

**List of communications:
articles, conferences, etc.
of Martino Trassinelli**

Chargé de recherche hors classe avec habilitation

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Publications

Articles in peer reviewed journals

Letters and high-impact journals

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- [D9] M. Trassinelli, *Characterization of a ccd detector for exotic atom bragg crystal spectroscopy*, in EXA 2005, International Conference on Exotic Atoms, Austrian Accademy of Science Press, Vienna, Austria, 2005, pp. 343–347 (Selected poster contribution).
- [D10] P. Indelicato and M. Trassinelli, *From heavy ions to exotic atoms*, in Topics in Heavy Ion Physics: Memorial Symposium for Gerhard Soff, (J. Reinhardt and W. Greiner, eds.), EP Systema, Budapest, 2005, pp. 55–65.
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- [D12] M. Trassinelli, P. Indelicato, T. Jensen, B. Manil, D. F. Anagnostopoulos, H. Fuhrman, A. Gruber, A. Hirtl, J. Zmeskal, A. Blechmann, G. Borchert, D. Gotta, M. Hennebach, A. Dax, Y. W. Liu, V. E. Markushin, L. M. Simons, N. Nelms, and A. Wells, *Precision spectroscopy of pionic atoms: from pion mass evaluation to tests of chiral perturbation theory.*, in DAΦNE 2004: Physics at meson factories, (F. Anulli, M. Bertani, G. Capon, C. Curceanu-Petrascu, F. L. Fabbri, and S. Miscetti, eds.), Vol. 36, Frascati Physics Series, Frascati, Italy, 2004, pp. 343–348.
- [D13] D. F. Anagnostopoulos, S. Biri, H. Fuhrman, D. Gotta, M. Giersch, A. Gruber, A. Hirtl, M. Hennebach, P. Indelicato, T.-W. Liu, B. Manil, V. M. Markushin, N. Nelms, L. M. Simons, P. A. Schmelzbach, M. Trassinelli, and J. Zmeskal, *Precision spectroscopy of pionic hydrogen*, in EXA 2002, International Workshop on Exotic Atoms, Austrian Accademy of Science Press, Vienna, Austria, 2002.

- [D14] J. M. Hickmann, C. McCormick, M. Trassinelli, and R. Y. Chiao, *Forward four-wave mixing mediated by a kerr nonlinearity*, in Coherence and Quantum Optics VIII, Proceedings of the Eighth Rochester Conference on Coherence and Quantum Optics, held at the University of Rochester, June 13–16, 2001, Springer US, 2001, pp. 553–554 (Proceedings of the Eighth Rochester Conference on Coherence and Quantum Optics, held at the University of Rochester, June 13–16, 2001).

Patents and codes

Patents

- [E1] M. Trassinelli, S. Cervera, D. Vernhet, M. Marangolo, and V. Garcia *Procédé d'obtention d'un matériau à effet magnétocalorique géant par irradiation d'ions*, Patent FR 1753170 (2017), US 20200126697.

Programs

- [F1] *Nested_fit (version 5.5.4)* Data analysis package based on the Bayesian statistics. In addition to provide outputs similar to standard minimisation programs (chi-square, best parameter, uncertainties, etc.), it determines the complete probability distribution for each parameter and the Bayesian evidence, a quantity required to assign probability to different models. The evidence calculation is based on the nested sampling algorithm. Written in Fortran90 with some Python complementary routines. Users: some INSP researchers, metrology group at the LKB, Atomic Physics group at RIKEN and at the Nova University of Lisbon, some teams of LULI., 2014–pres. (https://github.com/martinit18/nested_fit).
- [F2] *Bayesian_average (version 0.2.4)* Package for the calculation of robust weighted average from a set of data points and their uncertainties based on Bayesian statistical methods. The proposed weighted average is particularly adapted to inconsistent data and for the presence of outliers, which can both false the results of standard methods. Written in Python, it can be installed via pip., 2024–pres. (https://github.com/martinit18/bayesian_average, <https://pypi.org/project/bayesian-average>).
- [F3] *Minuit_fit (version 1.5)* Data analysis package based on the minimization of the chi2 to determine, for given data and model function, the best set of parameters and their correspondent uncertainties. Based on the classic CERN library Minuit with a user customizable and friendly interface and with a library of functions and different chi-square types. Written in Fortran90 with some Python complementary routines. Users: members of the ASUR team at the INSP and some members of the Atomic Physics group of GSI, 2007–2018.

