Johan MAZOYER

Intérêts de recherche: Instrumentation Optique, Imagerie Directe et Coronographie, Observation et Caractérisation de Systèmes Extrasolaires, Disques de Débris

1 EXPÉRIENCES PROFESSIONNELLES

Chargé de recherche CNRS – **LIRA/Observatoire de Paris - PSL** (France) **Depuis 2020**

Carl Sagan Fellow – **NASA Jet Propulsion Laboratory** (Pasadena, CA) **2018-2019**

Post-doctorant – **Johns Hopkins University** (Baltimore, MD) **2016-2018**

Post-doctorant – **Space Telescope Science Institute** (Baltimore, MD) **2014-2016**

Doctorant – **LIRA/Observatoire de Paris - PSL** (France) **2011-2014**

2 FORMATION

HDR – **Observatoire de Paris - PSL** **Mars 2024**

Doctorat – Astronomie et Astrophysique – **Université Paris Cité** **Sept. 2014**
Thèse: Haut contraste pour l'imagerie directe d'exoplanètes et de disques (P. Baudoz & G. Rousset)

Master – Astrophysique et planétologie – **Université de Toulouse** **Sept. 2011**
Thèse: Influence de l'atmosphère martienne sur les perf. de MSL/Chemcam (O. Gasnault & R. Wiens)

Diplôme d'ingénieur – Techniques d'Imagerie Spatiale – **ISAE Supaero** **Sept. 2011**

Diplôme d'ingénieur – Systèmes Embarqués – **Ecole polytechnique** **Sept. 2011**

3 BOURSES & PRIX

ERC - Consolidator Grant (PI) ECHOES - 2 M€ **Depuis 2026**

ANR JCJC (PI) - 370 k€ (interrompue et remboursée) **2025-2026**

DIM Origins (PI) Fonds pour l'achat de matériel (spatial light modulator) - 20 k€ **2023**

CNES (co-PI) Bourse CNES d'Iva Laginja - 60 k€/an **2022**

Data Intensive Artificial Intelligence (PI) Bourse thèse de Y. Gutierrez - 120 k€ / 3 ans **2021**

Programme EcosSud (PI) collaboration France-Chili avec *Universidad de Chile* – 50 k€ **2020**

NASA Group Award: LBTI Hosts Survey Science Team **2020**

Carl Sagan Fellowship (PI) (NASA Hubble Fellowship Program) – 280k€/3 ans **2018**

Couverture du journal **Astronomy & Astrophysics** (Volume 564) **2014**

Prix meilleur poster, conférence des chercheurs du CNES (JC2) **2013**

Bourse doctorale (PI) du CNES – 120 k€/3ans **2011**

4 DIFFUSION DES SCIENCES

Je suis très impliqué dans la vulgarisation scintifiques en France. En plus d'interventions régulières en classe ou grand public, j'organise régulièrement des événements institutionnels ou associatifs:

•**Podcast Science**: J'anime chaque semaine **PodcastScience.fm**, un programme scientifique généraliste diffusé chaque semaine. Écouté par 10 à 20 000 auditeurs, il a reçu le Golden Blog Award du meilleur blog scientifique en 2012.

• **Les p'tits cueilleurs d'étoiles**: Association organisant des visites d'astronomes dans les hôpitaux pour enfants. J'organise les visites dans la région parisienne (25 visites/an).

• **Fête de la science**: J'ai été l'organisateur principal des journées portes ouvertes annuelles de l'Observatoire de Paris (∼1000 visiteurs/an) pendant deux années consécutives (2023 et 2024).

5 ACTIVITÉS POUR LA COMMUNAUTÉ

Responsibilities in scientific instruments:

- **Roman Space Telescope Coronagraph**: Représentant adjoint du CNES — Depuis 2023
- **VLT/SPHERE+**: Responsable du groupe de travail *Dark-Hole* — Depuis 2022
- **Habitable Exoplanet Observatory (HabEx)**: Contributeur scientifique — 2019
- **Large UV Optical Infrared Surveyor (LUVOIR)**: Contributeur scientifique — 2019
- **Gemini Planet Imager (GPI)** Membre junior du consortium — 2017-2020

Organisation de conférences, ateliers

- SOC: Roman coronagraphic instrument summer school — Nice, 2026
- SOC: ExoSystèmes 4 — Lyon, 2024
- Organizer et SOC: National Capital Area Disks conference — Baltimore 2018
- Organizer et SOC: Optimal Optical Coronagraphs workshop — Leiden, 2017
- SOC: High Contrast Imaging from Space — Baltimore, 2016
- LOC: Workshop "très haute dynamique" — Paris, 2012

Autres investissements

- **Responsable de l'équipe "Systèmes Exoplanètaires"** du LIRA — Depuis 2025
- Participation au **Telescope Allocation Committee** d'Hubble — 2024
- Comité d'experts du thème transverse "**(CET exoplanètes)**" de l'INSU — 2023 - 2024
- Comité Scientifique de l'action Spécifique Haute résolution Angulaire de l'INSU — Depuis 2021
- **Peer-review** pour le *AJ*, *A&A*, *MNRAS*, *PASP* et *JATIS*.

