

# THIBAUT LOUIS

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## RESEARCH

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2017–present	CNRS permanent researcher, Laboratoire de Physique des 2 Infinis Irène Joliot Curie
2015–2017	Post-doctoral Research Fellow, Institut Astrophysique de Paris with Prof Joseph Silk
2014–2015	Post-doctoral Research Fellow, Oxford University with Prof Joanna Dunkley

## EDUCATION

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2011–2014	University of Oxford, Department of Astrophysics and Christ Church College; PhD in Astrophysics; Advisor: Joanna Dunkley
2010	Master in Theoretical Physics, Ecole Normale Supérieure de Lyon

## MAJOR COLLABORATIONS

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2018–present	Lead of the power spectrum and likelihood group of Simons Observatory
2016–present	Member of the Simons Observatory collaboration
2011–present	Member of the ACT collaboration (ACT/ACTPol/AdvACT)

## SUPERVISION OF STUDENTS AND POSTDOCS

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Post-doc	Hiroaki Imada (2018–2020)
Thesis	Adrien La Posta (2020–2023), I acted as co-supervisor for Sylvain Vanneste (2016–2019)
Undergrad	Adam Soussana (2018), Magdy Morshed (2018)

## PUBLIC CODES

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All the codes I have written are in the public domain, some of them can be accessed on my [github](#), others on the Simons Observatory [github](#). Here is an non exhaustive list of codes for which I have important contributions

1. I am the main developer of [pspy](#), a public code allowing to estimate power spectra (and pure power spectra) of angular maps with Healpix and CAR pixellisation as well as their associated analytical covariance matrices. The code also implements the Toeplitz approximation that we have proposed in [this paper](#).
2. I am the main developer of [PSpipe](#), a pipeline generator allowing to reproduce the most recent ACTPol and Planck results.
3. I am one of the main developer of [mflike](#), which implements the multifrequency likelihood of the forthcoming Simons Observatory experiment.

## PUBLICATIONS

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At the time of writing this CV, I have authored 75 publications, a list can be accessed on [arXiv](#). Some highlighted ones follow

1. I have led the power spectrum analysis of the first and second year of ACTPol data, resulting in [this paper](#) with over 100 citations, the data release corresponding to this paper can be accessed on [LAMBDA](#).
2. I have led the data comparison between from the ACT experiment and the Planck experiment resulting in [this paper](#) demonstrating the agreement between the ground and space experiments.
3. I have studied in details what physical information can be obtained from clusters of galaxies using the next generation of ground based CMB experiments, resulting in the publication of few papers on: [Cluster lensing](#), [kSZ effect](#), [pSZ effect](#)

## TEACHING, OUTREACH AND INSTITUTIONAL RESPONSIBILITIES

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2022–present	Member of the scientific council DIM Universe
2022–present	Lectures on "Cosmology of the dark Universe" Université Paris Saclay.
2021–present	Lectures on "Statistical methods for cosmology" Euclid summer school.
2021–present	Coordinator of the transverse groups "Flavor" and "Cosmology" at IJCLab.
2013–present	I am a regular referee for Physical Review D and Physical Review Letters .
2013–present	Participation to numerous outreach events: stargazing at Oxford, "Fete de la science" at IAP and LAL
2018–2020	Organisation of Seminars, Laboratoire de l'Accélérateur Linéaire
2015–2017	Founder and co-organiser of Cosmology Coffee, Institut Astrophysique de Paris
2015–2017	Postdoc representative for the Laboratory Council, Institut Astrophysique de Paris
2013–2014	Tutorials for the 3rd year course : General Relativity and Cosmology, Oxford University

## TALK AND SEMINARS

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Below is a list of recent talks and seminars

2021	Power spectrum from the latest AdvACT data, talk at Princeton University (remote)
2019–2020	The Simons Observatory Power Spectrum Pipeline, talk at Berkeley University and Princeton University
2019	Hunting for new physics with the Simons Observatory, seminar given at IAP and LPNHE (the seminar has been recorded: <a href="#">youtube</a> )
2018	Physics with the next generation Ground Based CMB experiments, talk at IAP, MITP Workshop, PNCG
2016–2017	ACTPol results and prospects for CMB S4, seminar given at LAL, IAP, APC, LPNHE and Cambridge
2016	Reconstructing cosmic growth with kSZ observations, talk at IAP and l'APC
2016	Gravitational lensing and cross-correlation, talk at l'Instituto de Física Teórica Madrid
2015	Measuring the effect of clusters on the CMB sky, talk at IAP
2015	ACTPol power spectra, talk at Princeton University, Oxford University

## REFERENCES

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1. Prof Joanna Dunkley, [jdunkley@princeton.edu](mailto:jdunkley@princeton.edu)
2. Prof Lyman Page, [page@princeton.edu](mailto:page@princeton.edu)
3. Prof Joseph Silk, [silk@iap.fr](mailto:silk@iap.fr)
4. Prof David Spergel, [dns@astro.princeton.edu](mailto:dns@astro.princeton.edu)