Conferences and seminars

Below are reported all the contribution personally presented by myself. In the last section of this chapter, the list of contributions from other authors of the work I directed are presented.

Invited oral contributions at conferences

- [G1] *Testing quantum electrodynamics in extreme fields using helium-like uranium*, **15th European Conference on Atoms Molecules and Photons (ECAMP)**, 30 June - 4 July 2025, Innsbruck, Austria.
- [G2] *Detection of surface magnetism with hollow atoms*, **21st International Highly Charged Ions Conference (HCI)**, 2 - 6 Sept. 2024, Egmond aan Zee, The Netherlands.
- [G3] *Testing quantum electrodynamics in extreme fields using helium-like uranium*, **International Conference on Precision Physics of Simple Atomic Systems (PSAS)**, 10 - 14 July 2024, Garching, Germany.
- [G4] *Sample surface magnetism detected with highly charged ions*, **24th International Workshop on Inelastic Ion-Surface Collisions (IISC)**, 10 - 15 Sept. 2023, Charleston, USA.
- [G5] *Testing quantum electrodynamics in the simplest and heaviest multi-electronic atoms*, **DPG Spring Meeting**, 5-10 March 2023, Cologne, Germany.
- [G6] *Light pionic and muonic atoms: investigation of hadron physics at low energy and atomic physics in exotic bound systems*, **Precision Physics, Quantum Electrodynamics and Fundamental Interactions**, 30 April - 5 Mai 2017, Cargèse, France.
- [G7] *Measurement of the pion mass from X-ray spectroscopy of exotic atoms*, **14th International Workshop on Meson Production, Properties and Interaction (MESON)**, 2-7 June 2016, Krakow, Poland.
- [G8] *Symmetric heavy collision systems at low energy investigated by high resolution X-ray spectroscopy*, **23rd International Symposium on Ion Atom Collisions (ISIAC)**, 19-22 July 2013, Beijing, China.
- [G9] *Accurate Spectroscopy of Excited Levels in He-like Uranium*, **International Conference on the Physics of Highly Charged Ions (HCI)**, 30 August - 3 September 2010, Shanghai, China.
- [G10] *Correlations and Quantum Electrodynamics effects in He-like uranium*, **DPG Spring Meeting**, 10-14 March 2008, Darmstadt, Germany.

Selected oral contributions at conferences

(Conferences and workshops with international selecting committee)