6 ENCADREMENTS

Lukas Delaye (PhD, LIRA): co-direction avec A. Potier	**Depuis 2025**
Vito Squicciarini (Postdoc, LIRA): co-encadrement avec A.-M. Lagrange	**2022-2025**
Yann Gutierrez (PhD, LIRA): co-direction avec L. Mugnier, ONERA	**2022-2025**
Iva Laginja (Postdoc, LIRA): CNES post-doctoral Fellow	**2022-2024**
Sophia Stasevic (PhD, LIRA) co-direction avec A.-M. Lagrange and J. Milli	**2021-2025**
Justin Hom (PhD, ASU) co-encadrement avec J. Patience	**2019-2023**
Kevin Fogarty (PhD, JHU) co-encadrement avec L. Pueyo	**2017-2019**

7 ENSEIGNEMENTS

Cours de Master (Observatoire de Paris):

- Instrumentation for Astronomy
- Detection of Exoplanets (collab. Anne-Marie Lagrange)

PRODUCTION SCIENTIFIQUE

Le cœur de ma recherche est le développement de techniques haut-contraste innovantes, essentielles pour détecter et caractériser des objets orbitant à faible séparation d'étoiles très brillantes (exoplanètes et ceintures de poussière). Au fil des années, j'ai acquis une expertise unique dans la compréhension analytique et la simulation numérique de ces instruments, à la fois au sol et dans l'espace, atteignant des performances sans précédent sur des bancs expérimentaux et directement en améliorant des instruments existants. En parallèle, je suis spécialiste de l'étude des exosystèmes, ayant analysé des données provenant de plusieurs instruments haut-contraste. Mes recherches intègrent de manière complèmentaire le développement instrumental et l'analyse d'observations. À mesure que les instruments coronagraphiques deviennent plus complexes, maximiser leur potentiel nécessite une expertise en instrumentation, et les enseignements tirés des observations sur le ciel sont essentiels pour orienter les futurs développements instrumentaux.

60 articles acceptés dans des revues à comité de lecture, dont :

- **7 articles en tant que premier auteur + 1 en tant que co-premier auteur,**
- **10 articles avec contributions majeures (2ème ou 3ème auteur),**
- **42 articles avec contributions moins importantes.**

52 actes de conférences (principalement SPIE), dont 11 en tant que premier auteur.
Tous mes articles et actes sont en libre accès.

Google Scholar analytics : 3338 citations — h-index = 32.

PRINCIPAUX ARTICLES

1. Squicciarini, V. ; **Mazoyer, J.** ; Wilkinson, C. et al. (**2025**), *GPI+SPHERE detection of a 6.1 M_{Jup} circumbinary planet around HD 143811*, Astronomy and Astrophysics, 702, L10, DOI link, arXiv link
2. Stasevic, S. ; Milli, J. ; **Mazoyer, J.** et al. (**2025**), *Optimising reference library selection for reference-star differential imaging of discs with SPHERE/IRDIS*, Astronomy and Astrophysics, 701, A93, DOI link, arXiv link
3. Laginja, I. ; Baudoz, P. ; **Mazoyer, J.** et al. (**2025**), *Extended linearity in the high-order wavefront sensor for the Roman Coronagraph*, Astronomy and Astrophysics, 698, A130, DOI link, arXiv link, 2 citations
4. Squicciarini, V. ; **Mazoyer, J.** ; Lagrange, A. -M. et al. (**2025**), *The COBREX archival survey: Improved constraints on the occurrence rate of wide-orbit substellar companions: I. A uniform re-analysis of 400 stars from the GPIES survey*, Astronomy and Astrophysics, 693, A54, DOI link, arXiv link, 9 citations
5. Gutierrez, Y. ; **Mazoyer, J.** ; Mugnier, L. M. et al. (**2024**), *Image-based wavefront correction using model-free reinforcement learning*, Optics Express, 32, 31247, DOI link, arXiv link
6. Galicher, R. ; Potier, A. ; **Mazoyer, J.** et al. (**2024**), *Increasing the raw contrast of VLT/SPHERE with the dark hole technique. III. Broadband reference differential imaging of HR4796 using a four-quadrant phase mask*, Astronomy and Astrophysics, 686, A54, DOI link, arXiv link, 4 citations
7. Galicher, R. & **Mazoyer, J.** (**2024**), *Imaging exoplanets with coronagraphic instruments*, Comptes Rendus Physique, 24, 133, DOI link, arXiv link, 19 citations
8. Stasevic, S. ; Milli, J. ; **Mazoyer, J.** et al. (**2023**), *An inner warp discovered in the disk around HD 110058 using VLT/SPHERE and HST/STIS*, Astronomy and Astrophysics, 678, A8, DOI link, arXiv link, 7 citations
9. Potier, A. ; **Mazoyer, J.** ; Wahhaj, Z. et al. (**2022**), *Increasing the raw contrast of VLT/SPHERE with the dark hole technique. II. On-sky wavefront correction and coherent differential imaging*, Astronomy and Astrophysics, 665, A136, DOI link, arXiv link, 23 citations
10. Chen, C. ; **Mazoyer, J.** ; Poteet, C. A. et al. (**2020**), *Multiband GPI Imaging of the HR 4796A Debris Disk*, The Astrophysical Journal, 898, 55, DOI link, arXiv link, 38 citations
11. **Mazoyer, J.** ; Pueyo, L. ; N'Diaye, M. et al. (**2018**), *Active Correction of Aperture Discontinuities-Optimized Stroke Minimization. II. Optimization for Future Missions*, The Astronomical Journal, 155, 8, DOI link, arXiv link, 23 citations
12. **Mazoyer, J.** ; Pueyo, L. ; N'Diaye, M. et al. (**2018**), *Active Correction of Aperture Discontinuities-Optimized Stroke Minimization. I. A New Adaptive Interaction Matrix Algorithm*, The Astronomical Journal, 155, 7, DOI link, arXiv link, 18 citations

