note, Sagem REOSC

Communications

CONFERENCES PRESENTATIONS

- 2019 **M. Ygouf**, "Model-based algorithm for high-contrast imaging with JWST", at the 2019 Greater IPAC Technology Symposium *Pasadena, USA*
- 2019 **M. Ygouf**, "Speckle Suppression for Coronagraphic Observations with the James Webb Space Telescope", at the 2019 Greater IPAC Science Symposium *Pasadena, USA*
- 2019 **M. Ygouf**, NASA Hyperwall talk given by NASA experts: "High-Contrast Imaging of Exoplanets with JWST", at AAS Conference *Seattle, USA*
- 2019 **M. Ygouf et al.**, "High-Contrast Imaging of a New Circumbinary Disk Around a Young Spectroscopic Binary", at AAS Conference *Seattle, USA*
- 2018 **M. Ygouf**, "High-Contrast Imaging of a New Circumbinary Disk Around a Young Spectroscopic Binary", at ExSoCal Conference *Pasadena, USA*
- 2018 **M. Ygouf**, "High-contrast imaging with JWST", at ExSoCal Conference *Pasadena, USA*
- 2018 **M. Ygouf et al.**, "High contrast imaging with the JWST-NIRSpec Integral Field Unit" at Sagan Exoplanet Summer workshop *Pasadena, USA*
- 2018 **M. Ygouf et al.**, "High-Contrast Imaging of a New Circumbinary Disk Around a Young Spectroscopic Binary", at the COSPAR Assembly *Pasadena, USA*
- 2018 **M. Ygouf**, "High-Contrast Imaging of a New Circumbinary Disk Around a Young Spectroscopic Binary", at the 2018 Greater IPAC Science Symposium *Pasadena, USA*
- 2018 **M. Ygouf**, "Speckle chromatic noise and reduction of high-contrast data", at the High Dispersion Spectroscopy workshop *Pasadena, USA*
- 2018 **M. Ygouf**, "Synergies between Post-Processing", Wavefront Sensing and Coronagraph Design at the Technology for Direct Detection and Characterization of Exoplanets workshop *Pasadena, USA*
- 2017 **M. Ygouf**, "Experience from current space-based coronagraph instruments and testbeds" at the Optimal Optical Coronagraphs workshop *Leiden, Pays-Bas*
- 2017 **M. Ygouf**, "High-Contrast Imaging of Young Planets with JWST", at ExSoCal Conference *Pasadena, USA*
- 2017 **M. Ygouf**, "High-Contrast Imaging of Young Planets with JWST", at Exoclipse Conference *Boise, USA*
- 2017 **M. Ygouf et al.**, "High contrast imaging with the JWST-NIRSpec Integral Field Unit" at AAS Meeting *Austin, USA*
- 2017 **C. Beichman, M. Ygouf et al.**, "NIRCam Coronagraphic Observations of Disks and Planetary Systems" at AAS Meeting *Austin, USA*
- 2017 **J. Schlieder, M. Meyer, C. Beichman, M. Reggiani, S. Daemgen, J. Leisenring, and M. Ygouf**, "A JWST NIRCam Coronagraphic Imaging Survey of Nearby Young M Dwarfs" at AAS Meeting *Austin, USA*
- 2017 **M. Ygouf**, "High-Contrast Imaging of Young Planets with JWST", at the Greater IPAC Science Symposium *Pasadena, USA*
- 2016 **M. Ygouf et al.**, "PSF-subtraction for the WFIRST-AFTA telescope" at AAS Meeting *Kissimmee, USA*
- 2016 **N. Zimmerman, M. Ygouf et al.**, "Post-processing images from the WFIRST-AFTA coronagraph testbed" at AAS Meeting *Kissimmee, USA*
- 2016 **M. Perrin, E. Choquet, A. Greenbaum, B. Ren, J. Debes, J. Mazoyer, M. Ygouf et al.**, "HST STIS & NICMOS Coronagraphy of Four Debris Disks around Young Solar Analogs" at AAS Conference *Kissimmee, USA*
- 2015 **M. Ygouf et al.**, "PSF-subtraction for the WFIRST-AFTA telescope" at In the Spirit of Lyot Conference *Montreal, Canada*
- 2015 **F. Cantalloube, M. Ygouf et al.**, "MEDUSAE, a Bayesian inverse problem approach to detect and characterize exoplanets in multispectral images" at In the Spirit of Lyot Conference *Montreal, Canada*
- 2016 **M. Perrin, E. Choquet, A. Greenbaum, B. Ren, J. Mazoyer, M. Ygouf et al.**, "HST STIS Coronagraphy of Four Debris Disks around Young Solar Analogs" at In the Spirit of Lyot Conference *Montreal, Canada*
- 2015 **E. Choquet, M. Perrin, R. Soummer, L. Pueyo, D. Golimowski, C. Chen, A. Moro-Martin, J. Debes, D. Hines, C. Stark, M. N'Diaye, M. Ygouf et al.**, "Four more detections from the NICMOS archive: Newly seen debris disks around several M dwarfs and a young Solar Twin" at In the Spirit of Lyot Conference *Montreal, Canada*
- 2015 **M. Ygouf et al.**, "Post-processing methods for high-contrast imaging in the context of the WFIRST-AFTA telescope" at AAS Conference *Seattle, USA*
- 2014 **M. Ygouf et al.**, "New method of multispectral image post-processing based on an instrument model for high contrast imaging systems" at Sagan Exoplanet Summer workshop *Pasadena, USA*