- [H1] *Weighted average of inconsistent data: a Bayesian approach*, **43rd International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT)**, 1 - 5 July 2024, Ghent, Belgium.
- [H2] *A unique probability function for quantum and classical phenomena where distributivity is violated*, **The 20th European Conference on Foundations of Physics (FOUNDATIONS)**, 28 - 30 October 2021, Paris, France.
- [H3] *Conditional Probability, Quantum Time and Friends*, **40th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT)**, 4 - 9 July 2021, Online conference.
- [H4] *Tuning disorder in a first-order magnetoelastic transition*, **64th Annual Conference on Magnetism and Magnetic Materials (MMM)**, 4 - 8 November 2019, Las Vegas, United States.
- [H5] *Bayesian data analysis of atomic spectra*, **XXXIst International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC)**, 24 - 30 July 2019, Deauville, France.
- [H6] *A unique probability function for quantum and classical phenomena where distributivity is violated*, **39th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT)**, 30 June - 5 July 2019, Garching, Germany.
- [H7] *Optimisation of giant magnetocaloric materials with ion irradiation*, **10th International Symposium on Swift Heavy Ions in Matter & 28th International Conference on Atomic Collisions in Solids (SHIM-ICACS)**, 1-6 July 2018, Caen, France.
- [H8] *HCI collisions to suppress the thermal hysteresis in magnetocaloric thin films*, **18th International Conference on the Physics of Highly Charged Ions (HCI)**, 11-16 September 2016, Kielce, Poland.
- [H9] *Suppression of the Thermal Hysteresis in Magnetocaloric Materials by Highly Charged Ion Bombardment*, **MMM Intermag 2016 Joint Conference**, 11-15 January 2016, San Diego, United States.
- [H10] *Highly charged ions impact, a promising route to exploit the refrigeration power of giant magnetocaloric thin films*, **21th International Workshop on Inelastic Ion-Surface Collisions (IISC)**, 18 - 23 October 2015, Donostia-San Sebastián, Spain.
- [H11] *Slow highly charged ion colliding with atoms, clusters and solid*, **26th International Conference on Atomic Collisions in Solids (ICACS)**, 13-18 July 2014, Debrecen, Hungary.
- [H12] *Contribution of multiple capture processes in slow collisions of highly charged ions with a many electrons target*, **46th Conference of the European Group on Atomic Systems (EGAS)**, 1-4 July 2014, Lille, France.

- [H13] *Investigation of (quasi) symmetric slow collisions between highly charged ions and free atoms*, **16th International Conference on the Physics of Highly Charged Ions (HCI)**, 2-7 September 2012, Heidelberg, Germany.
- [H14] *Investigation of (quasi) symmetric slow collisions between highly charged ions and free atoms*, **44th Conference of the European Group on Atomic Systems (EGAS)**, 9-13 July 2012, Gothenburg, Sweden.
- [H15] *Magnetic properties changes of MnAs thin films irradiated with highly charged ions* **19th International Workshop on Inelastic Ion-Surface Collisions (IISC)**, 16-21 September 2012, Frauenthemsee , Germany.
- [H16] *Determining clustering properties through the selectivity of collision dynamics*, **XXVII International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC)**, 27 July - 2 August 2011, Belfast, Northern Ireland, UK (**selected topic**).
- [H17] *Measurement of the Lamb shift in hydrogen-like lead using crystal spectroscopy methods*, **European Group on Atomic Systems Conference (EGAS)**, June 7-10 2006, Ischia, Italy.
- [H18] *Precision spectroscopy of pionic atoms: from pion mass evaluation to tests of chiral perturbation theory*, **4th DAΦNE 2004: Physics at meson factories**, June 7-11 2004, Frascati, Italy.
- [H19] *High Resolution He-like Argon and Sulfur Spectra from the PSI ECRIT*, **Electron Cyclotron Resonance Ion Sources: 16th International Workshop on ECR Ion Sources ECRIS'04**, September 26-30 2004, Berkeley, California (USA).

Invited oral contributions at workshops

- [I1] *Classical and quantum probability, two faces of the same coin, and the coin is quantum!* , **John Skilling 80th birthday meeting**, 5 Sept. 2025, Cambridge, United Kingdom.
- [I2] *Exploration of complex functions assisted by ML methods: quantitative model evaluation and material phase diagrams*, **Journée de discussion AI4Science**, 27 June 2025, Paris, France.
- [I3] *Une introduction à l'analyse des données basée sur la statistique bayésienne*, **Journée du Groupe de Travail Entropie, Mots, Stat**, 14 - 15 Nov. 2024, Caen, France.
- [I4] *Testing quantum electrodynamics in extreme fields without using lasers*, **Frontiers Research School on Advanced data processing methods**, 9-11 October 2024, Barcellona, Spain.
- [I5] *New Stringent Test of Bound-State QED: High-Resolution Measurement of an Intra-Shell Transition in He-like Uranium*, **19th SPARC Topical Workshop**, 6 - 9 Sept. 2022, Jena, Germany (hybrid).
- [I6] *Ion Structure and Ion-Ion Collisions with storage rings*, **EMMI half-day** 2 February, 2022, Darmstadt, GSI (hybrid).
- [I7] *High Precision Tests of Strong-Field QED in He-like Uranium* , **17th SPARC Topical Workshop**, 14-16 September 2020, Online conference.