13. Fogarty, K. ; Pueyo, L. ; **Mazoyer, J.** et al. (**2017**), *Polynomial Apodizers for Centrally Obscured Vortex Coronagraphs*, The Astronomical Journal, 154, 240, DOI link, arXiv link, 10 citations
14. **Mazoyer, J.** ; Pueyo, L. ; Norman, C. et al. (**2016**), *Active compensation of aperture discontinuities for WFIRST-AFTA: analytical and numerical comparison of propagation methods and preliminary results with a WFIRST-AFTA-like pupil*, Journal of Astronomical Telescopes, Instruments, and Systems, 2, 011008, DOI link, arXiv link, 9 citations
15. **Mazoyer, J.** ; Boccaletti, A. ; Choquet, É. et al. (**2016**), *A Symmetric Inner Cavity in the HD 141569A Circumstellar Disk*, The Astrophysical Journal, 818, 150, DOI link, arXiv link, 14 citations
16. **Mazoyer, J.** ; Boccaletti, A. ; Augereau, J. -C. et al. (**2014**), *Is the HD 15115 inner disk really asymmetrical?*, Astronomy and Astrophysics, 569, A29, DOI link, arXiv link, 35 citations
17. **Mazoyer, J.** ; Baudoz, P. ; Galicher, R. et al. (**2014**), *High-contrast imaging in polychromatic light with the self-coherent camera*, Astronomy and Astrophysics, 564, L1, DOI link, arXiv link, 36 citations
18. **Mazoyer, J.** ; Baudoz, P. ; Galicher, R. et al. (**2013**), *Estimation and correction of wavefront aberrations using the self-coherent camera: laboratory results*, Astronomy and Astrophysics, 557, A9, DOI link, arXiv link, 41 citations

AUTRES ARTICLES

1. Hom, J. ; Esposito, T. M. ; Crotts, K. A. et al. (**2025**), *The Disks In Scorpius-Centaurus Survey (DISCS). I. Four Newly Resolved Debris Disks in Polarized Intensity Light*, The Astronomical Journal, 170, 46, DOI link, arXiv link, 2 citations
2. Lagrange, A. -M. ; Wilkinson, C. ; Mâlin, M. et al. (**2025**), *Evidence for a sub-Jovian planet in the young TWA 7 disk*, Nature, 642, 905, DOI link, arXiv link, 14 citations
3. Desgrange, C. ; Milli, J. ; Chauvin, G. et al. (**2025**), *Dust populations from 30 to 1000 au in the debris disk of HD 120326: Panchromatic view with VLT/SPHERE, ALMA, and HST/STIS*, Astronomy and Astrophysics, 698, A183, DOI link, arXiv link, 1 citation
4. Chomez, A. ; Delorme, P. ; Lagrange, A. -M. et al. (**2025**), *The SPHERE infrared survey for exoplanets (SHINE): IV. Complete observations, data reduction and analysis, detection performances, and final results*, Astronomy and Astrophysics, 697, A99, DOI link, arXiv link, 7 citations
5. Ray, S. ; Sallum, S. ; Hinkley, S. et al. (**2025**), *The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems. III. Aperture Masking Interferometric Observations of the Star HIP 65426 at 3.8 μm*, The Astrophysical Journal, 983, L25, DOI link, arXiv link, 9 citations
6. Laginja, I. ; Carrión-González, Ó. ; Laugier, R. et al. (**2025**), *Advancing European high-contrast imaging R&D towards the Habitable Worlds Observatory*, Astrophysics and Space Science, 370, 29, DOI link, arXiv link
7. Wilkinson, C. ; Charnay, B. ; Mazevet, S. et al. (**2024**), *Breaking degeneracies in exoplanetary parameters through self-consistent atmosphere–interior modelling*, Astronomy and Astrophysics, 692, A113, DOI link, arXiv link, 6 citations
8. Lewis, B. L. ; Fitzgerald, M. P. ; Esposito, T. M. et al. (**2024**), *Gemini Planet Imager Observations of a Resolved Low-inclination Debris Disk around HD 156623*, The Astronomical Journal, 168, 142, DOI link, arXiv link, 2 citations
9. Goulas, C. ; Galicher, R. ; Vidal, F. et al. (**2024**), *Numerical simulations for the SAXO+ upgrade: Performance analysis of the adaptive optics system*, Astronomy and Astrophysics, 689, A199, DOI link, arXiv link, 2 citations
10. Petrus, S. ; Whiteford, N. ; Patapis, P. et al. (**2024**), *The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems. V. Do Self-consistent Atmospheric Models Represent JWST Spectra? A Showcase with VHS 1256–1257 b*, The Astrophysical Journal, 966, L11, DOI link, arXiv link, 34 citations
11. Hom, J. ; Patience, J. ; Chen, C. H. et al. (**2024**), *A uniform analysis of debris discs with the Gemini Planet Imager II: constraints on dust density distribution using empirically informed scattering phase functions*, Monthly Notices of the Royal Astronomical Society, 528, 6959, DOI link, arXiv link, 7 citations
12. Sallum, S. ; Ray, S. ; Kammerer, J. et al. (**2024**), *The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems. IV. NIRISS Aperture Masking Interferometry Performance and Lessons Learned*, The Astrophysical Journal, 963, L2, DOI link, arXiv link, 12 citations

