



# Yann Gouttenoire

## Curriculum Vitae

All the items in *dark blue* contain *hyperlinks*

### Scientific employment

- Feb. 2026 **CNRS researcher**, *Institut d'Astrophysique de Paris (IAP)*.  
Chargé de recherche au CNRS au sein de l'équipe GReCO ([link](#))
- Oct. 2024 - **Postdoc**, *Mainz University*.
- Jan. 2026 MITP Senior Postdoctoral Fellowship ([link](#))
- Jan. 2021 - **Postdoc**, *Tel Aviv University*.
- Sept. 2024 International Postdoctoral Fellowship funded by the [Azrieli Foundation](#) for three years (the first nine months funded by Tel Aviv University).
- Oct. 2020 - **Postdoc**, *DESY*.
- Dec. 2020 Start of postdoc in Tel Aviv U. initially planned in October 2020 delayed due to COVID-19 pandemic.

### Education

- Sept. 2017 - **PhD**, *DESY, Uni Hamburg, Germany*, Supervisors : Prof. Geraldine Servant and Dr. Filippo Sala, Title : 'Heavy Dark Matter : Models and Methods of Detection beyond the Standard Paradigm', Oral defense completed with '[Summa Cum Laude](#)' on 30 September 2020.  
Thesis published as a textbook by Springer, reviewing the main open problems in particle cosmology : [Beyond the Standard Model Cocktail](#) ([arxiv link](#))
- Sept. 2016 - **Master 2nd year Theoretical Physics**, *École Normale Supérieure (ENS) Ulm*,  
July 2017 *Paris*, Passed 15 courses (9 required), Quantum Field Theory grade : 20/20 (Prof : Adel Bilal).
- Sept. 2015 - **Préparation for agrégation de Physique-Chimie**, *ENS Paris-Saclay*, 1 year to review all the physics curriculum up to the third year of Bachelor ended by the national 'concours d'Agrégation', Rank : [9/91](#).
- Sept. 2013 - **Magistère of Fundamental Physics in Orsay (Bachelor 3rd year and Master 1st year)**, *University Paris-Sud 11 in Orsay*, Jury's congratulations, Rank : [1/92](#).

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## Honors & Awards

- 2025 **CNRS Section 02, Theoretical Physics**, *CNRS*, France, *Hired* as Chargé de recherche (CR) ([slides](#)).
- 2025–2027 **MITP Senior Postdoctoral Fellowship**, *Johannes Gutenberg University Mainz*, Mainz, Germany, Awarded 36-month fellowship by [MITP](#); research funds : 30k; pay grade : EG15.
- 2024 **Chaire de Professeur Junior (CPJ) in LPTHE**, *Sorbonne Université*, Paris, France, Shortlisted; ranked 2<sup>nd</sup> (1 position available) ([slides](#)).
- 2024 **CNRS Section 02, Theoretical Physics**, France, Shortlisted; ranked 6<sup>th</sup> (5 positions available) ([slides](#)).
- 2021–2024 **International Postdoctoral Fellowship**, *Tel Aviv University*, 3 years, awarded by [the Azrieli Foundation](#), Amount : (145+15)K for 3 years (salary+research funds, after tax) ([slides](#)).
- 2017–2020 **PIER Seed Project funding**, Title : ‘[Dark Matter at 10 TeV and beyond, a new goal for cosmic-ray experiments](#)’, Grant that promotes creative and unusual research ideas involving researchers from both DESY and Universität Hamburg providing funds for travel, guest programme and workshop organisation. PI : Dr. Filippo Sala, Amount : 16K.
- Summer 2017 **PhD Scholarship**, *DESY, Hamburg*, 3 years, awarded by DESY, Amount : 50K for 3 years (after tax).
- Summer 2017 **PhD Scholarship ‘Allocataire normalien’**, *ENS Paris-Saclay*, 3 years, awarded by ENS Paris-Saclay (Declined).
- Summer 2016 **Agrégation de Physique-Chimie**, *Ministère de l’éducation nationale*, Nationwide examination for high-level professorship positions up to Bachelor level in Physics.
- Sept. 2015 – Aug. 2017 **Two-year scholarship at ENS Paris-Saclay**, A two-year study program funded by Ecole Normale Supérieure Paris-Saclay (as a "fonctionnaire-stagiaire"). Amount : 35K for 2 years (after tax)

