

PIERRE GUILLARD'S CURRICULUM VITÆ

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Research Experience & Professional History

2014-now **Assistant Professor** at IAP / University Paris 6, Pierre et Marie Curie, France
2013-2014 **Post-doctoral CNES Fellowship** at the Institut d'Astrophysique Spatiale (IAS), Orsay, France
2010-2012 **Post-doctoral Scholar** at the California Institute of Technology. *Molecular gas and star formation in galactic winds and active galactic nuclei*. Supervised by P. Ogle & P. Appleton.
2006-2009 **PhD** in Astrophysics and Space Science. "*Molecular Hydrogen in Galaxy Evolution*" Supervisors: François Boulanger, Guillaume Pineau des Forêts. IAS, Université Paris-Sud 11, Orsay, France.
2006 **Master II internship** (4 months) *Evolution of interstellar dust*, supervised by Anthony Jones. IAS, Université Paris-Sud 11, Orsay, France
2004 **Master I internship** (4 month) "*Tully-Fisher relation in the local Universe and the Hubble constant*", supervised by M. Hanski, P. Teerikorpi & G. Theureau. Tuorla Observatory, Turku, Finland and GEPI, France
2003 **Post BS internship** "*Radio observations and modeling of the propagation of electrons in the solar corona*", supervised by Karl-Ludwig Klein. Paris-Meudon observatory, France.
2001 **Post undergraduate certificate internship** "*Radio observations of neutral gas in spiral galaxies*", supervised by G. Theureau, K.L. Klein & I. Cognard. Nançay Radio-telescope and Paris-Meudon Observatory

Education

2005-2006 **Master II degree in Astrophysics** (ranked 1st out of 34) IAS, Université Paris-Sud 11 & IAP
2004-2005 **Agrégation de Sciences Physiques** Highest teacher degree in Physics and Chemistry with selective admission, national rank: 9/218. Ecole Normale Supérieure, Paris, top-rated Institute of higher education with very selective admission in France.
2003-2004 **Master's degree in Fundamental Physics (MS)** with highest honors. Université Paris-Sud 11, France
2002-2003 **Bachelor's degree in Physics (BS)** with highest honors. Université Paris-Sud 11
2000-2002 **2-year advanced preparatory course for institutes of higher education** with selective admission requirements, Lycée Saint Louis, Paris.
1999-2000 **French HS diploma, Science major** with highest honors. Lycée Bernard Palissy, Gien, France.

Research activities

Main topics Modeling of interstellar matter physics and chemistry in the context of galaxy formation and evolution. Role of turbulence and cosmological environment in galaxy and structure formation. Observations of gas and dust in galaxies with major space and ground-based facilities: *Spitzer*, *Herschel*, *HST*, *IRAM*, *APEX*, *ALMA*.
Instrumentation Development of super-resolution methods for the reconstruction of the Point Spread Function (PSF) of the visible and near-infrared imagers of *Euclid* space mission. Optical performance tests of the infrared camera MIRI onboard the **James Webb Space Telescope**. High-resolution characterization and reconstruction of the JWST MIRI PSF.

Research: publications and communications

Publications Since 2009, **25 A-refereed publications**, for a total of ~ 750 citations ($h = 15$) among which 7 refereed publications as first author, collecting ~ 250 citations. 9 first author conference proceedings.
Communication **3 invited reviews**, and a total of **23 talks** in international colloquia or conferences. **15 invited talks** (including IAP, Caltech, Stanford, Princeton, Johns Hopkins, Carnegie observatory, UCSB)

Contributions to space projects

2009-now JWST MIRI European Consortium member, MIRI co-I
2008-2013 JWST MIRI imager co-I, optical performance of the infrared imager and PSF quality analysis
2014-now Euclid VIS co-I, member of the OU-MER and OU-VIS working groups, in charge of the data reduction of the optical data and multiple band data merging.

Scientific management and responsibilities

2014-now	Co-supervision (with F. Boulanger and M. Lehnert) of the PhD thesis of Nicolas Cornuault, Institut d'Astrophysique de Paris, France. Topic: " <i>Physics of gas accretion onto halos of galaxies</i> "
2014-now	Co-responsible of the JWST MIRI spectroscopic high-redshift program for GTO time.
2011	Supervision of a Master 2 student internship at Caltech (6 months intership, IPAC visitor program)
2008-2013	Responsible for the lab characterization of the JWST MIRI imager PSF at $5.6\mu\text{m}$.

