Martino Trassinelli

Curriculum Vitæ

Institut des NanoSciences de Paris
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ℝ⁶ *Martino_Trassinelli*

Nationality	Italian and French
Current position	Researcher at the Centre National de la Recherche Scientifique (CNRS, France) in the group "Clusters and Surfaces under Intense Excitation" at the Institut des NanoSciences de Paris

Scientific interests

- Structure of highly charged ions and exotic atoms for studies on quantum electrodynamics, strong and weak interactions.
- Dynamics of highly charged ion in interaction with atoms, surfaces and clusters.
- High-resolution X-ray spectroscopy based on Bragg diffraction.
- Bayesian statistics and applications to data analysis.
- Foundations and interpretations of quantum mechanics.
- Physics of breath-hold diving.

Professional experiences

March 2021	**Visiting professor at the ExtreMe Matter Institute**, *GSI/FAIR*, Darmstadt, Germany.
Sept. 2017	**Habilitation à diriger des recherches (French habilitation)**, *Structure and dynamics of highly charged ions*, Université Pierre et Marie Curie, Paris, France.
April 2017	**Abilitazione Scientifica Nazionale (Italian habilitation)**, *Fisica Sperimentale delle Interazioni Fondamentali (Fascia II, SC 02/A1) and Fisica Sperimentale della Materia (Fascia II, SC 02/B1)*.
Since 2011	**Chargé de recherche de 1ère classe**, *CNRS*, Institut des NanoSciences de Paris, Paris.
2007 – 2011	**Chargé de recherche de 2ème classe**, *CNRS*, Institut des NanoSciences de Paris, Paris.
2006 – 2007	**Post-doc**, *Accurate measurement of intra-shell transitions and Balmer lines in heliumlike uranium*, GSI Helmholtzzentrum and Alexander von Humboldt-Stiftung, Darmstadt, Germany.

Formation

2002 – 2005	**Ph.D. thesis**, *Quantum Electrodynamics Tests and X-rays Standards using Pionic Atoms and Highly Charged Ions*, Laboratoire Kastler Brossel, Paris, France.
2001–2002	**2nd year of Master's degree in Particle and Nuclear Physics (DEA Champs, Particules et Matières)**, *University Pierre et Marie Curie and E.N.S.*, Paris, France.
2000–2001	**1st year of Master's degree in Physics (Maîtrise de Physique)**, *Université Pierre et Marie Curie and E.N.S.*, Paris, France.
1999 – 2000	**Licence de Physique**, *Université Pierre et Marie Curie and E.N.S.*, Paris, France.
1999 – 2002	**Magistère Inter-universitaire de Physique**, *Université Pierre et Marie Curie and E.N.S.*, Paris, France.
1997 – 1999	**Bachelor's degree in Physics (first two years)**, *Universiy of Florence*, Italy.
1996	**Maturità Artistica**, *Liceo Leon Battista Alberti*, Firenze, Italia.

Supervision of students and postdocs (S: supervision, CS: co-supervision)

Post-docs: 2 (2 S)	**Master students M1 and eq.:** 4 (3 S. 1 CS)
Ph.D. students: 6 (3 S, 3 CS)	**3th year univ. students:** 8 (4 S, 4 CS)
Master students M2 and eq.: 9 (8 S, 1 CS)	**Engineering school students:** 2 (1 S, 1 CS)

Scientific production

Articles: 67 (13 letters, 1 *Nature*)	**Invited talks in conf. and seminars:** 25
Book chapters: 5	**Oral contrib. to conf. and workshops:** 49
Proceedings with referee: 51	

Patents

April 2017	*Process for obtaining a giant magnetocaloric effect material by irradiation of ions*, French patent n. 1753170, US Patent App. 16/604,761