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## Academic teaching

- Summer 2019 **TA in Theoretical Cosmology**, *Hamburg University*, Master level.  
[22 hours tutorial](#) + exercise sheet grading, lectures by Prof. Geraldine Servant
- Winter 2018/2019 **TA in Advanced Quantum Mechanics 2**, *Hamburg University*, Master level.  
[45 hours tutorial](#), lectures by Prof. Gleb Arutyunov
- Summer 2018 **TA in Quantum Field Theory 2**, *Hamburg University*, Master level.  
[33 hours tutorial](#), lectures by Prof. Gleb Arutyunov
- Winter 2017/2018 **TA in Quantum Field Theory 1**, *Hamburg University*, Master level.  
[35 hours tutorial](#), lectures by Prof. Gleb Arutyunov
- 2014/2015 **TA in Electromagnetism**, *University Paris-Sud 11*, Orsay, Bachelor level.  
[18 hours tutorial](#) (students with difficulties only), lectures by Prof. Khuôn-Việt Pham

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## Lecturing

*Title in bold contains hyperlink*

26-31 August **BSM in the sky**, *COST Summer school on BSM particle physics and cosmology*,  
2019 *Ljubljana, Slovenia*, Doctoral level.  
I gave 4 hours of tutorial ([exercises sheets](#) + [corrections](#)), lectures by Dr. Filippo Sala

## Supervision

Starting from **Supervision of a Master student**, *IAP*, I am supervising Clémentine Conegero for  
April. 2026 her master thesis on 'Probing New Physics interpretation of the PTA signal with  
microlensing'.  
Since Oct. **Co-supervision of a Master student**, *MITP, Mainz University*, Together with  
2025 Prof. Pedro Schwaller, I am co-supervising Diego Fortini for his master thesis on  
'Evolution of isocurvature perturbations during the Early Universe'.  
Since Oct. **Co-supervision of a PhD student**, *MITP, Mainz University*, Together with Prof.  
2024 Pedro Schwaller, I am co-supervising Nicholas Leister for his PhD thesis on 'Probing  
Evaporating Primordial Black Holes with Gravitational Waves'.  
Sept. 2018 - **Co-supervision of a Master student**, *DESY*, Together with Prof. Geraldine Ser-  
Aug. 2019 vant, I co-supervised Peera Simakachorn for his 1-year master thesis on 'Probing  
Particle Theory with Primordial Gravitational Waves'.

## Outreach

August 1, **Radio Bastides**, *Radio*, interviewed by Aurélia Zahedi, Title : "Un fond diffus  
2023 d'ondes gravitationnelles provenant de trous noirs colossaux" ([link](#)) .  
January 5, **Neot Semadar retreat**, *Neot Semadar Kibbutz, Israel*, 1 hour public-talk, Title :  
2023 'Listening to the universe : from Black Holes to the God Particles'.  
In front of the collective community of Kibbutz Neot Semadar (100 people) ([slides](#))  
October 20, **Mitzpe Ramon retreat**, *Mitzpe Ramon crater, Israel*, 10 minutes Ted Talk, Title :  
2022 'Hearing space-time vibration to understand mass'.  
Prize awarded for best postdoc talk ([slides](#))  
September 6, **Aperio Magazine**, *Outreach article*, written by science journalist Dan Falk, Title :  
2022 'Cosmological Archaeology' ([article](#)).  
June 11, **Channel 'Du Neuf Docteur ?'**, *YouTube*, 5 minutes , Title : 'Je suis devenu accro  
2022 à la physique' ([link](#)).  
June 4, 2022 **Channel 'Du Neuf Docteur ?'**, *YouTube*, 5 minutes , Title : 'Lébullition du champ  
de Higgs dans l'univers primordial' ([link](#)).  
May 28, 2022 **Channel 'Du Neuf Docteur ?'**, *YouTube*, 5 minutes , Title : 'Qu'est-ce que le  
boson de Higgs?' ([link](#)).  
Avril 26, **Azrieli Ted Talk**, *Tel Aviv, Israel*, 10 minutes, Title : 'A simple experiment to do  
2022 at home to show that Higgs field exists' ([YouTube](#)).  
August 22, **Semaine extraordinaire**, *Bias, France*, 90-minute public-talk + 30-minute ques-  
2020 tion in a [2-week workshop](#) taking place in a French Castle (100 people), Title :  
'Astronomie avec ondes gravitationnelles' ([Keynote](#) + [pdf](#)).