- [I18] *Test of Quantum Electrodynamics in strong electric field at FAIR phase-0*, **NUSTAR Week 2019**, 23-27 September 2019, Gif-sur-Yvette, France.
- [I19] *High Precision Tests of Strong-Field QED in He-like Uranium*, **16th SPARC Topical Workshop**, 9-13 September 2019, Jena, Germany.
- [I10] *The FOCAL future for an accuracy better than 1eV*, **EMMI Rapid Reaction Task Force: 1s Lamb shift in heavy H-like ions: towards an accuracy of < 1 eV**, 17-19 September 2018, Jena, Germany.
- [I11] *The FOCAL Experiment: 1s Lamb Shift in H-like Au*, **EMMI Rapid Reaction Task Force: 1s Lamb shift in heavy H-like ions: towards an accuracy of < 1 eV**, 17-19 September 2018, Jena, Germany.
- [I12] *Bayesian data analysis tools for atomic physics*, **SPARC Topical Workshop**, 7-11 September 2018, Lisbon, Portugal.
- [I13] *Quantum Electrodynamics tests from X-ray spectroscopy of highly charged ions*, **Symposium on “Precision Physics Experiments with Stored Highly Charged Ions at Low Energie”**, 12-16 August 2018, Lanzhou, China.
- [I14] *Highly charged ions impact, a promising route to exploit the refrigeration power of giant magnetocaloric thin film*, **Mate Workshop**, 2 February 2018, Paris, France.
- [I15] *Highly charged ions impact, a promising route to exploit the refrigeration power of giant magnetocaloric thin films*, **NanoAndes Workshop**, 30 Nov. - 1 Dec. 2017, Buenos Aires, Argentina.
- [I16] *High-resolution differential Measurements Between Two-and Three-Electron Uranium Ions for High-Precision Tests of Strong-Field QED*, **14th SPARC Topical Workshop**, 11-14 September 2017, Caen, France.
- [I17] *High-accuracy low-energy X-ray spectroscopy at CRYRING*, **Research with CRYRING@ESR**, 24-25 April 2017, Darmstadt, Germany.
- [I18] *Quantum Electrodynamics tests in strong field with heavy ions*, **Journées FAIR-France**, 17-18 Mai 2017, Orsay, France.
- [I19] *Highly charged ions impact, a promising route to exploit the refrigeration power of giant magnetocaloric thin films*, **Journées annuelles de la SF2M**, 26 - 28 October 2015, Paris, France.
- [I20] *Images MFM de couches minces d'arséniure de manganèse irradié par des ions multichargés*, **Microscopie en champ proche à l'INSP**, 3 December 2015, Paris, France.
- [I21] *Highly charged ions impact, a promising route to exploit the refrigeration power of giant magnetocaloric thin films*, **11th Topical Workshop of the SPARC collaboration**, 22-27 September 2015, Fodele, Greece.
- [I22] *High-accuracy X-ray spectroscopy: a unique tool for studying atomic structure and dynamical processes in high Coulomb fields*, **X-ray Physics Workshop**, 24-26 February 2014, Jena, Germany.