13. Worthen, K. ; Chen, C. H. ; Brittain, S. D. et al. (**2024**), *Vertical Structure of Gas and Dust in Four Debris Disks*, The Astrophysical Journal, 962, 166, DOI link, arXiv link, 2 citations
14. Crotts, K. A. ; Matthews, B. C. ; Duchêne, G. et al. (**2024**), *A Uniform Analysis of Debris Disks with the Gemini Planet Imager. I. An Empirical Search for Perturbations from Planetary Companions in Polarized Light Images*, The Astrophysical Journal, 961, 245, DOI link, arXiv link, 14 citations
15. Vaughan, S. R. ; Gebhard, T. D. ; Bott, K. et al. (**2023**), *Chasing rainbows and ocean glints: Inner working angle constraints for the Habitable Worlds Observatory*, Monthly Notices of the Royal Astronomical Society, 524, 5477, DOI link, arXiv link, 34 citations
16. Carter, A. L. ; Hinkley, S. ; Kammerer, J. et al. (**2023**), *The JWST Early Release Science Program for Direct Observations of Exoplanetary Systems I: High-contrast Imaging of the Exoplanet HIP 65426 b from 2 to 16 μm*, The Astrophysical Journal, 951, L20, DOI link, arXiv link, 98 citations
17. Miles, B. E. ; Biller, B. A. ; Patapis, P. et al. (**2023**), *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, 946, L6, DOI link, arXiv link, 155 citations
18. Hinkley, S. ; Carter, A. L. ; Ray, S. et al. (**2022**), *The JWST Early Release Science Program for the Direct Imaging and Spectroscopy of Exoplanetary Systems*, Publications of the Astronomical Society of the Pacific, 134, 095003, DOI link, arXiv link, 54 citations
19. Crotts, K. A. ; Draper, Z. H. ; Matthews, B. C. et al. (**2022**), *A Multiwavelength Study of the Highly Asymmetrical Debris Disk around HD 111520*, The Astrophysical Journal, 932, 23, DOI link, arXiv link, 8 citations
20. Betti, S. K. ; Follette, K. ; Jorquera, S. et al. (**2022**), *Detection of Near-infrared Water Ice at the Surface of the (Pre)Transitional Disk of AB Aur: Informing Icy Grain Abundance, Composition, and Size*, The Astronomical Journal, 163, 145, DOI link, arXiv link, 19 citations
21. Singh, G. ; Bhowmik, T. ; Boccaletti, A. et al. (**2021**), *Revealing asymmetrical dust distribution in the inner regions of HD 141569*, Astronomy and Astrophysics, 653, A79, DOI link, arXiv link, 13 citations
22. Crotts, K. A. ; Matthews, B. C. ; Esposito, T. M. et al. (**2021**), *A Deep Polarimetric Study of the Asymmetrical Debris Disk HD 106906*, The Astrophysical Journal, 915, 58, DOI link, arXiv link, 16 citations
23. Arriaga, P. ; Fitzgerald, M. P. ; Duchêne, G. et al. (**2020**), *Multiband Polarimetric Imaging of HR 4796A with the Gemini Planet Imager*, The Astronomical Journal, 160, 79, DOI link, arXiv link, 34 citations
24. Esposito, T. M. ; Kalas, P. ; Fitzgerald, M. P. et al. (**2020**), *Debris Disk Results from the Gemini Planet Imager Exoplanet Survey's Polarimetric Imaging Campaign*, The Astronomical Journal, 160, 24, DOI link, arXiv link, 105 citations
25. Duchêne, G. ; Rice, M. ; Hom, J. et al. (**2020**), *The Gemini Planet Imager View of the HD 32297 Debris Disk*, The Astronomical Journal, 159, 251, DOI link, arXiv link, 25 citations
26. Ertel, S. ; Defrère, D. ; Hinz, P. et al. (**2020**), *The HOSTS Survey for Exozodiacal Dust: Observational Results from the Complete Survey*, The Astronomical Journal, 159, 177, DOI link, arXiv link, 120 citations
27. Bruzzone, J. S. ; Metchev, S. ; Duchêne, G. et al. (**2020**), *Imaging the 44 au Kuiper Belt Analog Debris Ring around HD 141569A with GPI Polarimetry*, The Astronomical Journal, 159, 53, DOI link, arXiv link, 12 citations
28. Hom, J. ; Patience, J. ; Esposito, T. M. et al. (**2020**), *First Resolved Scattered-light Images of Four Debris Disks in Scorpius-Centaurus with the Gemini Planet Imager*, The Astronomical Journal, 159, 31, DOI link, arXiv link, 15 citations
29. Bhowmik, T. ; Boccaletti, A. ; Thébault, P. et al. (**2019**), *Spatially resolved spectroscopy of the debris disk HD 32297. Further evidence of small dust grains*, Astronomy and Astrophysics, 630, A85, DOI link, arXiv link, 31 citations
30. Ren, B. ; Choquet, É. ; Perrin, M. D. et al. (**2019**), *An Exo-Kuiper Belt with an Extended Halo around HD 191089 in Scattered Light*, The Astrophysical Journal, 882, 64, DOI link, arXiv link, 41 citations
31. Stark, C. C. ; Belikov, R. ; Bolcar, M. R. et al. (**2019**), *ExoEarth yield landscape for future direct imaging space telescopes*, Journal of Astronomical Telescopes, Instruments, and Systems, 5, 024009, DOI link, arXiv link, 74 citations
32. Engler, N. ; Boccaletti, A. ; Schmid, H. M. et al. (**2019**), *Investigating the presence of two belts in the HD 15115 system*, Astronomy and Astrophysics, 622, A192, DOI link, arXiv link, 32 citations
33. Esposito, T. M. ; Duchêne, G. ; Kalas, P. et al. (**2018**), *Direct Imaging of the HD 35841 Debris Disk: A Polarized Dust Ring from Gemini Planet Imager and an Outer Halo from HST/STIS*, The Astronomical Journal, 156, 47, DOI link, arXiv link, 34 citations

