Brieuc Collet, PhD candidate in Astronomy

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PhD Candidate specialized in planetary wave-plasma instability using a data analysis approach of in situ radio and electron measurements and analytical modelization

Employment History

2022– 2025 **PhD in Astrophysics** Laboratory of Astrophysics of Marseille, Aix-Marseille University (France)
Thesis title: *Understanding the microphysics of Jovian radio auroral emissions with Juno space probe*
-Theory in plasma-wave instability in a magnetospheric context
-Development of code to analyze in situ measurements
-Comparative planetology between Jupiter, Saturn, and Earth emissions
Teaching 64h/yr: Physics practical courses and Mathematics tutorials

2022 **Master 2 Internship** Laboratory of Astrophysics of Marseille (France)
Subject: *Jovian radio auroral emissions: preliminary works to my PhD*

2021 **Master 1 Internship** LESIA, Observatory of Paris (France)
Subject: *Comparative study of auroral radio sources from Jupiter and Saturn*

Education

2021 – 2022 **Master's Degree Plasma Physics, Paris Saclay University**

2019–2020 **Bachelor's Degree of Fundamental Physics, Paris Saclay University**

2019 – 2022 **Magistère of Fundamental Physics, Paris Saclay University**
Supplementary diploma during Master and Bachelor for more class

Skills

Languages **English & French**: Strong reading, writing and speaking competences ; **Spanish**: Basics

Coding Proficiency in **Python**, Knowledge in **C++** and **IDL**

Astronomy Observation nights at Observatory of Haute Provence

Community Activities

2022–2025 **Laboratory's Sustainable Development Group Member**

Laboratory's Seminar Organizing Committee

2023–2025 **PhD Representative in Laboratory Council**

Organizing Committee in Festival d'Astronomie de Provence, Local astronomy outreach event

2025 **Local Organizing Committee** for Planetary, solar and heliospheric Radio Emissions X, Marseille France

Research Publications

Journal Articles

1. **Collet, B.**, Lamy, L., Louis, C. K., et al. 2025a. "In situ analysis of Jupiter's broadband kilometric auroral radio emissions with Juno". Under review.
2. Rabia, J., Hue, V., Louis, C.K., […], **Collet, B.**, et al. 2025b. "Callisto's auroral footprint revealed by a shift of Jupiter's main aurora". Under review.
3. **Collet, B.**, Lamy, L., Louis, C. K., et al. 2024a. "A New Type of Jovian Hectometric Radiation Powered by Monoenergetic Electron Beams". In: *Journal of Geophysical Research: Space Physics* 129.5. DOI: 10.1029/2024JA032422.
4. Heidari, N., Boisse, I., Hara, N. C., […], **Collet, B.**, et al. Jan. 2024. "The SOPHIE search for northern extrasolar planets: XIX. A system including a cold sub-Neptune potentially transiting a V = 6.5 star HD 88986". In: *Astronomy & Astrophysics* 681, A55. ISSN: 1432-0746. DOI: 10.1051/0004-6361/202347897.
5. Louis, C. K., Louarn, P., **Collet, B.**, et al. 2023b. "Source of Radio Emissions Induced by the Galilean Moons Io, Europa and Ganymede: In Situ Measurements by Juno". In: *Journal of Geophysical Research: Space Physics* 128.12, e2023JA031985. DOI: 10.1029/2023JA031985.
6. Al Saati, S., Clément, N., Louis, C., […], **Collet, B.**, et al. 2022. "Magnetosphere-Ionosphere-Thermosphere Coupling Study at Jupiter Based on Juno's First 30 Orbits and Modeling Tools". In: *Journal of Geophysical Research: Space Physics* 127.10, e2022JA030586. DOI: 10.1029/2022JA030586.

Conference Proceedings

1. **Collet, B.**, Lamy, L., Louis, C. K., et al. 2023a. "Characterization of Jovian hectometric sources with Juno: statistical position and generation by shell-type electrons". In: *Planetary, Solar and Heliospheric Radio Emissions IX*. Ed. by C. K. Louis, C. M. Jackman, G. Fischer, et al. DIAS and TCD. DOI: 10.25546/103095.

Conferences

Oral Presentations

2022 **Planetary, solar and heliospheric Radio Emissions IX**, Dublin, Ireland

2023 **Chapman on Advances in Understanding Alfvén Waves in the Sun and the Heliosphere**, Berlin, Germany

2024 **French National Prospective on Heliophysics (PNST)** , Marseille, France

Magnetosphere of Outer Planets , Minneapolis, USA

2025 **EGU General Assembly** , Vienna, Austria *Next April*

Planetary, solar and heliospheric Radio Emissions X, Marseille, France *Next June*

Poster Presentations

2022 **French national prospective on Heliophysics (PNST)** , Marseille, France

2024 **Astroradiofr24, French radio frequency astrophysics, towards SKA**, Paris