

Dr. Lisa Bugnet

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)

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Assistant Professor

Stellar Dynamics and Asteroseismology group

Institute of Science and Technology Austria ISTA

Am Campus 1, 3400 Klosterneuburg

Austria

- 2023 - **Assistant Professor at the Institute of Science and Technology Austria (ISTA)** Klosterneuburg, Austria
Head of the *Stellar Dynamics and Asteroseismology* group
Applications are currently open for PhD and Postdoctoral positions in my group at ISTA.
Contact : lisa.bugnet@ist.ac.at
- 2020 - 2022 **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 de 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*

- 1- **PUBLICATIONS & COMMUNICATIONS** ☉ **23 Referee articles**, among which :
5 first author articles, 2 review article, 6 major contributions, 10 minor contributions, 477 citations (H-index=13)
The list of publications is presented on page 4.
Top 5 publications are indicated by the 🌟 symbol in the detailed list of publications below
- ☉ **21 Oral communications**, among which : 4 invited talks, 9 contributed talks, 8 invited seminars, 8 Proceedings.
The list of oral communications is presented on page 9

2- FELLOWSHIPS & PRIZES

- ☐ **Independent Postdoctoral Research Fellow funded by the Research Foundation Flanders**, 1/10/2022-30/9/2025, Host Institute : KU Leuven, Belgium *Declined due to the position at ISTA*
 - ☐ **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, Denmark
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3- STUDENT SUPERVISION

- ◇ Kanah Smith, **NSBP-Simons Summer program**, main supervisor, 2022. Co-supervisor : A. Le Saux.
 - Classification of oscillating stars with Neural Networks

 - ◇ 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 $\text{FliPer}_{\text{Class}}$ 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- CONFERENCES ORGANIZATION

- ◇ Scientific organiser, TASC7/KASC14 2023 : « The TESS and Kepler asteroseismic conference », The University of Hawai'i at Mānoa, July 2023

 - ◇ Scientific organiser, EAS22 Special session 21 : « Stellar characterization, large data sets, and Machine Learning », Valencia, Spain, 27 June 2022
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5- TEACHING

- △ **Invited Lecturer, MESA Summer School**, Budapest, Hungary, August 2023
- △ **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 Sophomore 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

6-
INTERNATIONAL
COLLABORATIONS

PLATO (ESA M3 space mission)

- ⊕ Responsible of sub-module WP125 :MSAP5-2-23 (« Mass from Surface gravity and Radius »)
- ⊕ Responsible of sub-module WP125 :MSAP4-04 (« Gravity from FLiPer »)
- ⊕ Responsible of sub-module WP125 :MSAP2-01 (« Selection of logg prior »)

Also :

- ▶ 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 (mission spatiale NASA/MIT)

- ▶ Member of « 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 (mission spatiale NASA)

- ▶ Member of « Kepler Asteroseismic Consortium »(KASC)
- ▶ Member of « APOKASC »consortia

- ▶ Former Member of projet ERC « SPIRE » (Stars : dynamical processes driving tidal Interactions, Rotation, and Evolution). PI : Dr. S. Mathis

7-
PEER REVIEWING

- ◆ Referee for « Nature », 2022
- ◆ 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

8-
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


9-
LANGUAGE
PROFICIENCY

French : Native
English : Fluent
German : Educational level (A2).

List of publications

Dr. Lisa Bugnet

Top 5 publications are indicated by the ✪ symbol

 : 0000-0003-0142-4000

23 Referee articles, among which :

5 first author articles

2 review articles

6 major contributions

10 minor contributions

481 citations (H-index=13)

FIRST AUTHOR ARTICLES

Theoretical projects :

5. ✪ Magnetic signatures on mixed-mode frequencies
II. Gravity-mode period spacings as a probe of internal magnetism.
Astronomy Astrophysics 667 A68 DOI : 10.1051/0004-6361/202243167
cited : 3

Bugnet, L. 2022

Abstract : I investigate the effect of magnetic fields inside evolved stars with solar-like oscillations on the estimation of the period spacing of gravity-mode components of simulated mixed gravito-acoustic modes. I derive a new corrected stretching function of the power spectrum density to account for the presence of magnetic signatures on their frequencies. I demonstrate that the strong dependency of the amplitude of the magnetic signature with mixed-mode frequencies leads to biased estimates of period spacings towards lower values. A careful analysis of the oscillation frequency pattern through various period spacing estimates on various frequency ranges might lead to the first detection of magnetic fields inside red giants, and, at the same time, to adjust the measured value of the gravity-mode period spacing.