- [I23] *Astrophysics in lab via slow highly charged ion collisions with multi-electron targets*, **EMMI Physics Days 2013**, 18-19 November 2013, Darmstadt, Germany.
- [I24] *$n = 2 \rightarrow 2$ transitions in highly charged two-electron ions*. **10th Topical Workshop of the SPARC collaboration**. 28-29 October 2013, Jena, Germany.
- [I25] *$n = 2 \rightarrow 2$ transitions in highly charged two-electron ions*, **Mini workshop: Wavelength standards in the x-ray region Helmholtz-Institut Jena**, 19 April 2013, Jena, Germany.
- [I26] *Experiments at the SIMPA ECR ion source in Paris: ion collisions*, **Micro-calorimeters applied for precision x-ray experiments: x-ray spectroscopy towards FAIR**, 31 January 2013, Jena, Germany.
- [I27] *Interaction of slow HCI with gaseous targets: absolute x-ray emission cross sections and contribution of multi-capture processes*, **8th International Topical SPARC Workshop**, 5-10 September 2011, Moscow, Russia.
- [I28] *Accurate Spectroscopy of Excited Levels in He-like Uranium*, **Physics Prospects at the ESR and HITRAP, EMMI Institute Workshop**, June 27-30 2010, Eisenach, Germany.
- [I29] *Accurate Spectroscopy of Excited Levels in He-like Uranium*, **26th Wilhelm and Else Heraeus Seminar, Atomic Theory for Fundamental Interactions and Simple Systems in Strong Fields**, January 18-21 2009, Bad Honnef, Germany.
- [I30] *Accurate Spectroscopy of Excited Levels in He-like Uranium*, **5th SPARC Workshop**, September 23-28 2008, Predeal, Romania.
- [I31] *Low X-ray spectroscopy of highly charged ions*, **Topical Workshop of the SPARC Collaboration: Novel Research Opportunities for Atomic Physics with Heavy Ions: Facilities and Instrumentation**, February 12-15 2007, Paris, France.
- [I32] *Atomic Physics with Highly Charged Ions at Storage Rings*, **XXXVIII. Arbeitstreffen Kernphysik**, February 22 - March 1 2007. Schleching.
- [I33] *X-ray spectroscopy at HITRAP*, **HITRAP and Cave-A Topic workshop**, November 20-21 2006, Darmstadt, Germany.
- [I34] *X-ray spectroscopy with HCI's at MAXEBIS and HITRAP*, **Workshop on "Charge breeding and related topic"**, May 22-24, 2006 Darmstadt, Germany.

Invited seminars

- [L1] *Classical and quantum probability, two faces of the same medal (and the medal is quantum!)*, **Les ateliers du LKB**, 5 Dec. 2024, Paris, France.
- [L2] *An introduction to Bayesian data analysis for model selection and other applications*, **LULI laboratory seminar**, 28 Nov. 2024, Paris, France.
- [L3] *Detecting surface magnetism with highly charged ions*, **GSI atomic physics group seminar**, 23 Oct. 2024, Paris, France.