## Invited seminars

*Seminars listed below are invited talks organised outside workshops and conferences*

*Slides can be accessed by clicking on titles*

- November 18, 2025 **Seminar in NYU Abu Dhabi, UAE**, Gravitational Probes of the Early Universe, in-person.
- October 24, 2025 **Seminar in ULB, Brussel, Belgium**, Gravitational Probes of the Early Universe, in-person.
- October 20, 2025 **Seminar in NICPB, Tallinn, Estonia**, Gravitational Probes of the Early Universe, in-person.
- May 12, 2025 **Seminar GReCO in IAP, Paris, France**, New Physics Explanations of PTA signal are incompatible with WIMPs Dark Matter, in-person.
- May 7, 2025 **Seminar in LUPM, Montpellier, France**, Probing the Early Universe through Space-Time Perturbations, in-person.
- April 28, 2025 **Seminar in LPTHE, Paris, France**, Probing the Early Universe through Space-Time Perturbations, in-person.
- April 17, 2025 **Seminar in LAPTh, Annecy, France**, WIMPs and New Physics Interpretations of the PTA Signal are Incompatible , in-person.
- April 9, 2025 **Seminar in Florence Theory Group, Florence, Italy**, WIMPs and New Physics Interpretations of the PTA Signal are Incompatible , in-person.
- April 8, 2025 **Seminar in Bologna U., Bologna, Italy**, WIMPs and New Physics Interpretations of the PTA Signal are Incompatible , in-person.
- July 21 2024 **Seminar in Bar-Ilan U., Ramat Gan, Israel**, *The Hidden Link between Pulsar Timing Arrays and LIGO*, in-person.
- April 23 2024 **Theorie Palaver Seminar in MITP, Mainz**, *Primordial Black Holes from super-cooled phase transition*, in-person.
- April 17 2024 **Cosmo Coffee Seminar in CERN, Geneva**, *Primordial Black Holes from super-cooled phase transition*, in-person.
- February 13 2024 **Seminar in KIT, Karlsruhe**, *Primordial Black Holes and Wormholes from Domain Wall Networks*, in-person.
- February 9 2024 **Seminar in SHEP, Southampton, UK**, *Primordial Black Holes and Wormholes from Domain Wall Networks*, in-person.
- January 29 2024 **Seminar in DESY, Hamburg**, *Primordial Black Holes and Wormholes from Domain Wall Networks*, in-person.
- January 22 2024 **Seminar in ENS in Paris**, *Primordial Black Holes and Wormholes from Domain Wall Networks*, in-person.
- December 10 2023 **Seminar in L2C in Montpellier, France**, *PBH from domain wall networks : motivated by PTA signal*, in-person.
- November 30 2023 **Seminar in ENS in Paris**, *PBH from domain wall networks : motivated by PTA signal*, in-person.