4. ✪ Magnetic signatures on mixed-mode frequencies
I. An axisymmetric fossil field inside the core of red giants.
Astronomy and Astrophysics 650 A53
DOI : 10.1051/0004-6361/202039159
cited : 17

Bugnet, L. et al., 2021

Abstract : Internal magnetic fields are one amongst the most serious candidates that are currently studied to solve two major problems of stellar astrophysics : 1) The angular momentum transport inside stars of all type and all ages is poorly constrained in our stellar models, resulting in core rotation rate estimates ten times larger than measured rotation rates for red giants. 2) Two population of red giants have been discovered, showing very different power density for their dipolar oscillation mode : intermediate-mass stars tends to have much lower dipolar amplitudes than low-mass stars. Stars more massive than $\sim 1.1 M_{\odot}$ are known to develop a convective core during the main-sequence : the dynamo process due to this convection could be the origin of a strong magnetic field, trapped inside the core of the star for the rest of its evolution. Such magnetic fields should impact mixed modes inside the core of red giants, and their signature should be visible in asteroseismic data. To unravel which constraints can be obtained from these observations, we theoretically investigate the effects of a plausible mixed axisymmetric magnetic field with various amplitudes on the mixed-mode frequencies of red giants. Applying a perturbative method, we estimate the magnetic splitting of the frequencies of simulated mixed dipolar modes that depends on the magnetic field strength and its configuration. The effects of the mass and the metallicity of the stars are explored, and we infer an upper limit for the strength of the field and the associated lower limit for the timescale of its action to redistribute angular momentum in stellar interiors. Finally, we estimate the internal magnetic field amplitude needed along the evolution for its signature on oscillation frequencies to be detectable inside *Kepler*, *TESS* and *PLATO* data.

3. ✪ Sounding the internal magnetism of stars using asymptotic magneto-asteroseismology.
Astronomy and Astrophysics 647 A122
DOI : 10.1051/0004-6361/202039180
cited : 13

Mathis, S. , Bugnet, L.* et al., 2021*

*S. Mathis and L. Bugnet equally contributed to this work.

Abstract : We theoretically study the impact of an axisymmetric stable fossil field on the oscillation frequency of solar-like stars along their evolution. A complete asymptotic analysis is derived, showing the potential of asteroseismology to probe the magnetism at each depth as this has recently been done for stellar rotation ; we show that low-frequency gravity modes coupled with acoustic modes may allow to probe the radial magnetic field component inside the core of red giants through data inversion.

Data analysis projects :

2. 🌟 FliPer_{CLASS}: In search of solar-like pulsators among TESS targets

Astronomy and Astrophysics 624 A79

DOI : 10.1051/0004-6361/201834780

cited : 7

Bugnet, L. et al., 2019

🌐 : https://github.com/lbugnet/FLIPER_CLASS

Abstract : In this paper, we present a classification algorithm built to recognize solar-like pulsators among classical pulsators from TESS data. This machine learning algorithm relies on the global amount of power contained in the power spectral density (PSD), also known as the flicker in spectral power density (FliPer). Because each type of pulsating star has a characteristic background or pulsation pattern, the shape of the PSD at different frequencies can be used to characterize the type of pulsating star. Using noisy TESS-simulated data from the TESS Asteroseismic Science Consortium (TASC), we classify pulsators with a 98% accuracy. Among them, solar-like pulsating stars are recognized with a 99% accuracy, which is of great interest for a further seismic analysis of these stars.

