

# Anaëlle Halle

---

Max Planck Institute for Astrophysics  
Karl-Schwarzschild-Strasse 1, 85748 Garching, Deutschland  
Phone (office) : 00 49 30000 2247  
E-mail : halle@mpa-garching.mpg.de  
Born 06/05/1985, French



## RESEARCH EXPERIENCE

- Oct 2016– **MPA post-doctoral fellow.**  
*Max Planck Institute for Astrophysics, Garching, Germany*
- 2014–2016 **Post-doctoral researcher. Applications of algorithms solving the Vlasov-Poisson equations.** Member of the Vlasix ANR led by S. Colombi  
*Institut d'Astrophysique de Paris, France*
- 2013–2014 **ATER (Research and teaching position). Radial migration of stars in galactic discs**  
*GEPI, Observatoire de Paris-Meudon, France*
- 2009–2013 **Ph.D. on the Influence of baryonic physics in simulations of disc galaxies.** supervised by Françoise Combes  
*LERMA, Observatoire de Paris, France*

## *Research projects during undergraduate studies*

- Apr.–Jul. 2008 **Orbital oscillations of supermassive black holes** supervised by Roya Mohayaee and Gary Mamon  
*Institut d'Astrophysique de Paris, France*
- Feb–July 2007 **Modified Newtonian Dynamics : Adding a dark fluid to GR equations ; External field effect in galaxies** supervised by HongSheng Zhao  
*University of St Andrews, Scotland, UK*
- July 2006 **Experiments of rebounds of silicon jets on a silicon bath** supervised by David Quéré  
*ESPCI, Paris, France*

## EDUCATION AND DIPLOMAS

- May 2013 **Doctorate of the Université Pierre et Marie Curie in Astrophysics** obtained with honours
- July 2009 **Agrégation of Physics** Qualification through selective competitive exam to teach in high-school and preparatory classes to French “Grandes Écoles”
- 2008–2009 **Course of Philosophy and History of Science**  
*Sorbonne and ENS Ulm, Paris*
- 2007–2008 **Master's degree (M2) in Astrophysics** with honours  
*Observatoire de Paris*
- 2006–2007 **Master's degree (M1) in Physics** with honours  
*ENS Ulm, Paris*
- 2005–2006 **Bachelor's degree in Physics** with honours  
*ENS Ulm, Paris*
- 2005 **Admission in the École Normale Supérieure Ulm, Paris (Concours PC)**

- 2003–2005 **Preparatory classes in Physics, Mathematics and Chemistry**  
Lycée Brizeux, Quimper
- 2003 **High-school diploma (Baccalauréat)** with honours  
Lycée Brizeux, Quimper

#### ORGANISATION

- 2015-2016 **Organiser** of the IAP postdocs seminars.  
2011-2013 **Creator and organiser** of the [LERMA ExGal journal club](#).

#### TEACHING

- 2013–2014 **ATER** in Paris Observatory. Teaching to secondary school teachers :  
**Lectures** :  
— **“Celestial bodies”** : general astrophysics including stars, planets, compact objects, galaxies, large-scale structure,  
— **“History of concepts and theories of gravitation and cosmology”**
- Sky observations** using various telescopes and analysis of images.  
**Tutorials using astronomy software** (AstroimageJ, Stellarium).  
**Contribution to online-courses** on cosmology and exoplanets.
- 2009–2011 **Teaching during PhD** at the UPMC, Paris.  
Tutorials of **thermodynamics, optics, hydrostatics, mechanics** to 2<sup>nd</sup> and 4<sup>th</sup> year students.  
Individual tutoring of thermodynamics and optics to 2<sup>nd</sup> year high-level sports students at the INSEP, Paris.  
Individual tutoring of **quantum mechanics and electrodynamics** at the RHS, student disability service of the UPMC.
- 2008 **Physics and chemistry oral exams** for the Lycée Brizeux preparatory classes.

#### DISTINCTIONS

Female scientific vocation prize, 2003

#### COMPUTING SKILLS

C, Fortran, Python, IDL, MPI , OpenMP, Mathematica, Maple, xHTML, CSS, PHP

#### LANGUAGES

**English** : fluent, **German** : working knowledge, **Spanish** : beginner , **Russian** : beginner

#### RESEARCH REFERENCES

**Stéphane Colombi**, Professor, Institut d’Astrophysique de Paris  
[colombi@iap.fr](mailto:colombi@iap.fr)

**Françoise Combes** (Ph.D. supervisor), Astronomer, LERMA, Observatory of Paris  
[françoise.combes@obspm.fr](mailto:françoise.combes@obspm.fr)

**Paola Di Matteo**, Astronomer, GEPI, Observatory of Paris  
[paola.dimatteo@obspm.fr](mailto:paola.dimatteo@obspm.fr)

## CONFERENCES AND SEMINARS

- July 2016 **Presentation at the ESO “Discs in Galaxies” conference**  
*Garching, Germany*
- May 2016 **Presentation at the IAP “Secular evolution” wprkshop**  
*Paris, France*
- June 2015 **Presentation at the EWASS conference**  
*Teneriffe, Spain*
- June 2015 **Presentation at the “Vlasov-Poisson : towards numerical methods without particles Vlasov”** *Yukawa institute, Kyoto, Japan*
- April 2015 **Seminar of IAP postdocs**  
*Institut d’Astrophysique de Paris, Paris*
- Oct. 2014 **Presentation at the “IAP Simulation Day”**  
*Institut d’Astrophysique de Paris, Paris*
- Sept. 2014 **Presentation at the “Journées du GEPI”**  
*Observatoire de Paris, Meudon, France*
- June 2014 **Presentation at the ”Journées de la SF2A”**  
*Université Paris 7, Paris, France*
- Jan. 2014 **Seminar at Leiden Observatory, Netherlands**
- Nov. 2013 **Seminar of the GEPI**  
*GEPI, Observatory of Paris, France*
- Jan. 2013 **Presentation at the “Shaping galaxy evolution” workshop**  
*Observatory of Paris, France*
- Jan. 2013 **Seminar at Lastro**  
*Observatory of Geneva, Switzerland*
- July 2011 **Poster at “Galaxy Formation : An International Conference”**  
*Durham University, UK*
- June 2011 **Poster at the “The Cosmic Odyssey of Baryons” conference**  
*LAM, Marseille, France*
- 2009-2011 **Presentations at the Conferences of Paris Astrophysics Ph.D. students**  
*IAP, Paris, France*

## REFEREED ARTICLES

1. **Quantifying stellar radial migration in an N-body simulation : blurring, churning, and the outer regions of galaxy discs**  
2015A&A...578A..58H  
Halle, Anaëlle ; Di Matteo, Paola ; Haywood, Misha ; Combes, Françoise
2. **Influence of baryonic physics in galaxy simulations : A semi-analytic treatment of the molecular component**  
2013A&A...559A..55H  
Halle, Anaëlle ; Combes, Françoise
3. **A Nonuniform Dark Energy Fluid : Perturbation Equations**  
2008ApJS..177....1H  
Halle, Anaëlle ; Zhao, HongSheng ; Li, Baojiu
4. **Mapping a stellar disk into a boxy bulge : the outside-in part of the Milky Way bulge formation**  
2014A&A...567A.122D  
Di Matteo, P. ; , Haywood, M. ; Gómez, A. ; van Damme, L. ; Combes, F. ; Halle, A. ; Semelin, B. ; Lehnert M. D. ; , Katz, D.