



# Yann Gouttenoire

## Curriculum Vitae

All the items in *dark blue* contain hyperlinks

### Scientific employment

- Dec. 2020 - **Postdoc**, *Tel Aviv University (TAU)*.
- Oct. 2023(4) Founded by Tel Aviv University for the first year and by the Azrieli Foundation for the next two years, with a possibility of one additional year extension.

### 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 on 30 September 2020. Received the highest distinction of the Hamburg university : '[Summa Cum Laude](#)', [Link to the Thesis manuscript \(422 pages\)](#).
- Sept. 2016 - **Master 2nd year Theoretical Physics**, *École Normale Supérieure (ENS) Ulm, Paris*, Passed 15 courses (9 required), Quantum Field Theory grade : 20/20.
- 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'.
- Sept. 2013 - **Magistère of Fundamental Physics in Orsay (Bachelor 3rd year and Master 1st year)**, *University Paris-Sud 11 in Orsay*, Jury's congratulations, Overall average mark : 18/20, Rank : 1/92.

### Awards

- 2021-2023(4) **International Postdoctoral Fellowship**, *Tel Aviv University*, 2+1 years, awarded by [the Azrieli Foundation](#) (Accepted).
- 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. In partnership with Dr. Filippo Sala.

- Summer 2017 **PhD Scholarship**, *DESY, Hamburg*, 3 years, awarded by DESY (Accepted).
- 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*, The most competitive nationwide examination for high-level professorship positions up to Bachelor level in Physics, Number of applicants : [1508](#), National rank : [9e](#).  
three written exams + three 60-minute-oral lessons chosen randomly among [a list of 113](#).
- Sept. 2015 - **Two-year scholarship at ENS Paris-Saclay**, A two-year study program founded  
Aug. 2017 by Ecole Normale Supérieure Paris-Saclay (nationwide annual examinations) - one of the most selective and prestigious graduate schools in France and [14th in ShanghaiRanking](#).

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

## 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.  
4 hours tutorial ([exercises sheets](#) + [corrections](#)), lectures by Dr. Filippo Sala

## Supervision

- Sept. 2018 - **Co-supervision of a master student**, *DESY*, Together with Prof. Geraldine Servant, I co-supervised Peera Simakachorn during his 1-year master thesis on 'Probing Particle Theory with Primordial Gravitational Waves'.

## Outreach

- August 22, 2020 **Semaine extraordinaire - Maison Auriolles**, *Bias, France*, Invited to give a 90-minute public-talk + a 30-minute question-session in front of a broad audience (> 60 people) during a [2-week workshop](#), Title : 'Astronomie avec ondes gravitationnelles' ([Keynote](#) + [pdf](#)).  
I sincerely hope to have more opportunities like this one in the future.
- October 11, 2018 **Supervision of a high-school student**, *DESY*, Supervision of a high-school student for one full day in order to introduce the research environment.

## Research internships

- Sept./Oct. 2019 **Visit in TAU**, *Tel Aviv University, Israel*, Collaboration during six weeks with the members of the group led by Prof. Tomer Volansky.
- 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](#))

## Summer Schools

*Titles in bold contain hyperlinks*

- Summer 2019 **MITP Summer School 2019**, *Mainz, Germany*, Non-perturbative Phenomena and the Early Universe.  
- 3 weeks
- Summer 2018 **Cargèse 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

## Talks at workshops and conferences

*Titles in bold contain hyperlinks*

- August 27, 2021 **SUSY 2021**, *Shanghai*, Cosmological Implications of Supercooled Confinement.
- July 27, 2021 **EPS-HEP 2021**, *Berlin*, String Fragmentation in Supercooled Confinement and implications for Dark Matter.
- June 15, 2021 **Pascos 2021**, *Daejeon*, String Fragmentation in Supercooled Confinement and implications for Dark Matter.

- May 5, 2021 **First EuCAPT Annual Symposium**, *CERN, Geneva*, String fragmentation in supercooled confinement and implications for dark matter.
- March 25, 2021 **HPNP 2021**, *Tokyo*, String Fragmentation in Supercooled Confinement and implications for Dark Matter.
- February 22, 2021 **Annual Israeli Physics Society Conference 2021**, *Israel*, Supercool Dilaton-Mediated Composite Dark Matter.
- April 7, 2020 **89th PRC Theory meeting**, *DESY*, Beyond the Standard Models with Cosmic Strings.
- February 14, 2020 **New Directions in Heavy Dark Matter**, *DESY*, Supercool Composite Dark Matter.
- January 31, 2020 **COST workshop: Probing BSM physics at different scales**, *Berlin, Germany*, Beyond the Standard Models with Cosmic Strings.
- June 3, 2019 **Planck 2019 Conference**, *Granada, Spain*, Implication of Supercooling in Composite Higgs.
- May 16, 2019 **14th Kosmologietag Workshop**, *Bielefeld, Germany*, Implication of Supercooling in Composite Higgs.
- April 10, 2019 **Light scalars: origin, cosmology, astrophysics, and experimental probes Workshop**, *Benasque, Spain*, Implication of Supercooling in Composite Higgs.
- February 14, 2019 **Helmholtz "Matter and Universe" Workshop**, *DESY*, Homeopathic Dark Matter.
- October 30, 2018 **PuzzleDarkMatter Workshop**, *DESY*, Thermal Dark Matter beyond 100 TeV and Cosmic Rays.
- September 27, 2018 **DESY Theory Workshop 18**, *DESY*, Thermal Dark Matter beyond 100 TeV and Cosmic Rays.
- July 17, 2018 **Cargese Summer School**, *Corsica, France*, Thermal Dark Matter Beyond 10/100 TeV .

## Seminars

*All seminars listed below are invited talks except the ones taking place in DESY*

- June 20, 2021 **Seminar in Hebrew university in Jerusalem**, *Cosmological consequences of supercooled confining phase transition.*
- March 17, 2021 **Virtual seminar in Helsinki**, *Cosmological consequences of supercooled confining phase transition.*
- November 4, 2020 **Israeli Joint Particle Physics Meetings 2020-2021**, *Virtual seminar in Israel*, String Fragmentation in Supercooled Confinement and implications for Dark Matter.
- July 7, 2020 **Webminar at Mainz**, *Mainz, Germany*, Beyond the Standard Models with Cosmic Strings.
- May 21, 2020 **Webminar at Tel Aviv University**, *Tel Aviv, Israel*, Beyond the Standard Models with Cosmic Strings.
- March 24, 2020 **Webminar at APC**, *Paris, France*, Beyond the Standard Models with Cosmic Strings.

- September 23, 2019 **Seminar at Tel Aviv University, Tel Aviv, Israel**, Implication of Supercooling in Composite Higgs.
- September 9, 2019 **Seminar at Weizmann University, Rehovot, Israel**, Implication of Supercooling in Composite Higgs.
- June 12, 2019 **Seminar at LPTHE, Paris, France**, Implication of Supercooling in Composite Higgs.
- May 28, 2019 **Theory Workshop Seminar, DESY**, Semi-classical objects in QFT: Cosmic strings.
- January 9, 2018 **Theory Workshop Seminar, DESY**, Cosmological relaxation à la Abbott and Brown-Teitelboim.

## 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

## Interests

- Hiking (1, 2, 3, 4)
- Climbing (1, 2)
- CrossFit (cardio-training) (1, 2)
- Biking (1, 2, 3, 4)
- Piano
- Philosophy

## Miscellaneous

- Birthdate : 23/07/1993
- Driver license