Teaching experience

2018 – pres.	**Lectures on *Theory of Classical Field* (part, 26h/year)**, *Research Master of Physics*, Sorbonne Université, Paris, France.
2016 – pres.	**Lectures on *Atoms and Molecules in Strong Field* (part, 8h/year)**, *Research Master Light, Matter and Interactions*, Sorbonne Université, Paris, France.
2020 – pres.	**Lecture and tutoring in *Bayesian statistics methods for data analysis* (4h/year)**, *Summer School on High Performance Computing in Astrophysics and Atomic Physics*, Lisbon Nova University, Lisbon, Portugal.
2023	**How many lines are there? - A Bayesian approach to quantitative spectroscopy (4h)**, *EXSA/LNHB School on Quantification Methods in X-ray Spectrometry*, LNHB, Palesau, France.
2006	**Lecture on *Exotic atoms* in the class Structure and Dynamics of Ions and Atoms (1h)**, *Research Master of Physics*, Goethe University Frankfurt, Germany.
2005	**Physics tutoring in *Thermodynamics* (36h of tutorial classes plus 40h of practical work)**, *University Pierre et Marie Curie, Paris, France*, 2nd year undergraduate class.
2003	**Physics tutoring in *Mechanics and Fluido-dynamics* (48h of tutorial classes plus 24h of practical work)**, *University Pierre et Marie Curie, Paris, France*, 1st year undergraduate class.

Codes

2024 – pres.	`Bayesian average`: A robust weighted average and its uncertainty from a set of data points and their uncertainties based on Bayesian statistical methods. `github.com/martinit18/bayesian_average`
2014 – pres.	`Nested_fit`: A versatile data analysis program based on Bayesian statistics for the evaluation of model probabilities and parameter posterior probability distributions. Written in Fortran with a Python library for post-analysis and plots. `github.com/martinit18/nested_fit`
2007 – pres.	`Minuit_fit`: A versatile χ^2 minimization program based on MINUIT CERN library with different choices of χ^2-statistics and profile functions. Written in Fortran.

Positions in the administration of research

2023 – pres.	Member of the topical working group on "Fundamental Interactions and Symmetries", for the "Nu-PECC Long Range Plan 2024"
2013 – pres.	Member of the international board of the Stored Particles Atomic Research Collab. (SPARC)
2011 – pres.	Coordinator of the group *Photon and X-Ray Spectrometers* of SPARC
2018 – 2024	Nominated member of the scientific council of the Institut des NanoSciences de Paris
2013 – 2018	Elected member of the laboratory council of the Institut des NanoSciences de Paris

Expert and referee activity

	Referee in the international journals: *Nature*, *Nature Rev. Meth. Primers*, *New J. of Phys.*, *Nanoscale*, *Astrophys. J.*, *Quantum Sci. Technol.*, *AVS Quantum Sci.*, *Ann. Phys. (N.Y.)*, *Ann. Phys. (Berl.)*, *Found. Phys.*, *Entropy*, *Spectrosc. Lett.*, *X-Ray Spectrom.*, *Nucl. Phys. A*, *J. Phys.*, *J. Chem. Phys.*, *J. Magn. Magn.*, *Nucl. Instrum. Methods A and B*, *J. Instrum.*, *Phys. Scr.*
2022 – pres.	Invited editor of the special issue *MaxEnt 2022* of *Entorpy* journal
2022 – pres.	Editor of the volume *MaxEnt 2022* of *Physical Sciences Forum* journal
2018 – pres.	Member of 5 Ph.D. Thesis committees, (3 at Sorbonne Univ.; 1 at Univ. Paris-Saclay; 1 Univ. Nova Lisboa)
2013 – pres.	Referee of 3 Ph.D. Thesis (Oulu University, TU Wien, Univ. Caen)
2019	Referee of Habilitation à diriger des recherches (French habilitation), Grenoble University
2014 – 2015	Member of the expert committee of Université Pierre et Marie Curie (atomic physics section)
2012	Member of the selection committee for an assistant professor position at the University Paris 13

Awards and recognitions

2013	**CNRS Scientific Excellence award**, *(formal version of CNRS Prime d'Encadrement Doctoral et de Recherche)*.
2006 – 2007	**Postdoctoral Humboldt Research Fellowships**.
1999 – 2003	**Élève fonctionnaire stagiaire**, *École Normale Supérieure de Paris*.

Foreign languages

Italian	**Mother tongue**
French	**Fluent**
English	**Fluent**