1. 🌟 FliPer: A global measure of power density to estimate surface gravities of main-sequence solar-like stars and red giants

Astronomy and Astrophysics 620 A38

DOI : 10.1051/0004-6361/201833106

cited : 24

Bugnet, L. et al., 2018

🌐 : <https://github.com/lbugnet/FLIPER>

Abstract : In this work, we present a new metric called FliPer (Flicker in spectral power density, in opposition to the standard Flicker measurement which is computed in the time domain) ; it is able to extend the range for which reliable surface gravities can be obtained ($0.1 < \log g < 4.6$ dex) without performing any seismic analysis for stars brighter than $K_p < 14$. FliPer takes into account the average variability of a star measured in the power density spectrum in a given range of frequencies. Using a large set of asteroseismic targets it is possible to calibrate the behaviour of surface gravity with FliPer through machine learning. This calibration made with a random forest regressor covers a wide range of surface gravities from main-sequence stars to subgiants and red giants, with very small uncertainties from 0.04 to 0.1 dex. FliPer also constrains the surface gravities of main-sequence dwarfs using only long-cadence data for which the Nyquist frequency is too low to measure the acoustic-mode properties.

REVIEW ARTICLES

2. Vibrations probe magnetic fields inside evolved stars

Nature 610 7930

DOI : 10.1038/d41586-022-02979-z

cited : 0

Bugnet, L., 2022

Abstract : Oscillations in the light emanating from three Sun-like stars reveal the presence of strong magnetic fields deep in their interiors. The discovery could explain a quirk of stellar dynamics that has so far eluded understanding.

1. Hidden currents at the Sun's surface

Nature Astronomy 6, pages 631–632

DOI : 10.1038/s41550-022-01683-2

cited : 0

Bugnet, L., 2022

Abstract : The Sun's surface hosts varying magnetic activities and rotation rates (from equator to pole), and unique solar weather. Now, a combination of ground and space observations has unveiled a previously undetected magnetized plasma current.

6. Mode Mixing and Rotational Splittings. I. Near-degeneracy Effects Revisited

The Astrophysical Journal 940 1

DOI : 10.3847/1538-4357/ac97e7

cited : 0

Ong, J.M., Bugnet, L. & Basu, S.

Abstract : Rotation is typically assumed to induce strictly symmetric rotational splitting into the rotational multiplets of pure p- and g-modes. However, for evolved stars exhibiting mixed modes, avoided crossings between different multiplet components are known to yield asymmetric rotational splitting, in particular for near-degenerate mixed-mode pairs, where notional pure p-modes are fortuitously in resonance with pure g-modes. These near-degeneracy effects have been described in subgiants, but their consequences for the characterization of internal rotation in red giants have not previously been investigated in detail, in part owing to theoretical intractability. We employ new developments in the analytic theory of mixed-mode coupling to study these near-resonance phenomena. In the vicinity of the most p-dominated mixed modes, the near-degenerate intrinsic asymmetry from pure rotational splitting increases dramatically over the course of stellar evolution, and it depends strongly on the mode-mixing fraction. We also find that a linear treatment of rotation remains viable for describing the underlying p- and g-modes, even when it does not for the resulting mixed modes undergoing these avoided crossings. We explore observational consequences for potential measurements of asymmetric mixed-mode splitting, which has been proposed as a magnetic-field diagnostic. Finally, we propose improved measurement techniques for rotational characterization, exploiting the linearity of rotational effects on the underlying p/g-modes, while still accounting for these mixed-mode coupling effects.

5. Detecting deep axisymmetric toroidal magnetic fields in stars

The traditional approximation of rotation for differentially rotating deep spherical shells with a general azimuthal magnetic field

Astronomy & Astrophysics 661 A133

DOI : 10.1051/0004-6361/202142956

cited : 5

Dhouib, H., Mathis, S., Bugnet, L. et al.