- June 27 2023 **Seminar in VUB in Brussels, France**, *Primordial black holes from supercooled first-order phase transition*, in-person.
- May 25 2023 **Seminar in ENS in Paris**, *Primordial black holes from supercooled first-order phase transition*, in-person.
- May 23 2023 **Seminar in IPhT in Paris**, *Primordial black holes from supercooled phase transitions*, in-person.
- May 22 2023 **Seminar in APC in Paris**, *Primordial black holes from supercooled phase transitions*, in-person.
- April 17 2023 **Seminar in Technion U. in Haifa, Israel**, *Primordial black holes from supercooled first-order phase transition*, in-person.
- January 31 2023 **Seminar in ICTP in Trieste, Italy**, *Primordial black holes from supercooled first-order phase transition*, in-person.
- October 30 2022 **Seminar in Hebrew U. in Jerusalem, Israel**, *Primordial black holes from supercooled first-order phase transition*, in-person.
- June 8 2022 **Seminar in LPTHE in Paris**, *Primordial black holes from supercooled first-order phase transition*, in-person.
- June 13 2022 **Seminar in LAPTH in Annecy, France**, *Primordial black holes from supercooled first-order phase transition*, in-person.
- November 29, 2021 **Joint Particle Seminar, Tel Aviv, Israel**, *Charting new particle physics with primordial GWs*, in-person.
- June 20, 2021 **Seminar in Hebrew U. in Jerusalem, Israel**, *Cosmological consequences of supercooled confining phase transition*, in-person.
- March 17, 2021 **Virtual seminar in Helsinki, Finland**, *Cosmological consequences of supercooled confining phase transition*, online.
- July 7, 2020 **Webminar at Mainz, Mainz, Germany**, *Beyond the Standard Models with Cosmic Strings*, online.
- May 21, 2020 **Webminar at Tel Aviv University, Tel Aviv, Israel**, *Beyond the Standard Models with Cosmic Strings*, online.
- March 24, 2020 **Webminar at APC, Paris**, *Beyond the Standard Models with Cosmic Strings*, online.
- September 23, 2019 **Seminar at Tel Aviv University, Tel Aviv, Israel**, *Implication of Supercooling in Composite Higgs*, in-person.
- September 9, 2019 **Seminar at Weizmann University, Rehovot, Israel**, *Implication of Supercooling in Composite Higgs*, in-person.
- June 12, 2019 **Seminar at LPTHE, Paris**, *Implication of Supercooling in Composite Higgs*, in-person.
- May 28, 2019 **Theory Workshop Seminar, DESY**, *Semi-classical objects in QFT : Cosmic strings*, in-person.
- January 9, 2018 **Theory Workshop Seminar, DESY**, *Cosmological relaxation à la Abbott and Brown-Teitelboim*, in-person.

## Talks at workshops and conferences

Slides can be accessed by clicking on titles

- November 4, 2025 **IFPU workshop "Primordial Black Holes in the Multi-Messenger Era"**, Trieste, Italy, PBHs from Domain Walls and First-Order Phase Transitions, in-person.
- October 15, 2025 **TUG workshop "Theorie, Univers et Gravitation"**, IPhT, Saclay, France, New Physics Explanations of PTA signal are incompatible with WIMPs Dark Matter, in-person.
- October 2, 2025 **New Physics from Galaxy Clustering at GGI**, Florence, Italy, Gravitational probes of the Early Universe, in-person.
- June 25, 2025 **Workshop on GWs from BSMs**, Warsaw, Poland, New Physics Explanations of PTA signal are incompatible with WIMPs Dark Matter, in-person.
- June 4, 2025 **Workshop on Gravitational Probes of the Early Universe**, King's College London, UK, WIMPs and New Physics Interpretations of the PTA Signal are Incompatible, in-person.
- February 6, 2025 **ICTS workshop on BSM and GWs**, Annecy, France, Cosmological Perturbations Theory of First-order Phase Transitions, in-person.
- January 1, 2025 **ICTS workshop on BSM and GWs**, Bengaluru, India, Baby Universe from Domain Wall Networks, online.
- October 10, 2024 **IFPU workshop "Fun with the phases of the Universe"**, Trieste, Italy, Bubble wall velocity during Yang-Mills confinement, in-person.
- February 1, 2024 **COST Action COSMIC WISPerS**, Desy, Hamburg, Gravitational waves from BSM sources and pulsar timing arrays, in-person.
- January 25, 2024 **Rencontres de Physique des Particules 2024**, Paris, Primordial Black Holes from Domain Wall Networks and the discovery of nHz GWs, in-person.
- November 28, 2023 **Paris workshop on PBHs and GWs**, Paris, Primordial Black Holes from supercooled phase transitions, in-person.
- October 3, 2023 **Rubakov conference 2023**, Yerevan, Armenia, Primordial Black Holes from supercooled phase transitions, in-person.
- September 27, 2023 **Axion++ 2023**, LAPTH, Annecy, PBH from domain wall networks motivated by PTA signal, in-person.
- September 20, 2023 **Early Universe cosmology with Gravitational Waves and Primordial Black Holes**, Warsaw U., Poland, PBH from phase transitions, in-person.
- July 5, 2023 **COST ACTION CA21106 Seminars**, CERN, Geneva, The domain wall interpretation of PTA signal is excluded by PBH overproduction, online.
- April 3, 2023 **IPS annual meeting 2023**, Tel Aviv, Israel, Primordial black holes from supercooled first-order phase transition, in-person.
- October 10, 2022 **IFT workshop 2022**, Madrid, Spain, Primordial black holes from supercooled first-order phase transition, in-person.
- August 5, 2022 **Cambridge High Energy Workshop 2022**, Harvard, Boston, Cosmological implications of supercooled phase transitions, in-person.