34. Leboulleux, L. ; Sauvage, J. -F. ; Pueyo, L. A. et al. (**2018**), *Pair-based Analytical model for Segmented Telescopes Imaging from Space for sensitivity analysis*, Journal of Astronomical Telescopes, Instruments, and Systems, 4, 035002, DOI link, arXiv link, 20 citations
35. Poteet, C. A. ; Chen, C. H. ; Hines, D. C. et al. (**2018**), *Space-based Coronagraphic Imaging Polarimetry of the TW Hydrae Disk: Shedding New Light on Self-shadowing Effects*, The Astrophysical Journal, 860, 115, DOI link, arXiv link, 13 citations
36. Jensen-Clem, R. ; Mawet, D. ; Gomez Gonzalez, C. A. et al. (**2018**), *A New Standard for Assessing the Performance of High Contrast Imaging Systems*, The Astronomical Journal, 155, 19, DOI link, arXiv link, 34 citations
37. Perrot, C. ; Boccaletti, A. ; Pantin, E. et al. (**2016**), *Discovery of concentric broken rings at sub-arcsec separations in the HD 141569A gas-rich, debris disk with VLT/SPHERE*, Astronomy and Astrophysics, 590, L7, DOI link, arXiv link, 44 citations
38. Delorme, J. R. ; Galicher, R. ; Baudoz, P. et al. (**2016**), *Focal plane wavefront sensor achromatization: The multireference self-coherent camera*, Astronomy and Astrophysics, 588, A136, DOI link, arXiv link, 19 citations
39. Choquet, É. ; Perrin, M. D. ; Chen, C. H. et al. (**2016**), *First Images of Debris Disks around TWA 7, TWA 25, HD 35650, and HD 377*, The Astrophysical Journal, 817, L2, DOI link, arXiv link, 83 citations
40. Debes, J. H. ; Ygouf, M. ; Choquet, E. et al. (**2016**), *Wide-Field Infrared Survey Telescope-Astrophysics Focused Telescope Assets coronagraphic operations: lessons learned from the Hubble Space Telescope and the James Webb Space Telescope*, Journal of Astronomical Telescopes, Instruments, and Systems, 2, 011010, DOI link, arXiv link, 11 citations
41. Wiens, R. C. ; Maurice, S. ; Lasue, J. et al. (**2013**), *Pre-flight calibration and initial data processing for the ChemCam laser-induced breakdown spectroscopy instrument on the Mars Science Laboratory rover*, Spectrochimica Acta - Part B: Atomic Spectroscopy, 82, 1, DOI link, 173 citations
42. Cousin, A. ; Forni, O. ; Maurice, S. et al. (**2011**), *Laser induced breakdown spectroscopy library for the Martian environment*, Spectrochimica Acta - Part B: Atomic Spectroscopy, 66, 805, DOI link, 61 citations

