

DAZZI Alexandre
07/04/1970

Tenure Professor
Institut de Chimie Physique
alexandre.dazzi@universite-paris-saclay.fr
www.icp.u-psud.fr
Université Paris-Saclay
Bâtiment 350
91405 ORSAY

1. Degrees

2008: PhD Habilitation, « Habilitation à Diriger les Recherches » obtained at the Université Paris-Sud, France, the 15th October. Title ; “From optics to thermomechanics, use of a nanoscale probe for the measurement of absorption in the IR range. ”

« De l’optique vers la thermomécanique: une sonde nanométrique pour la mesure d’absorption dans le domaine infrarouge».

1998: PhD thesis, in Physics, a mention with honour and congratulations from the jury (Laboratoire de Physique de l’Université de Bourgogne, France. Title: “The optical characterisation of photorefractive planar waves and its use in integrated optical processing devices. ”

« Caractérisations optiques de guides d’ondes planaires photoréfractifs. Application aux dispositifs intégrés de traitement optique de l’information »).

1994: Masters in physics, Université de Bourgogne, France.

1994: Ingénieur E.S.I.R.E.M. (ingénieur in material research) at Dijon, France.

1991: Bachelor in physics, Université de Bourgogne, France.

2. Education

2015: Full Professor position at Université Paris-Saclay.

2000: Tenure Associate Professor at the Université Paris-Sud, France

1999-2000: Post-doctoral position, CNRS-Unilever at the Paul Pascal Centre of Recherche, Bordeaux-Pessac, France.

1998-1999: ATER at the Université de Bourgogne, France. Teaching in physics department.

3. Teaching activities

Director of the near-field microscope teaching platform of the University Paris-Sud (5 AFM and 4 STM, 400k€ of cumulative grants). The courses are:

- Master 1 Physics, fundamentals and applications
- Master 1 Information systems and technology
- Polytech Paris-Sud , Materials Science 2^{ème} et 3^{ème} année
- Master 2 QMLN
- Master 1 Materials science
- Master 1 Physical Chemistry

Thematic school: “Thermal nanosystems and nanomaterials” 26-30 mai 2008, Cargèse, France.

Thematic school: “SPM techniques applied to biology”, Obernay October 2014, France

4. Research activities

After inventing and developing the AFM-IR technique in 2005, I have worked to improve AFM-IR instrumentation and has focused heavily on the study of biomolecule production by microorganisms. Now, as the improvement has allowed new operating modes (tapping, peakforce, surface sensitive) and the possibility to study a huge variety of sample (organic or inorganic) the domain of applications has drastically increased. Thanks to this success, I am developing a user infrared facility, called MUSIICS (MUltiScale Infrared Imaging platform for Complex Systems), based on AFM-IR systems and IR microscope (total grants accumulated 4M€) and now collaborate with many scientist in different domain like astrophysics, culture heritage, polymer science, microbiology.

h-index : **27**

Number of Publications: **75**

(Nature com, Chem rev, Chem soc rev, Nature mat, PNAS, A&A, ...)

International orals communications: **75** of which 40 invited

National communications: **40**

Seminars: **40**

Book Chapters: **3**

PhD students : **8** (from 2001 to 2022)

Specialised journals

The first results obtained with bio-sample, more precisely, the detection of virus inside E.coli bacterium, has been enlightened by the C.N.R.S. by publishing an announce in « en direct des labo » (<http://www.cnrs.fr/fr/science-direct/actus.htm>) and on the website of the «Département de Chimie» (<http://www.cnrs.fr/chimie/index.htm>). This announce has been published also on SFC website (www.sfc.fr) in November 2008.

« Microscopy and analysis » 24 (3): 5-8 (SPM),2010, « Chemical and Engineering News ». 20 Sept 2010, « Laser Focus World » march 2011, Azonano.com « Nanotechnology thought leader » july 2011:<http://www.azonano.com/article.aspx?ArticleID=2921>, **wikipedia** website:<http://en.wikipedia.org/wiki/AFM-IR>, **NYMS** website : <http://www.nyms.org/current-abbe-awardee>.

Patents (7)

US Patent ([2008/0283,755](http://www.uspto.gov/patent/publications/details/20080283755) ; [2009/0249,521](http://www.uspto.gov/patent/publications/details/20090249521) ; [2011/0283,428](http://www.uspto.gov/patent/publications/details/20110283428) ; [2012/0050,718](http://www.uspto.gov/patent/publications/details/20120050718); [2021/0011,053](http://www.uspto.gov/patent/publications/details/20210011053)).
FR3085756 and WO2020049053A1. **All Licensed to Bruker nano company.**

Scientific prizes and awards

- 2014, «Ernst Abbe Memorial Award» from the **New York Microscopical Society**.
- 2011, Microscopy today's 2011 Innovation Award.
- 2010, R&D 100 Awards for the nanoIR.
- 2009, Instrumentation prize from the «Chimie Physique» division (French Chemical Society).

Popularisation of science.

Involved in 'fetes de la science' from 2004 to 2010.

Involved in the publication of popular science book 'Voir l'invisible' tome2 2019.

Popular science seminar at the UTL (Université temps libre) in Mars 2016 and november 2021.

Popular seminar in 'Les jeudi de la science', Mairie du 15ème Paris Mars 2023.

[Grants supervised/project leader.](#)

Dates	Funding type	Title	Funds
2008	Ministère de l'Industrie	Nanoscience and Teaching	50 k€
2010	Nanoinnov (Paris-Saclay)	Nanoscience for teaching	120 k€
2010	ERM-Université Paris-Sud	NanoIR acquisition	110 k€
2012-2013	Idefi FINMINA	Innovative lab works in Nanoscience	63 k€
2014	ASTRE, Conseil général de l'ESSONNE	Plateforme de Nano-Spectro-Imagerie	250k€
2014	ERM UPSUD	Plateforme de Nano-Spectro-Imagerie	50k€
2015	ANR	Coupling Acoustic AFM and AFM-IR	130k€
2015	Labex NanoSaclay	nanoSPIM/FTIR	77k€
2017	Idefx Paris-Saclay	TP innovant	120k€
2017	DIM MAP	NIRMA	160k€
2017	ANR	COMETOR	90k€
2019	DIM MAP	MUSIICS	1.3M€
2022	PEPR Origines	Astro-AFMIR	1.6M€

[Services contracts.](#)

The MUSIICS platform (MULTiScale Infrared Imaging platform for Complex Systems) headed by A.Dazzi, is composed by 3 nanoIR systems (Bruker) and 1 new ICON-IR system from Bruker and other infrared spectromicroscopes (LUMOS, MIRAGE). This platform is a user facility for academic scientist but is also used as a service platform for companies (usual customers: TOTAL, LOREAL, Michelin, St-Gobain).