- June 23, 2022 **Fundamental forces from colliders to gravitational waves**, *Lyon, France*, Charting new particle physics with primordial gravitational waves, in-person.
- June 1, 2022 **Planck 2022**, *Paris*, Charting new particle physics with primordial gravitational waves, in-person.
- May 26, 2022 **Blois 2022**, *Blois, France*, Primordial black holes from supercooled first-order phase transition, in-person.
- August 27, 2021 **SUSY 2021**, *Shanghai*, Cosmological Implications of Supercooled Confinement, online.
- July 27, 2021 **EPS-HEP 2021**, *Berlin*, String Fragmentation in Supercooled Confinement and implications for Dark Matter, online.
- June 15, 2021 **Pascos 2021**, *Daejeon*, String Fragmentation in Supercooled Confinement and implications for Dark Matter, online.
- May 5, 2021 **First EuCAPT Annual Symposium**, *CERN, Geneva*, String fragmentation in supercooled confinement and implications for dark matter, online.
- March 25, 2021 **HPNP 2021**, *Tokyo*, String Fragmentation in Supercooled Confinement and implications for Dark Matter, online.
- February 22, 2021 **Annual Israeli Physics Society Conference 2021**, *Israel*, Supercool Dilaton-Mediated Composite Dark Matter, online.
- November 4, 2020 **Israeli Joint Particle Physics Meetings 2020-2021**, *Israel*, String Fragmentation in Supercooled Confinement and implications for Dark Matter, online.
- April 7, 2020 **89th PRC Theory meeting**, *DESY*, Beyond the Standard Models with Cosmic Strings, online.
- February 14, 2020 **New Directions in Heavy Dark Matter**, *DESY*, Supercool Composite Dark Matter, in-person.
- January 31, 2020 **COST workshop : Probing BSM physics at different scales**, *Berlin, Germany*, Beyond the Standard Models with Cosmic Strings, in-person.
- June 3, 2019 **Planck 2019 Conference**, *Granada, Spain*, Implication of Supercooling in Composite Higgs, in-person.
- May 16, 2019 **14th Kosmologietag Workshop**, *Bielefeld, Germany*, Implication of Supercooling in Composite Higgs, in-person.
- April 10, 2019 **Light scalars : origin, cosmology, astrophysics, and experimental probes Workshop**, *Benasque, Spain*, Implication of Supercooling in Composite Higgs, in-person.
- February 14, 2019 **Helmholtz "Matter and Universe" Workshop**, *DESY*, Homeopathic Dark Matter, in-person.
- October 30, 2018 **PuzzleDarkMatter Workshop**, *DESY*, Thermal Dark Matter beyond 100 TeV and Cosmic Rays, in-person.
- September 27, 2018 **DESY Theory Workshop 18**, *DESY*, Thermal Dark Matter beyond 100 TeV and Cosmic Rays, in-person.
- July 17, 2018 **Cargese Summer School**, *Corsica, France*, Thermal Dark Matter Beyond 10/100 TeV , in-person.