PRINCIPAUX ACTES DE CONFERENCES

1. Gutierrez, Y. ; **Mazoyer, J.** ; Herscovici-Schiller, O. et al. (**2024**), *A deep reinforcement learning approach to wavefront control for exoplanet imaging*, Space Telescopes and Instrumentation 2024: Optical, Infrared, and Millimeter Wave, 13092, 130926H, DOI link, arXiv link, 1 citation
2. **Mazoyer, J.** ; Goulas, C. ; Vidal, F. et al. (**2024**), *Upgrading SPHERE with the second stage AO system SAXO+: non-common path aberrations estimation and correction*, Ground-based and Airborne Instrumentation for Astronomy X, 13096, 130969D, DOI link
3. Fogarty, K. ; Mawet, D. ; **Mazoyer, J.** et al. (**2020**), *Towards high throughput and low-order aberration robustness for vortex coronagraphs with central obstructions*, Space Telescopes and Instrumentation 2020: Optical, Infrared, and Millimeter Wave, 11443, 114433Y, DOI link, 1 citation
4. **Mazoyer, J.** ; Arriaga, P. ; Hom, J. et al. (**2020**), *DiskFM: A forward modeling tool for disk analysis with coronagraphic instruments*, Ground-based and Airborne Instrumentation for Astronomy VIII, 11447, 1144759, DOI link, arXiv link, 9 citations
5. Fogarty, K. ; **Mazoyer, J.** ; St. Laurent, K. et al. (**2018**), *Optimal deformable mirror and pupil apodization combinations for apodized pupil Lyot coronagraphs with obstructed pupils*, Space Telescopes and Instrumentation 2018: Optical, Infrared, and Millimeter Wave, 10698, 106981J, DOI link, 2 citations
6. Ruane, G. ; Riggs, A. ; **Mazoyer, J.** et al. (**2018**), *Review of high-contrast imaging systems for current and future ground- and space-based telescopes I: coronagraph design methods and optical performance metrics*, Space Telescopes and Instrumentation 2018: Optical, Infrared, and Millimeter Wave, 10698, 106982S, DOI link, arXiv link, 16 citations
7. **Mazoyer, J.** ; Pueyo, L. ; N'Diaye, M. et al. (**2017**), *Capabilities of ACAD-OSM, an active method for the correction of aperture discontinuities*, Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 10400, 104000G, DOI link, arXiv link, 2 citations
8. **Mazoyer, J.** & Pueyo, L. (**2017**), *Fundamental limits to high-contrast wavefront control*, Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 10400, 1040014, DOI link, arXiv link, 2 citations

9. Leboulleux, L. ; N'Diaye, M. ; **Mazoyer, J.** et al. (**2017**), *Comparison of wavefront control algorithms and first results on the high-contrast imager for complex aperture telescopes (hicat) testbed*, Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 10562, 105622Z, DOI link
10. Fogarty, K. ; Pueyo, L. ; **Mazoyer, J.** et al. (**2017**), *Tip/tilt optimizations for polynomial apodized vortex coronagraphs on obscured telescope pupils*, Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 10400, 104000T, DOI link, 2 citations
11. **Mazoyer, J.** ; Pueyo, L. ; N'Diaye, M. et al. (**2016**), *Correcting for the effects of pupil discontinuities with the ACAD method*, Space Telescopes and Instrumentation 2016: Optical, Infrared, and Millimeter Wave, 9904, 99044T, DOI link, arXiv link, 2 citations
12. **Mazoyer, J.** ; Pueyo, L. ; Norman, C. et al. (**2015**), *Active compensation of aperture discontinuities for WFIRST- AFTA: analytical and numerical comparison of propagation methods and preliminary results with an AFTA like pupil*, Nancy Grace Roman Space Telescope Technical Report WFIRST-STScI-TR1505, WFIRST-STScI-TR1505
13. **Mazoyer, J.** ; Pueyo, L. ; Norman, C. et al. (**2015**), *Active correction of aperture discontinuities (ACAD) for space telescope pupils: a parametic analysis*, Techniques and Instrumentation for Detection of Exoplanets VII, 9605, 96050M, DOI link, arXiv link, 10 citations
14. N'Diaye, M. ; **Mazoyer, J.** ; Choquet, É. et al. (**2015**), *High-contrast imager for complex aperture telescopes (HiCAT): 3. first lab results with wavefront control*, Techniques and Instrumentation for Detection of Exoplanets VII, 9605, 96050I, DOI link, arXiv link, 22 citations
15. **Mazoyer, J.** ; Galicher, R. ; Baudoz, P. et al. (**2014**), *Deformable mirror interferometric analysis for the direct imagery of exoplanets*, Adaptive Optics Systems IV, 9148, 914846, DOI link, arXiv link, 2 citations
16. **Mazoyer, J.** ; Baudoz, P. ; Galicher, R. et al. (**2013**), *Direct detection of exoplanets in polychromatic light with a Self-coherent camera*, Proceedings of the Third AO4ELT Conference, 97, DOI link
17. Baudoz, P. ; **Mazoyer, J.** ; Galicher, R. (**2013**), *Laboratory tests of planet signal extraction in high contrast images*, Proceedings of the Third AO4ELT Conference, 109, DOI link, 2 citations
18. **Mazoyer, J.** ; Galicher, R. ; Baudoz, P. et al. (**2013**), *Speckle correction in polychromatic light with the self-coherent camera for the direct detection of exoplanets*, Techniques and Instrumentation for Detection of Exoplanets VI, 8864, 88640N, DOI link, arXiv link, 1 citation
19. Galicher, R. ; **Mazoyer, J.** ; Baudoz, P. et al. (**2013**), *High-contrast imaging with a self-coherent camera*, Techniques and Instrumentation for Detection of Exoplanets VI, 8864, 88640M, DOI link
20. Baudoz, P. ; **Mazoyer, J.** ; Mas, M. et al. (**2012**), *Dark hole and planet detection: laboratory results using the self-coherent camera*, Ground-based and Airborne Instrumentation for Astronomy IV, 8446, 84468C, DOI link, 11 citations
21. Mas, M. ; Baudoz, P. ; **Mazoyer, J.** et al. (**2012**), *Experimental results on wavefront correction using the self-coherent camera*, Ground-based and Airborne Instrumentation for Astronomy IV, 8446, 844689, DOI link, 4 citations
22. **Mazoyer, J.** ; Baudoz, P. ; Mas, M. et al. (**2012**), *Experimental parametric study of the self-coherent camera*, Space Telescopes and Instrumentation 2012: Optical, Infrared, and Millimeter Wave, 8442, 844250, DOI link, arXiv link, 2 citations
23. Gasnault, O. ; **Mazoyer, J.** ; Cousin, A. et al. (**2012**), *Deciphering Sample and Atmospheric Oxygen Contents with ChemCam on Mars*, 43rd Annual Lunar and Planetary Science Conference, 2888, 1 citation

