Florian Gallet *Curriculum vitae*

ADRESSE

IPAG
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SCIENTIFIC INTERESTS

- **Angular moment evolution of low-mass stars:**
  Angular momentum, surface rotation, differential rotation, light-elements evolution, lithium depletion, internal processes of angular moment redistribution
- **Magnetic interaction:**
  Star-disk interaction, braking by stellar wind, magnetic topology, spectropolarimetry
- **Star-planet interactions:**
  Habitable zone evolution, tidal interaction, planetary migration, magnetoprotection
- **Modelling:**
  Numerical simulation, parametric and semi-analytical modelling

EDUCATION

Université Joseph Fourier, Grenoble, France

Phd, IPAG, Université de Grenoble **2011 - 2014**

- Topic: *Modelling the angular momentum evolution of low-mass stars*
- Supervisor: Dr Jérôme Bouvier
- Field of study: Parametric modelling of the angular momentum evolution of low-mass stars

Master, Astrophysique - IPAG **2010 - 2011**

- Thesis topic: *Rotational evolution of low-mas stars: a new braking law*
- Supervisor: Dr Jérôme Bouvier
- Field of study: Angular momentum evolution of solar type stars
- Rank: 4/12
- *Cum laude*, 13.9/20

RESEARCH

CNES fellow at l'IPAG, Grenoble, France **Jan-Déc. 2018**
Topic: *Highlighting the star-planet tidal interaction with the Gaia mission. Link between stellar rotation and planetary orbital evolution.*

Post-doctorat at l'Observatoire de Genève, Genève, Suisse **2014 - 2017**
Topic: *Planetary habitability and state of the art of stellar evolution model.*
Supervisor: Corinne Charbonnel

Phd à l'IPAG, Grenoble, France **2011 - 2014**
Topic: *Angular momentum evolution of low-mass stars.*
Supervisor: Jérôme Bouvier

RESEARCH PROJECT

- co-I of the ANR TOUPIES (Jérôme Bouvier) **2012 - 2016**
  TOwards the Understanding of the sPIn Evolution of Stars
  -Thematic: Understand the rotational and magnetic evolution of low-mass stars along their evolution.
  -Responsibilities: Confront the observed stellar rotational distributions to angular momentum evolution model and magnetic properties.

- co-deputy of the *WG1* from the COST: ORIGINS action **2016 - Présent**
  TD1308 - Origins and evolution of life on Earth and in the Universe (ORIGINS)
  -Thematic: Understand the formation and evolution of planetary systems and habitable planets.
  -Responsibilities: Evaluation of short term scientific mission reports, conference organisation, management of the group action work.

TEACHING & SCIENTIFIC OUTREACH

Université Pierre-Mendès-France, Grenoble, France

Introduction to database **1st semester 2013/2014**

- Lessons on databases for 1st year students
- Introduction to SQL language
- 64h; tutorials and practical work

Algorithm and Programming **2nd semester 2012/2013**

- Lessons on programming for 1st year students
- Introduction to pointer and ADA language
- 64h; tutorials and practical work

IPAG, Université Grenoble-Alpes

Public observations **2012 - 2014**

- Telescope (400mm) observations and introducing astrophysics to non-astrophysical audience.
- From December to March
- $\approx$ 2h of presentation/observation

Université de Genève, Genève, Suisse

Jury for A001 - Astronomie Générale ouvert au public **2015 - 2016**

- Lessons from Prof. Corinne Charbonnel
- Audition astronomical/astrophysical presentations
- Students from different curriculum

PROFESSIONAL IMPLICATIONS

Société Française d'Astronomie et d'Astrophysique (SF2A) **2012 - now**

Société Suisse d'Astronomie et d'Astrophysique (SSAA) **2015 - now**

Team meeting organisation (Geneva Observatory) **2016 - 2017**

Conference organisation: Life on Earth and beyond: emergence, survivability, and impact on the environment (http://www.arcetri.astro.it/ bertinoro/soc.html)

