

Curriculum Vitae of Paul Maurice Mollière, Postdoc

Contact

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Scientific interests

Physics of exoplanet atmospheres
Retrieval of exoplanet spectra
Formation of exoplanets
Code development

Experience

From fall 2022 **Staff scientist**, Max-Planck-Institut für Astronomie, Heidelberg, Germany

Since Oct. 2019 **Postdoctoral researcher**, Max-Planck-Institut für Astronomie, Heidelberg, Germany

Sept. 2017 – Oct. 2019 **Postdoctoral researcher**, Leiden Observatory, University of Leiden, the Netherlands

Education

2013–2017 **PhD in astronomy**
 Max-Planck-Institut für Astronomie / University of Heidelberg, Germany
 Supervisor: Prof. Dr. Thomas Henning,
 Final grade: 1.0, “very good”, with distinction “summa cum laude”

2012–2013 **Master of Advanced Study in Astrophysics**
 Institute of Astronomy, University of Cambridge, United Kingdom
 Final grade: Distinction (equivalent to First Class)

2011–2012 Master of Science in Physics: 2-year program, discontinued in 2012 (went to Cambridge instead),
 University of Heidelberg, Germany

2008–2011 **Bachelor of Science in Physics**
 Final grade: 1.3, “very good”
 University of Heidelberg, Germany

Awards

2017 **Otto Hahn Medal**
 Max Planck Society

2013 **Institute of Astronomy Prize**
 awarded to the astrophysics candidate who has shown the greatest distinction.
 University of Cambridge

2013 **Ida Freund Prize**
 Girton College, University of Cambridge

2013 **Henry Tomkinson Scholarship**
 Girton College, University of Cambridge

Students

2016 **Patrick Barth** (Bachelor thesis)
 Title: “Large-Scale Circulation with Cloud Formation in Planetary Atmospheres”.

2018 **Joost Wardenier** (Master thesis)
 Title: “ A Bayesian Retrieval Tool for Clouds in Exoplanet Atmospheres”

- 2019 **Robin Petermann** (Master thesis)
Co-supervisor, title: “Atmospheric characterization of terrestrial planets using high-resolution spectroscopy with ELT/METIS”
- 2020 – **Evert Nasedkin** (PhD thesis)
Topic: retrievals of directly imaged exoplanets

Teaching

- June 2018 **Lecture on “Atmospheric models of exoplanets and spectroscopic retrieval”**
DFG “Hands-on Numerical Astrophysics School for Exoplanetary Sciences” in Höchst, Germany
- Winter 2014/15 **Exercise teacher of the “Principles of Simulations Methods” lecture**
held by Prof. Dullemond and Prof. Klahr, University of Heidelberg, Germany

Observing Experience

- 20 July – 5 Aug. 2015 **FEROS (RV follow-up) with the MPG-ESO 2.2m telescope at La Silla, Chile**
16 nights
- Aug – Sept. 2010 **Exoplanet transit observations on Königstuhl in Heidelberg, Germany**
Summer internship at MPIA, including development of own light curve fitting algorithm.
Supervisor: Christoph Mordasini

Successful observing proposals

- 2019 **“ExoGRAVITY” Large Program with VLTI/GRAVITY**
awarded 14 nights, PI S. Lacour, significant contribution to written proposal, serving as lead modeler

Outreach

- 23 November 2019 **“Atmosphären von Exoplaneten - Beobachtung und Modellierung”**
“Exoplanet atmospheres: observations and modeling”, talk for high school students, MPIK, Heidelberg
- 17 October 2019 **“Atmosphären von Exoplaneten - Beobachtung und Modellierung”**
“Exoplanet atmospheres: observations and modeling”, talk for high school teachers, HdA, Heidelberg
- 13 October 2019 **“Wie Astronomen Atmosphären von Exoplaneten erforschen”**
“How astronomers investigate exoplanet atmospheres”, outreach talk at HdA, Heidelberg
- 2014-2017 **Outreach fellow of the Haus der Astronomie (HdA)**
Including observatory tours, planetarium presentations, Heidelberg, Germany

Talks

- 27 May 2021 **“From atmospheric to planet formation retrievals”**
Invited talk, Astrophysics Seminar, online talk at the McMaster University, Hamilton, Canada
- 16 April 2021 **“From atmospheric to planet formation retrievals”**
Invited talk, Astronomy Seminar, online talk at the University of Stockholm, Sweden
- 6 April 2021 **“From atmospheric to planet formation retrievals”**
Invited talk, Séminaire Lagrange, online talk at Observatoire de la Côte d’Azur, Nice, France
- September 2020 **“Retrieving the atmospheric properties of directly imaged planets”**
EPSC 2020, virtual meeting
- 4 September 2020 **“From exoplanet atmospheres to planet formation”**
Invited talk, IMPRS Summer School, Heidelberg, Germany
- 24 April 2020 **“From exoplanet atmospheres to planet formation”**
Invited talk, Königstuhl Colloquium, MPIA, Heidelberg, Germany
- 14 August 2019 **“Retrieving (cloudy) emission spectra & detecting isotopologues”**
Exoclimes, University of Oxford, UK
- 26 June 2019 **“Retrieving (cloudy) emission spectra”**
Exoplanet Summer Program, OWL, University of California, Santa Cruz, USA
- 14 May 2019 **“The hunt for isotop(ologu)es in exoplanet atmospheres”**
Invited talk, Exocomets workshop, Lorentz Center, Leiden, the Netherlands