## Workshop organization

*Titles in bold contain hyperlinks*

- 20 - 31 July **MITP Scientific Program 2026**, Mainz, Germany, The Phenomenology of Primordial Black Holes, co-organizer with Michael Baker (Univ. Massachusetts Amherst), Christian Byrnes (Univ. Sussex), Joaquim Iguaz Juan (Univ. Massachusetts Amherst), Andrea Thamm (Univ. Massachusetts Amherst).

## Seminar organization

*Titles in bold contain hyperlinks*

- Feb 2025 - **Theory Palaver seminar**, Mainz, Germany, co-organizer of the MITP Theory group  
Feb 2026 weekly seminar (THEP group) for two semesters with Antonela Matijasic, Marco Fedele, and Upalaparna Banerjee.

## Referees

*The researchers listed below have written recommendation letters for me and can be contacted for further information :*

- o Geraldine Servant (DESY, Hamburg, geraldine.servant@desy.de),
- o Filippo Sala (LPTHE, Paris, filo.sala@gmail.com),
- o Tomer Volansky (TAU, Tel Aviv, tomer.volansky@gmail.com),
- o Michael Geller (TAU, Tel Aviv, micgeller@tauex.tau.ac.il),
- o Michel Tytgat (ULB, Brussels, mtytgat@ulb.ac.be),
- o Thomas Konstandin (DESY, Hamburg, thomas.konstandin@desy.de),
- o Eric Charron (University Paris-Sud, Orsay, Eric.Charron@u-psud.fr).

## Summer schools as a participant

*Titles in bold contain hyperlinks*

- Summer 2019 **MITP Summer School 2019**, Mainz, Germany, Non-perturbative Phenomena and the Early Universe.  
- 3 weeks
- Summer 2018 **Cargese International Summer School**, Corsica, France, Mass : from the Higgs to Cosmology.  
- 2 weeks
- May 2018 **Higgs Centre School of Theoretical Physics 2018**, Edinburgh, Scotland, State of the art of Physics BSM, EFT approach to gravitational dynamics.  
- 1 week

## Research experiences as an undergraduate

- April/June **Internship in Theoretical Physics**, LPTHE, Paris, Model-building and phenomenology of heavy thermal dark matter beyond the unitarity bound.  
2017 Supervised by Dr. Filippo Sala - 12 weeks long ([report](#))
- April/July **Internship in Numerical Physics**, Max Born Institut, Berlin.  
2015 C++ object-oriented programming - Ionization by femtosecond strong laser pulse - 13 weeks long - Supervised by Prof. Eric Charron and Prof. Misha Ivanov ([report](#))
- May/July **Internship in Celestial Mechanics**, IMCCE - Observatory of Paris.  
2014 Quasi-integrable Hamiltonian theory far from resonances - 6 weeks long - Supervised by Dr. Gwenaél Boué and Prof. Laurent Niederman ([report](#))

## Language skills

- French : mother tongue   - English : fluent   - German : B1/B2

## Computer skills

Mathematica, C++, Python, Fortran, Bash, OpenMP, Gnuplot, Qt, GitHub,  $\LaTeX$ , MadGraph, Pythia, MadAnalysis, FeynRules, FeynCalc, Package-X, CLASS, MontePython, AlterBBN, enterprise, enterprise\_extension, PTMCMC, PTArcade, GetDist

## Interests

- |                                                                                            |                                                                                            |
|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| - Hiking ( <a href="#">1</a> , <a href="#">2</a> , <a href="#">3</a> , <a href="#">4</a> ) | - Climbing ( <a href="#">1</a> , <a href="#">2</a> )                                       |
| - Cardio-training ( <a href="#">1</a> , <a href="#">2</a> )                                | - Biking ( <a href="#">1</a> , <a href="#">2</a> , <a href="#">3</a> , <a href="#">4</a> ) |
| - Psychology                                                                               | - Philosophy                                                                               |
| - Piano                                                                                    | - Theatre                                                                                  |

## Miscellaneous

- Birthdate : 23/07/1993   - Driver license : yes