Referee for A&A, MNRAS, ASTR

Grant from the Swiss Society for Astrophysics and Astronomy (SSAA) "Encouragement à la relève" : 1300 CHF **Springs 2016**

CNES fellowship
"Link between the stellar rotation and the planetary orbital evolution with the Gaia mission" : 1 + 1 ans **Obtained in 2017**

NUMERICAL SKILLS

Numerical programming:

- C, C++, PHP, UNIX shell scripting, GNU make, Fortran, SQL, and others

Numerical analysis and plotting skills :

- MATLAB, Maple, Supermongo, Topcat

Office and productivity software:

- TEX (LATEX, BIBTEX, PSTricks),
- Microsoft Office, OpenOffice.org, LibreOffice, Google Docs
- GIMP, InkScape
- Html, php, javascript

Operating systems:

- Microsoft Windows, Apple OS X, Linux, et other UNIX variations

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PUBLICATIONS

Accepted in peer review journals

1. Strugarek, A.; Bolmont, E.; Mathis, S.; Brun, A. S.; Réville, V.; **Gallet, F.**; Charbonnel, C. The Fate of Close-in Planets: Tidal or Magnetic Migration? 2017, ApJ, 847, L16 PDF

2. **Gallet, F.**; Bolmont, E.; Mathis, S.; Charbonnel, C.; Amard, L. Tidal dissipation in rotating low-mass stars and implications for the orbital evolution of close-in planets. I. From the PMS to the RGB at solar metallicity. 2017, A&A,604, A112 PDF

3. Bolmont, E.; **Gallet, F.**; Mathis, S.; Charbonnel, C.; Amard, L.; Alibert, Y. Tidal dissipation in rotating low-mass stars and implications for the orbital evolution of close-in massive planets. II. Effect of stellar metallicity. 2017, A&A, 604, A113 PDF

4. Charbonnel, C.; Decressin, T.; Lagarde, N.; **Gallet, F.**; Palacios, A.; Aurière, M.; Konstantinova-Antova, R.; .; Mathis, S.; Anderson, R. I.; Dintrans, B. The magnetic strip(s) in the advanced phases of stellar evolution. Theoretical convective turnover timescale and Rossby number for low- and intermediate-mass stars up to the AGB at various metallicities. 2017, A&A, 605, A102 PDF

5. **Gallet, F.**; Charbonnel, C.; Amard, L.; Brun, S.; Palacios, A.; Mathis, S. Impacts of stellar evolution and dynamics on the habitable zone: The role of rotation and magnetic activity. 2016, A&A, 597, A14 PDF

6. Mathis, S.; Auclair-Desrotour, P.; Guenel, M.; **Gallet, F.**; Le Poncin-Lafitte, C. The impact of rotation on turbulent tidal friction in stellar and planetary convective regions. 2016, A&A, 592, A33 PDF

7. Amard, L.; Palacios, A.; Charbonnel, C.; **Gallet, F.**; Bouvier, J. Rotating models of young solar-type stars. Exploring braking laws and angular momentum transport processes. 2016, A&A, 587, A105 PDF

8. **Gallet, F.**; Bouvier, J. Improved angular momentum evolution model for solar-like stars. II. Exploring the mass dependence. 2015, A&A, 576, A98 PDF
   Cité 53 fois (dont 44 dans des revues à comité de lecture)

9. **Gallet, F.**; Bouvier, J. Improved angular momentum evolution model for solar-like stars. 2013, A&A, 556, A36 PDF
Cité 125 fois (dont 102 dans des revues à comité de lecture)

Submitted/in preparation in peer review journals

1. **Gallet, F.**; Bolmont, E.; Bouvier, J.; Mathis, S., Charbonnel, C. Effect of planetary tidal interactions on the rotation of low-mass stars (in preparation, A&A)

2. Beck, P.G.; Mathis, S.; **Gallet, F.**; Charbonnel, C.; Benbakoura, M.; García, R.A. Testing tidal theory for evolved stars using Kepler observations (submitted, letter MNRAS)

3. **Gallet, F.**; Zanni, C.; Bouvier, J. On the rotational evolution of solar-type protostars during the star-disk interaction phases (in prep.)