Abstract : We generalise the traditional approximation of rotation (TAR) by simultaneously taking general axisymmetric differential rotation and azimuthal magnetic fields into account. Both the Coriolis acceleration and the Lorentz force are therefore treated in a non-perturbative way. Using this new formalism, we derive the asymptotic properties of MGI waves and their period spacings. We find that toroidal magnetic fields induce a shift in the period spacings of gravity (g) and Rossby (r) modes. An equatorial azimuthal magnetic field with an amplitude of the order of 105 G leads to signatures that are detectable in period spacings for high-radial-order g and r modes in γ Doradus (γ Dor) and slowly pulsating B (SPB) stars. More complex hemispheric configurations are more difficult to observe, particularly when they are localised out of the propagation region of MGI modes, which can be localised in an equatorial belt.

4. TESS Data for Asteroseismology (T'DA) Stellar Variability Classification Pipeline: Set-Up and Application to *Kepler* Q9 data

The Astronomical Journal 162 5

DOI : 10.3847/1538-3881/ac166a

cited : 13

Audenaert, J., [...], Bugnet, L. et al., 2021

Abstract : This is a collaborative effort to gather automatic methods for the automatic classification of oscillating stars observed during the TESS mission. The article describes the different algorithms composing the pipeline, and FliPer parameters are included into a large random forest procedure.

3. ROOSTER: a machine-learning analysis tool for *Kepler* stellar rotation periods

Astronomy and Astrophysics 647 A125

DOI : 10.1051/0004-6361/202039947

cited : 11

Breton, S.N., Santos, A.R.G., Bugnet, L. et al., 2021

Abstract : We adapted the FliPer_{CLASS} random forest classifier to detect stars that present rotation signals in the asteroseismic data, and to retrieve the correct rotation period from various non-automatic measurements

2. Surface Rotation and Photometric Activity for *Kepler* Targets. I. M and K Main-sequence Stars

The Astrophysical Journal Supplement Series, 244, 1

DOI : 10.3847/1538-4365/ab3b56

cited : 60

Abstract : In this work, we analyze the *Kepler* long-cadence data of 26,521 main-sequence stars of spectral types M and K in order to measure their surface rotation and photometric activity level. My contribution is to select reliable rotation estimates by comparing the results from different rotation diagnostics and four data sets with machine learning technics.

1. Revisiting the impact of stellar magnetic activity on the detection of solar-like oscillations by *Kepler*

Frontiers in Astronomy and Space Sciences

DOI : 10.3389/fspas.2019.00046

cited : 25

Mathur, S., García, R.A., **Bugnet, L.** et al., 2019

Abstract : We study ~ 1,000 stars observed by *Kepler* to determine why some solar-type stars do not present detectable modes of oscillations. The strong magnetic activity and/or the chemical composition of some stars could originate this non-detection. My contribution allowed to build the studied non-oscillating solar-type star sample by using the FLiPer_{CLASS} method. This study provides a sample of well characterized stars on which I will base the search for surface magnetism in Axis B of my proposed research.

MINOR CONTRIBUTIONS

10. The K2 Galactic Archaeology Program Data Release 3: Age-abundance Patterns in C1-C8 and C10-C18
The Astrophysical Journal 926 2
DOI : 10.3847/1538-4357/ac2c83
cited : 14

Zinn, J.C. [...], **Bugnet, L.** et al., 2022
9. Detections of solar-like oscillations in dwarfs and subgiants with Kepler DR25 short-cadence data
Astronomy Astrophysics 657 A31
DOI : 10.1051/0004-6361/202141168
cited : 7

Mathur, S., [...], **Bugnet, L.** et al. 2021
8. Horizontal shear instabilities in rotating stellar radiation zones
II. Effects of the full Coriolis acceleration
Astronomy and Astrophysics 635 A133
DOI : 10.1051/0004-6361/201936863
cited : 5

Park, J., Prat, V., Mathis, S. & **Bugnet, L.**
7. The K2 Galactic Archaeology Program Data Release 2: Asteroseismic Results from Campaigns 4, 6, and 7
The Astrophysical Journal Supplement Series 251 23
DOI : 10.3847/1538-4365/abbee3
cited : 14