Institutional responsibilities and commissions of trust

2010-now	Referee for the journals Astronomy & Astrophysics, MNRAS and ApJ (3-5 articles per year)
2013-now	Co-responsible of the Master 2 course on magneto-hydrodynamics, shock and photo-dissociation codes and data interpretation, University Paris 6.
2014-now	Co-organizer of the weekly colloquia of IAP (most attended seminar in the Paris area)
Workshops	Co-organizer, SOC member of the SPIE JWST MIRI Imager meeting, San Diego, CA, 5-8 June 2010. Co-founder and co-organizer of the first conference gathering all PhD students in Astrophysics in the Paris area, http://conference-elbereth.obspm.fr Member of the LOC for the workshop "H ₂ EX, The Molecular Hydrogen Explorer", IAP, 3-4 April 2007

Observing time allocation to International Facilities (as PI only)

2014-2015	ESO/ALMA Cycle 2, 35h, 2 programs. Pressure factor ~ 12 . NASA/Hubble Space Telescope, Cycle 22, 45 orbits, COS spectroscopy. Pressure factor ~ 11 .
2012-2013	ESA/ <i>Herschel</i> , 42h, 3 programs, open time cycle 1 & 2, in priority 1. Pressure factor ~ 10 .
2007-now	Numerous proposals with IRAM 30m-PdBI, ESO/APEX, NASA/Spitzer, more than 200h. Pressure $\sim 5-7$
2010-2012	Palomar, TripleSpec JHK spectroscopy, 7 nights (3 programs). Pressure ~ 5

Data reduction skills

Space data	JWST/MIRI with the IDL DHAS tool. Far-infrared <i>Herschel</i> data (HIPE & IDL/PACSMAN). Infrared <i>Spitzer/IRS</i> spectroscopy (<i>Smart</i> and <i>SPICE</i> , spectral cubes extraction with the CUBISM).
Ground-based	Radio data: single-dish and interferometers with GILDAS/CLASS (IRAM). Optical and near-infrared imaging and spectroscopy data with IDL and IRAF.

Models and numerical codes (<http://ism.obspm.fr>)

MHD shocks	Intensive use and development of the Magneto-HydroDynamical Paris-Durham shock code.
PDR	Intensive use of the Meudon Photo-Dissociation Region code (PDR, Le Petit et al.) and CLOUDY
DUSTEM	Intensive use to compute infrared emission from dust grains. New version coupled to Meudon PDR

Teaching

2015-2016	Assistant Professor Service at Paris VI University. L1: Classical Mechanics (40h), MS 1: Waves and interferences (Lab experiments and course 40h), MS 2: magneto-hydrodynamics methods (30h)
2013-2014	15h course on <i>Herschel</i> PACS and SPIRE data reduction for the international Planck-Herschel school (Paris) 30h course on magneto-hydrodynamics, shock and PDR codes and data interpretation for Master 2 students.
2010-2012	Introduction to Astronomy Physics for the BSc (University of Pomona, California, 50h)
2006-2009	Teaching Assistant at University of Paris-Sud 11 , Orsay, France. 264 hours in 3 years during the PhD thesis. MS 1: observations and CCD data reduction. Lab experimental physics (MS 1, lasers, optics and atomic physics). MS 1: Quantum Mechanics (40 hours/year).
2005-2008	Teaching Assistant for the preparation of higher education schools with selective admission requirements, 50 hours / year. <i>Lycée Saint Louis, Paris</i>

Educational activities and Outreach

2015-now	Active member of the F93 scientific and technical cultural center, promoting astronomical outreach in public schools, http://www.f93.fr/?language=en Regular conferences and astronomical experiments in schools Active participation to science outreach events (Fête de la Science, Forum "Faites de la Science")
2014	Publication of an article in the french national magazine Ciel & Espace: <i>Les objectifs scientifiques du James Webb Space Telescope</i>
2009	Organization of astronomical observations and conferences for the International year of astronomy 2009