CONTRIBUTIONS

1. **Gallet, F**.; Mathis, S.; Charbonnel, C.; Amard, L. **Talk** From stellar evolution to tidal interaction : impact on planetary habitability. EWASS 2017, Prague, République Tchèque, Juin 2017.

2. **Gallet, F**.; Bolmont, E; Mathis, S.; Charbonnel, C.; Amard, L.; Alibert, Y. **Talk** Tidal dissipation in rotating low mass stars: implications for the orbital evolution of close in planets Varsovie, Pologne, Avril 2017.

3. **Gallet, F**. **Team seminar** From angular momentum to tidal interaction: a journey with the rotation Genève, Suisse, Novembre 2016.

4. **Gallet, F**. **Seminar** From angular momentum to tidal interaction: a journey with the rotation Grenoble, France, Novembre 2016.

5. **Gallet, F**.; Mathis, S.; Charbonnel, C.; Amard, L. **Talk** From stellar evolution to tidal interaction : impact on planetary habitability. EWASS 2016, Athènes, Grèce, Juillet 2016.

6. **Gallet, F**.; Mathis, S.; Charbonnel, C.; Amard, L. **Talk** From Stellar Evolution to Tidal Interaction: Impact on Planetary Habitability. AstroFluid, Paris , France, Juin 2016.

7. **Gallet, F.** **Poster** From Stellar Evolution to Tidal Interaction: Impact on Planetary Habitability. CoolStars 19, Uppsala , Suède, Juin 2016.

8. **Gallet, F**.; Mathis, S.; Charbonnel, C.; Amard, L. **Talk** From Stellar Evolution to Tidal Interaction: Impact on Planetary Habitability. From star and planet formation to early life, Vilnius, Lituanie, Avril 2016.

9. **Gallet, F. Présentation invité** Angular momentum evolution of young stars. MaTYSSE workshop, Toulouse, France, Novembre 2015.

10. **Gallet, F.**; Charbonnel, C.; Amard, L. **Talk** Host's stars and habitability. Exoplanetary Atmospheres and Habitability, Nice, France, Octobre 2015.

11. **Gallet, F.**; Charbonnel, C.; Amard, L. **Poster** Host's stars and habitability. Pathways Towards Habitable Planets, Bern, Suisse, Juillet 2015.

12. **Gallet, F.**; Charbonnel, C.; Amard, L. **Talk** Host's stars and habitability. In: 2015-Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics, Toulouse, France, Juin 2015. PDF

13. **Gallet, F. Seminar** Angular moment evolution model for low mass stars : exploring the mass dependence. Göttingen, Allemagne, Juin 2014.

14. **Gallet, F. Talk** Angular momentum evolution model for low mass stars. In: The third BCool Workshop, Saint Andrews, United Kingdom, 20-24 Janvier 2014.

15. **Gallet, F.** and Zanni, C., **Poster** Magnetic field and angular momentum evolution models. In: 2013-400 Years of Stellar Rotation, Natal, Brazil, Novembre 21-26 2013.

16. **Gallet, F. Talk** Star/disk interaction and angular momentum evolution model for solar-like stars In: EPJWC: Physics at the Magnetospheric Boundary, Geneva, Switzerland, Juillet, 2013. PDF

17. **Gallet, F. Talk** Angular momentum evolution model for solar-like stars. In: 2013-Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics, Montpelier, France, Juin 2013. PDF

18. **Gallet, F. Poster** Magnetic field and angular momentum evolution models. In: 2013-Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics, Montpellier, France, Juin 2013. PDF

19. **Gallet, F.**; Bouvier, Jérôme **Poster** Improved angular momentum evolution models for solar-like stars. In: 2012-Proceedings of the Annual meeting of the French Society of Astronomy and Astrophysics, Nice, France, Juillet 2012. PDF