Curriculum Vitae

Dr. Lisa Bugnet

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Center for Computational Astrophysics
Flatiron Institute
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Scientific expertise

STELLAR ASTROPHYSICS
Asteroseismology
Stellar dynamics : magnetism and rotation

ADVANCED DATA ANALYSIS
Asteroseismic/photometric data analysis
Machine learning : i.e. Random Forest, Neural Networks,...

MODELING & THEORY
Stellar inner structure and evolution modeling (MESA)
Stellar pulsations modeling (GYRE)
Theory of Stellar oscillations in presence of magnetism and rotation
(Magnetohydrodynamics)

2020 - ...	**Flatiron Research Fellow at the Center for Computational Astrophysics of the Flatiron Institute.** **New York, USA**

EDUCATION

2017 - 2020	**Ph.D. in Astrophysics, supervised by Drs. Rafael A. García, Stéphane Mathis & Savita Mathur** CHARACTERIZATION OF SOLAR-TYPE STARS AND STUDY OF THEIR INTERNAL MAGNETIC FIELDS ALONG THE EVOLUTION. *Machine learning for asteroseismology and theoretical constraints for internal magnetic fields.* Defended on 2020, September 28th Laboratory Dynamics of Stars, (Exo)-planets and their Environment, Department of Astrophysics, The French Alternative Energies and Atomic Energy Commission (CEA). *Very Honorable, with Committee Praise.*
2016 - 2017	**Master of Science, Paris Observatory**, major in *Astrophysics*, *magna cum laude honors*. **Master thesis** FLIPER *: a new tool to study stellar global parameters.* supervision : Drs. R.A. García & S. Mathur [4 months], CEA Saclay.
2014 - 2017	**Master of Science, École Normale Supérieure of Paris (ENS)**, major in *Earth Sciences*, *magna cum laude honors*. **Research internship** *Dynamics of the accretion disc of the moon : high energetic impact on the Earth.* Supervision : Pr. D. Stevenson [6 months], CalTech (California, USA). **Volunteer internship** *Modeling of the formation of the Moon : accretion and chemical composition.* Supervision : Pr. S. Charnoz [6 months, 1 day per week], Institut de Physique du Globe de Paris (IPGP). **Research internship** *Modeling of the formation of the Moon : accretion and chemical composition.* Supervision : Pr. S. Charnoz [2 months], Institut de Physique du Globe de Paris (IPGP).
2012 - 2014	Preparatory classes for Grandes Écoles, *Physics-Chemistry*. La Martinière Monplaisir, Lyon, France
2011 - 2012	Scientific baccalaureate certificate, *Physics-Chemistry-English major*, *summa cum laude honors*

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1- PUBLICATIONS & COMMUNICATIONS	⊙ **18 Referee articles**, among which : 4 first author articles, 5 major contributions, 8 minor contributions, 321 citations (H-index=10) *The list of publications is presented on page 4.* *Top 5 publications are indicated by the ✪ symbol in the detailed list of publications bellow* ⊙ **20 Oral communications**, among which : 3 invited talks, 9 contributed talks, 8 invited seminars, 8 Proceedings. *The list of oral communications is presented on page 8*

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2- FELLOWSHIPS & PRIZES	⊡ **Independent Postdoctoral Research Fellow funded by the Research Foundation Flanders**, 1/10/2022-30/9/2025, Host Institute : KU Leuven, Belgium ⊡ **Flatiron Research Fellowship**, 2020 - 2023, Flatiron Institute, Simons foundation ⊡ **L'Oreal**-UNESCO *For Women in Science, France, Young Talents* **Fellow.** 2019, 15,000€ prize *Link to the program* ⊡ **International Student mobility**, Funding for a 5 weeks stay at Institute of Astrophysics of Canarie Islands (IAC), 2018, Paris Diderot University ⊡ **PhD Prize of the International Astronomical Union**, division G : "Solar and Stellar physics", 2020 ⊡ **PhD Prize of the French Society of Astronomy and Astrophysics**, 2021 ⊡ **Best oral contribution**, TASC4/KASC11 *First Light in a new era of Astrophysics Conference.* 2018, Aarhus, Danemark