- 2014 **M. Ygouf et al.**, "Image processing methods to detect and characterize exoplanets based on Bayesian inverse problems solving" at Sagan Exoplanet Summer workshop *Pasadena, USA*
- 2010 **F. Cantalloube, M. Ygouf et al.**, "Approximate analytical model of AO-corrected coronagraphic imaging, with a view to exoplanet detection and characterization" at In the Spirit of Lyot Conference *Paris, France*

SEMINARS

- 2018 **M. Ygouf**, "High-Contrast Imaging of a New Circumbinary Disk Around a Young Spectroscopic Binary", California Institute of Technology *Pasadena, USA*
- 2017 **M. Ygouf**, "Direct Imaging of Exoplanets with JWST", NASA's Ames Research Center *Mountain View, USA*
- 2017 **M. Ygouf**, "Post-processing for the WFIRST Coronagraph", IPAC - California Institute of Technology *Pasadena, USA*
- 2017 **M. Ygouf**, "Post-processing for the WFIRST Coronagraph", NASA Jet Propulsion Laboratory *Pasadena, USA*
- 2016 **M. Ygouf**, "Post-processing for the WFIRST Coronagraph", NASA Jet Propulsion Laboratory, Pasadena "Post-processing for the WFIRST and JWST Coronagraphs", Office National d'Études et de Recherches Aérospatiales *Châtillon, France*
- 2016 **M. Ygouf**, "Post-processing for the WFIRST and JWST Coronagraphs", University of California *Berkeley, USA*
- 2016 **M. Ygouf**, "Post-processing for the WFIRST and JWST Coronagraphs", Stanford University *Mountain View, USA*
- 2016 **M. Ygouf**, "To Roll or Not To Roll? Signal Detection Theory Applied to the WFIRST Coronagraph", Space Telescope Science Institute *Baltimore, USA*
- 2015 **M. Ygouf**, "Post-processing for the WFIRST-AFTA Coronagraph", Office National d'Études et de Recherches Aérospatiales *Châtillon, France*
- 2015 **M. Ygouf**, "Post-processing for the WFIRST-AFTA Coronagraph", Laboratoire d'Astrophysique de Marseille *Marseille, France*
- 2015 **M. Ygouf**, "PSF subtraction in the context of WFIRST-AFTA", Exoplanet Journal Club, NASA-Goddard Flight Space Center *Greenbelt, USA*
- 2015 **M. Ygouf**, "Post-processing in the context of WFIRST-AFTA", Science Coffee, Space Telescope Science Institute *Baltimore, USA*
- 2012 **M. Ygouf**, "Simultaneous exoplanet detection and instrument aberration retrieval in multispectral coronagraphic imaging", NASA Jet Propulsion Laboratory *Pasadena, USA*
- 2012 **M. Ygouf**, "Simultaneous exoplanet detection and instrument aberration retrieval in multispectral coronagraphic imaging", California Institute of Technology *Pasadena, USA*
- 2012 **M. Ygouf**, "Simultaneous exoplanet detection and instrument aberration retrieval in multispectral coronagraphic imaging", Star and Planet Formation Seminars, Space Telescope Science Institute *Baltimore, USA*