



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, Paris*, Passed 15 courses (9 required), Quantum Field Theory grade : 20/20 (Prof : Adel Bilal).
- Sept. 2015 - **Preparation 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](#).

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 2nd (1 position available) ([slides](#)).
- 2024 **CNRS Section 02, Theoretical Physics**, France, Shortlisted; ranked 6th (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 - **Two-year scholarship at ENS Paris-Saclay**, A two-year study program funded by
Aug. 2017 *Ecole Normale Supérieure Paris-Saclay* (as a "fonctionnaire-stagiaire").
Amount : 35K for 2 years (after tax)

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

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 lunivers 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 **Webinar at Mainz, Mainz, Germany**, *Beyond the Standard Models with Cosmic Strings*, online.
- May 21, 2020 **Webinar at Tel Aviv University, Tel Aviv, Israel**, *Beyond the Standard Models with Cosmic Strings*, online.
- March 24, 2020 **Webinar 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 :

- Geraldine Servant (DESY, Hamburg, geraldine.servant@desy.de),
- Filippo Sala (LPTHE, Paris, filo.sala@gmail.com),
- Tomer Volansky (TAU, Tel Aviv, tomer.volansky@gmail.com),
- Michael Geller (TAU, Tel Aviv, micgeller@tauex.tau.ac.il),
- Michel Tytgat (ULB, Brussels, mtytgat@ulb.ac.be),
- Thomas Konstandin (DESY, Hamburg, thomas.konstandin@desy.de),
- 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 2017 **Internship in Theoretical Physics**, LPTHE, Paris, Model-building and phenomenology of heavy thermal dark matter beyond the unitarity bound.
Supervised by Dr. Filippo Sala - 12 weeks long ([report](#))
- April/July 2015 **Internship in Numerical Physics**, Max Born Institut, Berlin.
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 2014 **Internship in Celestial Mechanics**, IMCCE - Observatory of Paris.
Quasi-integrable Hamiltonian theory far from resonances - 6 weeks long - Supervised by Dr. Gwenaël 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 (1, 2, 3, 4)
- Cardio-training (1, 2)
- Psychology
- Piano
- Climbing (1, 2)
- Biking (1, 2, 3, 4)
- Philosophy
- Theatre

Miscellaneous

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