9 May 2019 **“The hunt for isotop(ologu)es in exoplanet atmospheres”**
Invited talk, Astrophysics Colloquium, Universität Göttingen, Germany

8 March 2019 **“Modeling of Exoplanet Atmospheres and the Hunt for Isotopologues”**
Observatory Seminar, Leiden Observatory, the Netherlands

29 January 2019 **“Opacities in Spectral and Atmospheric Modeling”**
Invited talk, Digital Exoplanets workshop, Prague University, Czech Republic

9 November 2018 **“Detecting Isotopologues in Exoplanet Atmospheres”**
Invited talk, ETH Zurich, Switzerland

29 October 2018 **“Detecting Isotopologues in Exoplanet Atmospheres”**
Invite talk, Astrophysics Colloquium, Universität Tübingen, Germany

5 October 2018 **“Detecting Isotopologues in Exoplanet Atmospheres”**
HoRSE workshop, Université Côte d’Azur, Nice, France

27 July 2018 **“Detecting Isotopologues in Exoplanet Atmospheres”**
Exoplanet Summer Program, OWL, University of California, Santa Cruz, USA

15 May 2018 **“Detecting Isotopologues in Exoplanet Atmospheres”**
Nederlandse Astronomenconferentie, Groningen, the Netherlands

24 April 2018 **“Detecting Isotopologues in Exoplanet Atmospheres”**
Invited talk, Oort Workshop: “Planet Habitability and the Search for Life outside the Solar System”, Leiden, the Netherlands

13 February 2018 **“Exoplanet characterization with JWST”**
“Exoplanets and Disk Meeting”, API, Amsterdam, the Netherlands

9 November 2017 **“Exoplanet characterization with JWST”**
Invited talk, “CSH Seminar”, Center for Space and Habitability, Bern, Switzerland

29 September 2017 **“Modeling of Exoplanet Atmospheres and and Parameter Retrieval”**
Invited talk, Königstuhl Colloquium, MPIA, Heidelberg, Germany

16 December 2016 **“The imprint of formation on planetary spectra”**
“Search for Life: From Early Earth to Exoplanets” conference, Quy Nhon, Vietnam

29 September 2016 **“Synthetic JWST Spectra for Prime Exoplanet Targets”**
Japanese–German Meeting, Ishigaki Island, Japan

20 September 2016 **“Synthetic JWST Spectra for Prime Exoplanet Targets”**
Invited talk, Leiden Observatory, the Netherlands

14 September 2016 **“Synthetic JWST Spectra for Prime Exoplanet Targets”**
Exodisks Workshop, STScI, Baltimore, USA

8 September 2016 **“Synthetic JWST Spectra for Prime Exoplanet Targets”**
Invited talk, CEHW Seminar, Pennsylvania State University, State College, USA

23 June 2016 **“Modeling of Exoplanet Atmospheres”**
MPG external visiting committee, MPIA, Heidelberg, Germany

9 Dec. 2015 **“petitCODE for planetary atmospheric structures and spectra”**
API, Amsterdam, the Netherlands

16 June 2015 **“Planetary atmospheres & spectra”**
IMPRS Evaluation, Heidelberg, Germany

20 Nov. 2014 **“A new code for atmospheric structures and spectral calculations”**
“Getting ready for Planetology beyond the Solar System” workshop, Ringberg Castle, Germany

18 Nov. 2014 **“Exoplanets: Linking formation and spectra”**
“Getting ready for Planetology beyond the Solar System” workshop, Ringberg Castle, Germany

6 Nov. 2014 **“Exoplanets: Linking formation and spectra”**
“German Japanese Meeting” workshop, MPIA, Heidelberg, Germany

25 Sept. 2014 **“Planetary spectra from bulk envelope abundances”**
“Exoplanets with JWST-MIRI” conference, MPIA, Heidelberg, Germany

18 Sept. 2014 **“Models of Planet Formation”**
Invited review, “Towards Other Earths II: The Star-Planet Connection” conference, Porto, Portugal

26 Aug. 2014

“Linking a planet’s formation history to its present-day composition”

Invited talk, “The Disk in Relation to the Formation of Planets and their Protoatmospheres” ISSI-BJ/ISSI workshop, Beijing, China

13 May 2014

“Towards self-consistent P-T profile modeling in exoplanet atmospheres”

“Exo-Abundances: Abundance Measurements in Exoplanetary Atmospheres”-workshop, IPAG, Grenoble, France