Zinn, J.C. [...], **Bugnet, L.** et al., 2021
6. Detection and characterisation of oscillating red giants: first results from the TESS satellite
The Astrophysical Journal Letter, 889 :L34
DOI : 10.3847/2041-8213/ab6443
cited : 30

Silva Aguirre V. [...] **Bugnet, L.** et al., 2020
5. Age dating of an early Milky Way merger via asteroseismology of the naked-eye star ν Indi
Nature Astronomy, 4, 382-389
DOI : 10.1038/s41550-019-0975-9
cited : 33

Chaplin, W.J. [...] **Bugnet, L.** et al., 2020
4. A Hot Saturn Orbiting An Oscillating Late Subgiant Discovered by TESS
The Astronomical Journal 157 6
DOI : 10.3847/1538-3881/ab1488
cited : 58

Huber, D. [...] **Bugnet, L.** et al., 2019
3. A Search for Red Giant Solar-like Oscillations in All *Kepler* Data
Monthly Notices of the Royal Astronomical Society 610
DOI : 10.1093/mnras/stz622
cited : 19

Hon, M. [...] **Bugnet, L.**, 2019
2. TESS's first planet. A super-Earth transiting the naked-eye star π Mensae
Astronomy and Astrophysics 619 L10
DOI : 10.1051/0004-6361/201834289
cited :73

Gandolfi, D. [...] **Bugnet, L.** et al., 2018
1. HD 89345: a bright oscillating star hosting a transiting warm Saturn-sized planet observed by K2
Monthly Notices of the Royal Astronomical Society 478 4866V
DOI : 10.1093/mnras/sty1390
cited :20

Van Eylen, V. [...] **Bugnet, L.** et al., 2018

List of oral communications

Dr. Lisa Bugnet

21 Oral communications, among which :

4 invited talks

9 contributed talks

8 invited seminars

8 proceedings

7 posters

INVITED TALKS

4. Invited review

2021, KITP program « Probes of Transport in Stars »

3. French Society of Astronomy and Astrophysics, Phd Prize talk, 2021

2021, Journées de la Société Française d'Astronomie et d'Astrophysique 2021 (Remote contribution because of the Covid-19)

2. Non-seismic surface gravity estimates

2021, PLATO HOW#2 Workshop (Remote contribution because of the Covid-19)

1. The estimation of stellar masses from non-seismic methods

2021, PLATO HOW#2 Workshop (Remote contribution because of the Covid-19)

CONTRIBUTED TALKS

9. What to expect from non-seismic stellar characterization with PLATO lightcurves

October 2021, PLATO Science Conference 2021 (Remote contribution because of the Covid-19)

8. In search for intermediate-mass stars' internal magnetic field

April 2021, OBA stars conference (Remote contribution because of the Covid-19)

7. Probing fossil magnetic effects in the core of evolved low-mass stars using mixed-modes frequencies

2020, EAS2020 (Remote contribution because of the Covid-19)

6. Probing fossil magnetic effects in the core of evolved low-mass stars using mixed-modes frequencies

2020, MOBSTER-1 (Remote contribution because of the Covid-19)

5. The impact of fossil magnetic fields on dipolar mixed modes

2019, Dynamics of the Sun and stars : Honoring the life and work of Michael Thompson, Boulder, CO, USA

4. FliPer_{Class} : Towards the classification of all Kepler DR25 stars

2019, Kepler Science Conference IV, Glendale, CA, USA

3. FliPer (Flicker in Power) : A new method to rapidly estimate surface gravities with high precision from main-sequence stars to red giants and red clump stars

Best contribution prize

2018, TASC4/KASC11 : First Light in a new era of Astrophysics, Aarhus University, Denmark

2. FliPer : A powerful methodology to rapidly estimate surface gravities and to classify stars

2018, Annual conference of the French Society of Astronomy and Astrophysics, Bordeaux, France

1. FliPer : A new tool to study global seismic parameters and surface gravity

2017, Red Giants Workshop, Vienna, Austria

INVITED SEMINARS

9. Carnegies Observatories Seminar serie

September 2022, Carnegies Observatories, USA (Remote contribution because of the Covid-19)

