



Raphaël Wicker

Last occupied position

10/2020 – 09/2023  **PhD Student** Université Paris-Saclay, CNRS, Institut d'Astrophysique Spatiale, 91405, Orsay, France, Grant from the ED AAIF (Ecole Doctorale Astronomie et Astrophysique d'Ile de France)

Education

10/2020 – 09/2023  **Ph.D., Université Paris-Saclay** Astronomy and Astrophysics
Thesis title: *Baryon in galaxy clusters: astrophysical effects and cosmological constraints*
Defended on October 2nd 2023.

2018 – 2020  **Master's Degree, Université Paris-Saclay** Astronomy and Astrophysics
Thesis title: *Analysis of galaxy superclusters detected with SZ effect and observed with VLT/VIMOS*


2017 – 2020  **Magistère, Université Paris-Saclay** Fundamental Physics

2015 – 2018  **Bachelor, Université Paris-Sud** Fundamental Physics


Teaching

2020 – 2023  **Fundamental Concepts of the Universe** Optional teaching in 1st year of Bachelor. Total of 25h of tutorials + lectures

 **Thermodynamics** 1st year of Bachelor. Total of 72h of tutorials


 **Astronomy Experimental teaching** 1st year of Master. Total of 34h of experimental teaching


2020 – 2022  **Astronomy Experimental projects** 3rd year of Bachelor. Total of 20h of experimental teaching

 **Electromagnetic Waves** 2nd year of Bachelor. Total of 42h of tutorials


List of Publications

Journal Articles









1 **Wicker, R.**, Aghanim, N., Bonjean, V., Lecoq, E., Douspis, M., Burgarella, D., & Pointecouteau, E. (2023). A VLT/VIMOS view of two Planck multiple-cluster systems: Structure and galaxy properties. *Astronomy & Astrophysics*, 676, A61.  doi:10.1051/0004-6361/202346608. arXiv: 2304.03058 [astro-ph.CO]

2 **Wicker, R.**, Douspis, M., Salvati, L., & Aghanim, N. (2023). Constraining the mass and redshift evolution of the hydrostatic mass bias using the gas mass fraction in galaxy clusters. *Astronomy & Astrophysics*, 674, A48.  doi:10.1051/0004-6361/202243922. arXiv: 2204.12823 [astro-ph.CO]



Conference Proceedings

1 **Wicker, Raphaël**, Douspis, M., Salvati, L., & Aghanim, N. (2022). Constraining hydrostatic mass bias and cosmological parameters with the gas mass fraction in galaxy clusters. In *Mm universe @ nika2 - observing the mm universe with the nika2 camera* (Vol. 257, p. 00046).  doi:10.1051/epjconf/202225700046. arXiv: 2111.01490 [astro-ph.CO]




Contributed talks and posters

- 2023  *Observing the mm Universe with the NIKA2 Camera*, Grenoble, 26th-30th June 2023. **Talk**
- 2023  *Kickoff of the GDR Cosmological Physics*, Paris, 17th-19th January 2023. **Talk**
- 2022  *Conférence Elbereth des Doctorants en Astronomie et Astrophysique d'Ile de France*, Meudon, 23rd-25th March 2022. **Talk**
- 2022  *Galaxy Clusters 2022: Challenging Our Cosmological Perspectives*, Remote, 25th-29th April 2022. **Poster**
- 2022  *4th World Summit on Exploring the Dark Side of the Universe*, Saint-Gilles-les-Bains, 06th-12th November. **Talk**
- 2021  *Conférence Elbereth des Doctorants en Astronomie et Astrophysique d'Ile de France*, Remote, 8th-12th February 2021. **Talk**
- 2021  *Observing the mm Universe with the NIKA2 Camera*, Remote, 28th June-2nd July 2021. **Talk**
- 2021  *1st KIAA Forum on Gas in Galaxies for Early Career Scientists*, Remote, 1st-5th November 2021. **Poster**




Invited talks and seminars

- 2023  *Séminaire API Galaxies et Grandes Structures*, Remote, March 30th 2023. **Seminar, invited by LUTH**
- 2023  *PhD Seminar*, Laboratoire Astroparticules et Cosmologie (APC), Paris, April 20th 2023. **Seminar**






Skills

- Languages  French (mother tongue), English (C1), Spanish (A2), Swedish (A2)
- Coding  Python, \LaTeX , C, C++, SQL, Notions of Fortran90
- Computational skills  Statistical data analysis including bayesian inference, optical data reduction (spectroscopy, photometry), machine learning (notions).

Grants and awards

- 2022  Young researchers call for abstracts accepted in the Exploring the Dark Side of the Universe (EDSU2022) Conference
- 2020  Grant from the Ecole Doctorale Astronomie et Astrophysique d'Ile de France (ED127) for the completion of the PhD
- 2019  Erasmus+ scholarship for a 13 weeks internship in Gothenburg, Sweden

Public outreach

- 2022 –  **Streaming sessions on Twitch**, discussion on general astrophysics and cosmology
- 2022  **EDSU2022 Conference** : 3 meetings with high school and middle school students for an introduction to cosmology
- 2022  **Fête de la Science** in IAS, Orsay and LUTH, Meudon
- 2022  **Festival "Du Big Bang aux Big Bands"** 15 min interview on the gas fraction of galaxy clusters
- 2021  **Introduction to cosmology for middle school students**

Public outreach (continued)

- 2020 **📖** "An introduction to cosmology" Conference for the student astronomy association ALCOR
- 2019 **📖** "PKSong 1830-211: Comment j'ai fait chanter un quasar" Conference describing a musical project using molecular absorber data, for the astronomy association ALCOR
- 2018–2020 **📖** Strong implication in the astronomy association ALCOR as vice-president and president. Partook in organizing and giving talks, as well as animating amateur astronomical observations

Miscellaneous Experience

Certification

- 2019 **📖** TOEIC. Awarded by Universite Paris-Saclay. 965/990