AUTRES ACTES DE CONFERENCES

1. Stadler, E. ; Schreiber, L. ; Cortecchia, F. et al. (**2024**), *Upgrading SPHERE with the second-stage adaptive optics system SAXO+: conceptual design of the opto-mechanical module*, Adaptive Optics Systems IX, 13097, 130976S, DOI link, 1 citation
2. Goulas, C. ; Galicher, R. ; Vidal, F. et al. (**2024**), *Upgrading SPHERE with the second stage AO system SAXO+: exploration of the parameter space with end-to-end numerical simulations*, Adaptive Optics Systems IX, 13097, 1309769, DOI link
3. Cantalloube, F. ; Christiaens, V. ; Cantero, C. et al. (**2024**), *Exoplanet imaging data challenge, phase II: comparison of algorithms in terms of characterization capabilities*, Adaptive Optics Systems IX, 13097, 1309713, DOI link, arXiv link
4. Potier, A. ; Riggs, A. J. E. ; Ruane, G. et al. (**2024**), *Revisiting the Borde-Traub focal plane wavefront estimation technique for exoplanet direct imaging*, Space Telescopes and Instrumentation 2024: Optical, Infrared, and Millimeter Wave, 13092, 130926E, DOI link

5. Savransky, D. ; Bailey, V. P. ; Wolff, S. G. et al. (**2024**), *The Nancy Grace Roman Space Telescope coronagraph community participation program*, Space Telescopes and Instrumentation 2024: Optical, Infrared, and Millimeter Wave, 13092, 130921I, DOI link, 2 citations
6. Millar-Blanchaer, M. A. ; Wang, J. ; Bogat, E. et al. (**2024**), *The Roman coronagraph community participation program: data reduction and simulations*, Space Telescopes and Instrumentation 2024: Optical, Infrared, and Millimeter Wave, 13092, 1309256, DOI link, 1 citation
7. Betti, S. ; Chen, C. ; Beck, T. et al. (**2024**), *Coronagraphic JWST/NIRCam Images of the 49 Ceti Debris Disk*, AASTCS10, Extreme Solar Systems V, 56, 623.04
8. Hom, J. ; Douglas, E. ; Anche, R. et al. (**2024**), *Searching for Signs of Earth-Like Planets: Demonstrating the Potential of the Roman-Coronagraph in Resolving Exozodiacal Dust and Debris Disk Substructures*, AASTCS10, Extreme Solar Systems V, 56, 623.02
9. Fowler, J. ; Haffert, S. Y. ; van Kooten, M. A. M. et al. (**2023**), *Visible extreme adaptive optics on extremely large telescopes: towards detecting oxygen in Proxima Centauri b and analogs*, Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 12680, 126801U, DOI link, arXiv link, 3 citations
10. Desai, N. ; König, L. ; Por, E. et al. (**2023**), *Integrated photonic-based coronagraphic systems for future space telescopes*, Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 12680, 126801S, DOI link, arXiv link, 2 citations
11. Béchet, C. ; Tallon, M. ; Thiébaut, E. et al. (**2023**), *Inverse problem approach for SPHERE+ adaptive optics control*, Adaptive Optics for Extremely Large Telescopes (AO4ELT7), 47, DOI link
12. Stadler, E. ; Diolaiti, E. ; Schreiber, L. et al. (**2023**), *Status report of the SAXO+ opto-mechanical design concept*, Adaptive Optics for Extremely Large Telescopes (AO4ELT7), 127, DOI link
13. Goulas, C. ; Vidal, F. ; Galicher, R. et al. (**2023**), *SAXO+ upgrade : second stage AO system end-to-end numerical simulations*, Adaptive Optics for Extremely Large Telescopes (AO4ELT7), 32, DOI link
14. Cantalloube, F. ; Christiaens, V. ; Cantero, C. et al. (**2022**), *Exoplanet imaging data challenge, phase II: characterization of exoplanet signals in high-contrast images*, Adaptive Optics Systems VIII, 12185, 1218505, DOI link, arXiv link, 1 citation
15. Boccaletti, A. ; Chauvin, G. ; Wildi, F. et al. (**2022**), *Upgrading the high contrast imaging facility SPHERE: science drivers and instrument choices*, Ground-based and Airborne Instrumentation for Astronomy IX, 12184, 121841S, DOI link, arXiv link, 4 citations
16. Potier, A. ; Wahhaj, Z. ; Galicher, R. et al. (**2022**), *Improving VLT/SPHERE without additional hardware: comparing quasi-static correction strategies*, Adaptive Optics Systems VIII, 12185, 1218568, DOI link, arXiv link
17. N'Diaye, M. ; Fogarty, K. ; Soummer, R. et al. (**2018**), *Apodized Pupil Lyot coronagraphs with arbitrary aperture telescopes: novel designs using hybrid focal plane masks*, Space Telescopes and Instrumentation 2018: Optical, Infrared, and Millimeter Wave, 10698, 106986A, DOI link, arXiv link, 2 citations
18. Soummer, R. ; Brady, G. R. ; Brooks, K. et al. (**2018**), *High-contrast imager for complex aperture telescopes (HiCAT): 5. first results with segmented-aperture coronagraph and wavefront control*, Space Telescopes and Instrumentation 2018: Optical, Infrared, and Millimeter Wave, 10698, 106981O, DOI link, arXiv link, 9 citations
19. Snik, F. ; Absil, O. ; Baudoz, P. et al. (**2018**), *Review of high-contrast imaging systems for current and future ground-based and space-based telescopes III: technology opportunities and pathways*, Advances in Optical and Mechanical Technologies for Telescopes and Instrumentation III, 10706, 107062L, DOI link, arXiv link, 4 citations
20. St. Laurent, K. ; Fogarty, K. ; Zimmerman, N. T. et al. (**2018**), *Apodized pupil Lyot coronagraphs designs for future segmented space telescopes*, Space Telescopes and Instrumentation 2018: Optical, Infrared, and Millimeter Wave, 10698, 106982W, DOI link, arXiv link, 4 citations
21. Jovanovic, N. ; Absil, O. ; Baudoz, P. et al. (**2018**), *Review of high-contrast imaging systems for current and future ground-based and space-based telescopes: Part II. Common path wavefront sensing/control and coherent differential imaging*, Adaptive Optics Systems VI, 10703, 107031U, DOI link, arXiv link, 16 citations
22. Leboulleux, L. ; Pueyo, L. ; Sauvage, J. -F. et al. (**2018**), *Sensitivity analysis for high-contrast imaging with segmented space telescopes*, Space Telescopes and Instrumentation 2018: Optical, Infrared, and Millimeter Wave, 10698, 106986H, DOI link, 3 citations