8. Astrophysical Fluid Dynamics group seminar, DAMTP

February 2021, Cambridge University, UK (Remote contribution because of the Covid-19)

7. Exeter Astrophysics Seminar

October 2020, Exeter University, UK (Remote contribution because of the Covid-19)

6. Lagrange Seminar
June 2020, Nice Observatory, France (Remote contribution because of the Covid-19)
5. Stellar group seminar
January 2020, Geneva Observatory, Switzerland (Remote contribution because of the Covid-19)
4. The seminar day on machine learning in astrophysics
January 2020, CEA Saclay, France
3. Stellar physics seminar at Instituto de Astrofísica de Canarias (IAC).
2018, Tenerife, Canary Islands, Spain
2. Planetology Group Seminar at Instituto de Astrofísica de Canarias (IAC).
2018, Tenerife, Canary Islands, Spain
1. Group seminar of the Laboratory Dynamics of Stars, (Exo)-planets and their Environment.
2018, Astrophysics department, CEA Saclay, France

PROCEEDINGS

8. The impact of a fossil magnetic field on dipolar mixed-mode frequencies in sub- and red-giant stars
2019, Dynamics of the Sun and stars : Honoring the life and work of Michael Thompson, Boulder, CO, USA
Bugnet, L. et al., 2019
7. Automatic classification of K2 pulsating stars using machine learning techniques
SF2A : Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics
Le Saux, A., Bugnet, L. et al., 2019
6. Determining surface rotation periods of solar-like stars observed by the *Kepler* mission using machine learning techniques
SF2A : Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics
Breton S., Bugnet, L. et al., 2019
5. FliPer: Classifying TESS pulsating stars
SF2A : Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics
Bugnet, L. et al., 2018
4. Effect of magnetic activity on the detection of acoustic modes in solar-like stars
The 20th Cambridge Workshop on Cool Stars, Stellar Systems and the Sun
Mathur S., García R.A., Bugnet, L. et al., 2018
3. FliPer: Checking the reliability of global seismic parameters from automatic pipelines
SF2A : Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics
Bugnet, L. et al., 2017
2. Processing of Moon Material in the Protolunar Disk : Devolatilisation During the Protolunar Disk Phase
Lunar and Planetary Science Conference
Charnoz, S., Bugnet, L., Siebert, J., 2016
1. Moon formation coupled with the protolunar disk
Division for Planetary Sciences Meeting
Charnoz, S., Bugnet, L., Michaut, C., 2015

POSTERS

7. Automatic classification of K2 pulsating stars using machine learning techniques
SF2A : The Annual meeting of the French Society of Astronomy and Astrophysics 2019

6. Determining surface rotation periods of solar-like stars observed by the *Kepler* mission using machine learning techniques
SF2A : The Annual meeting of the French Society of Astronomy and Astrophysics 2019

Breton S., Bugnet, L. et al.
5. Surface rotation and photometric activity for *Kepler* M and K dwarfs
Kepler & K2 Science conference, Glendale, CA, USA, 2019

Santos A.R.G., [..], Bugnet, L. et al.
4. FliPer : An automatic method to estimate global parameters of stars.
The 2019 "Congrès des Doctorants", Institut de Physique du Globe de Paris (IPGP), Paris, 2019

Bugnet, L. et al.
3. Correlation between the non detection of acoustic modes in solar-like stars and their magnetic activity
TASC5/KASC12 workshop, MIT / Cambridge, USA, 2018

S. Mathur, R.A. García, Bugnet, L. et al.
2. Correlation between the non detection of acoustic modes in solar-like stars and their magnetic activity
Cool stars 20, Boston / Cambridge, USA, 2018

S. Mathur, R.A. García, Bugnet, L. et al.
1. FliPer : Checking the reliability of global seismic parameters from automatic pipelines
SF2A : The Annual meeting of the French Society of Astronomy and Astrophysics 2017

Bugnet, L. et al.