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3- STUDENT SUPERVISION	◇ Adrien Deck Van Ruys, **Master thesis**, co-supervision with Prs. S. Mathis, R.A. García and Dr. S. Mathur, 2021. — Impact of rotation on the excitation of acoustic mode at the surface of solar-type stars. ◇ Arthur Le Saux, **Master thesis**, co-supervision with Pr. R.A. García, 2019. — In search for low-amplitude mixed modes in red giants with deep learning. — An automatic classification of K2 targets based on the FliPer$_{Class}$ method. *Arthur is now a PhD student at the Exeter University, UK* ◇ Sylvain Breton, **Master thesis**, co-supervision with Prs. R.A. García and P. Palle, 2019. — On the automatic estimation of rotation period for FGKM main-sequence stars observed by *Kepler*. *Sylvain is now a PhD student at the CEA* ◇ Thomas Claudet, **2-months undergraduate internship**, 2019. — Building a "Zooniverse" outreach project from scratch : firsts step data analysis for the detection of binary stars from target pixel files.

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4- TEACHING	△ **Invited Lecturer, The 13th Session of the LSSTC Data Science Fellowship Program (DSFP)**, Center for Interdisciplinary Exploration and Research in Astrophysics (CIERA) at Northwestern University, 2021 △ Mathematics Hands-on classes, Freshman and Sophomor years, Paris Sud University, 2017-2019 △ Master AMS Hands-on projects *Modeling Astrophysical systems*, ENSTA ParisTech', 2017-2018 △ Methodology class, freshman year, Paris Sud University, 2017-2018 △ Private lessons *Mathematics, Physics, Chemistry, Biology & Earth sciences*, Highschool, weekly : 7 students from 2014 to 2019

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INTERNATIONAL
COLLABORATIONS
	PLATO (ESA M3 space mission)
	▶ Member of the PLATO Science Management Collaboration
	  ▷ **In charge of sub-modules 23 (Mass from surface gravity and Radius) and 25 (Mass from density and Radius) in WP125 : MSAP5-2.**
	  ▷ Member of WP 123 200 « Stellar convection »
	  ▷ Member of WP 128 100 « Average seismic parameters »
	  ▷ Member of WP 373 200 « Rotation and Activity Tools »
	  ▷ Member of WP 121 200 « Transport of angular momentum »
	
	TESS (NASA/MIT space mission)
	▶ Member of the « Tess Asteroseismic Consortium » (TASC)
	  ▷ Member of WG2 « Solar-like stars »
	  ▷ Member of WG3 « Red giants »
	▶ Member of « TESS Data for Asteroseismology » (T'DA), stellar classification branch
	
	Kepler/K2 (NASA space missions)
	▶ Member of « *Kepler* Asteroseismic Consortium » (KASC)
	▶ Member of « APOKASC » consortium
	
	Former member of the ERC grant « SPIRE » (Stars : dynamical processes driving tidal Interactions, Rotation, and Evolution). 2017-2021. PI : Dr. S. Mathis

6- **PEER REVIEWING**	⬢ Referee for « Nature Astronomy », 2021 ⬢ Referee for « Astronomy & Astrophysics », 2021 ⬢ Panelist for the "Golden Webinar in Astrophysics", "The Space Age of Asteroseismology : a Golden Opportunity to Dive Deep into Stars and Measure their Internal Physics" by Conny Aerts, 2021 ⬢ Panelist for the "Transport in Stellar Interiors" KITP program conference, discussion on stellar internal magnetic fields, 2021
7- **OUTREACH**	⊡ **Jury first prize, French *Three-minute thesis* contest**, 2019, USPC Finale Link to the video, and Link to the program ⊡ Jury second prize, *Chronothesis : My Thesis in 5 minutes*, 2018, French Astronomy Association ⋈ « *The Sun : The laugh of stars* »: Interview for « Le Sense Of Wonders » and « CEA Recherche », 2020 ⋈ « *Du Big Bang aux Big Bands* » : Interview for The Night of Astronomy 2020 ⋈ Podcast : « *Talents scientifiques* », Serious Audio - 2020 ⋈ « *Étoiles en scène* » : Express conferences about the last news of cosmos, Grand Rex Movie Theater, Paris Observatory- Paris Science and Literature, December 2019 Link to the video ⋈ « *Asteroseismology : the laugh of stars* »: outreach video for the CEA YouTube channel October 2019 ⋈ *Paris under the stars*, French Astronomy Association , Summer 2019 ⋈ *Astronomy kids' day*, French Astronomy Association 2019
8- **LANGUAGE** **PROFICIENCY**	French : Native English : Fluent German : Educational level (A2).