23. Egron, S. ; Soummer, R. ; Lajoie, C. -P. et al. (**2017**), *James Webb Space Telescope optical simulation testbed IV: linear control alignment of the primary segmented mirror*, Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 10398, 1039811, DOI link
24. Pueyo, L. ; Zimmerman, N. ; Bolcar, M. et al. (**2017**), *The LUVOIR architecture "A" coronagraph instrument*, Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 10398, 103980F, DOI link, 10 citations
25. Leboulleux, L. ; N'Diaye, M. ; Riggs, A. J. E. et al. (**2016**), *High-contrast imager for Complex Aperture Telescopes (HiCAT). 4. Status and wavefront control development*, Space Telescopes and Instrumentation 2016: Optical, Infrared, and Millimeter Wave, 9904, 99043C, DOI link, 9 citations
26. Debes, J. H. ; Ygouf, M. ; Choquet, E. et al. (**2015**), *WFIRST-AFTA Coronagraphic Operations: Lessons Learned from the Hubble Space Telescope and the James Webb Space Telescope*, Nancy Grace Roman Space Telescope Technical Report WFIRST-STScI-TR1504, WFIRST-STScI-TR1504
27. Galicher, R. ; Baudoz, P. ; Delorme, J. R. et al. (**2014**), *High contrast imaging on the THD bench: progress and upgrades*, Space Telescopes and Instrumentation 2014: Optical, Infrared, and Millimeter Wave, 9143, 91435A, DOI link, 3 citations
28. Delorme, J. R. ; Galicher, R. ; Baudoz, P. et al. (**2014**), *High-contrast imaging in wide spectral band with a self-coherent camera and achromatic coronagraphs*, Advances in Optical and Mechanical Technologies for Telescopes and Instrumentation, 9151, 91515Q, DOI link, 1 citation
29. Galicher, R. ; Delorme, J. R. ; Baudoz, P. et al. (**2013**), *Focal Plane Wavefront Sensing with a self-coherent camera*, Proceedings of the Third AO4ELT Conference, 123, DOI link

PAPIERS BLANCS (SELECTION)

- Boccaletti, A. et al. (**2020**), *SPHERE+: Imaging young Jupiters down to the snowline*, arXiv e-prints, arXiv:2003.05714
- Gaudi, B. S. et al. (**2020**), *The Habitable Exoplanet Observatory (HabEx) Mission Concept Study Final Report*, arXiv e-prints, arXiv:2001.06683
- The LUVOIR Team (**2019**), *The LUVOIR Mission Concept Study Final Report*, arXiv e-prints, arXiv:1912.06219
- **Mazoyer, J.** et al. (**2019**), *High-Contrast Testbeds for Future Space-Based Direct Imaging Exoplanet Missions*, Bulletin of the American Astronomical Society, 51, 101, arXiv:1907.09508

THESES

- Mazoyer, J. (2024) Optique active pour l'imagerie d'exoplanètes et de disques de débris. Thèse d'habilitation. Observatoire de Paris - PSL, HAL link - Defense Youtube link
- Mazoyer, J. (2014) Haut contraste pour l'imagerie directe d'exoplanètes et de disques : de la self-coherent camera à l'analyse de données NICI. Thèse de doctorat. Université Paris Diderot - Paris 7, DOI link