- [L4] *Testing quantum electrodynamics in the simplest and heaviest multi-electronic atoms*, **Laboratoire Kastler Brossel seminar**, 1 March 2023, Paris, France.
- [L5] *Light pionic and muonic atoms: investigation of hadron physics at low energy and atomic physics in exotic bound systems*, **Institute of Modern Physics seminar**, 29 August 2018, Lanzhou, Paris.
- [L6] *One deep breath to go 200 m deep in the sea: the physics of freedivers*, **Scuola Galileiana seminar**, 19 April 2018, Padova, Italy.
- [L7] *Bayesian data analysis tools for physics*, **CELIA laboratory seminar**, 31 January 2018, Bordeaux, France.
- [L8] *Bayesian data analysis tools for physics*, **Colloquium of Physics and Astronomy department, University of Exeter**, 15 December 2017, Exeter, United Kingdom.
- [L9] *One deep breath to go 200 m deep in the sea: the physics of freedivers*, **IFIR seminar**, 24 November 2017, Rosario, Argentina.
- [L10] *Study of quantum electrodynamics and chromodynamics in atomic bound systems*, **Colloquium INFN Firenze**, 8 November 2017, Firenze, Italy.
- [L11] *Study of quantum electrodynamics and chromodynamics in atomic bound systems*, **Hunt for the Impossible atoms seminar, founded by the John Templeton Foundation**, 7 November 2017, Frascati, Italy.
- [L12] *Un gros souffle pour aller à 200 m de profondeur : la physique de la plongée en apnée*, **Séminaire générale de l'Institut des NanoSciences de Paris**, 29 June 2017, Paris, France.
- [L13] *Un gros souffle pour aller à 200 m de profondeur : la physique de la plongée en apnée*, **Séminaires de la Licence de Physique, Université Pierre et Marie Curie**, 31 January 2017, Paris, France
- [L14] *One deep breath to go 200 m deep in the sea: the physics of freedivers*, **Maxwell lectures, King's College London**, November 2016, London, United Kingdom.
- [L15] *Light pionic and muonic atoms: investigation of hadron physics at low energy and atomic physics in exotic bound systems*, 26 September 2012, **Helmholtz Institute Jena, Jena**, Germany.
- [L16] *Quantum Electrodynamics Tests and X-rays Standards using Pionic Atoms and Highly Charged Ions* 26 June 2006, **Gesellschaft für Schwerionenforschung**, Darmstadt, Germany
- [L17] *Tests d'Électrodynamique Quantique et étalons de Rayons-X à l'Aide des Atomes Pioniques et des Ions Multichargés*, 9 January 2006, **Institut des NanoSciences de Paris**, Paris, France.

Posters

- [N1] *Detection of surface magnetism by x-ray spectroscopy of hollow atoms*, **15th European Conference on Atoms Molecules and Photons (EGAS)**, 30 June - 4 July 2025, Innsbruck, Austria.

- [N2] *Mastering disorder in a first-order transition by ion irradiation*, **25th International Workshop on Inelastic Ion-Surface Collisions (IISC)**, 14 - 19 Sept. 2025, Frankenfels, Austria.
- [N3] *Weighted average of scattered data: a Bayesian approach*, **21st International Highly Charged Ions Conference (HCI)**, 2 - 6 Sept. 2024, Egmond aan Zee, The Netherlands.
- [N4] *Testing quantum electrodynamics in extreme fields using helium-like uranium*, **21st International Highly Charged Ions Conference (HCI)**, 2 - 6 Sept. 2024, Egmond aan Zee, The Netherlands.
- [N5] *Weighted average of scattered data: a Bayesian approach*, **International Conference on Precision Physics of Simple Atomic Systems (PSAS)**, 10 - 14 July 2024, Garching, Germany.
- [N6] *Bayesian model selection for high-accuracy x-ray spectroscopy*, **42nd International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT)**, 3 - 7 July 2023, Garching, Germany.
- [N7] *Shape and satellite studies of HCI high-accuracy X-ray spectra by Bayesian methods*, **19th SPARC Topical Workshop**, 6 - 9 Sept. 2022, Jena, Germany (hybrid).
- [N8] *Testing QED in heliumlike high-Z ions, a Bayesian approach*, **20th International Conference on the Physics of Highly Charged Ions (HCI)**, 29 Aug. - 3 Sept. 2022, Matsue, Japan (hybrid).
- [N9] *Shape and satellite studies of HCI high-accuracy X-ray spectra by Bayesian methods*, **20th International Conference on the Physics of Highly Charged Ions (HCI)**, 29 Aug. - 3 Sept. 2022, Matsue, Japan (hybrid).
- [N10] *New stringent test of bound-state QED: high-resolution measurement of an intra-shell transition in He-like uranium*, **52nd Conference of the European Group on Atomic Systems (EGAS)**, 6 - 8 July 2021, Online conference, Zagreb.
- [N11] *Ion irradiation to introduce controlled disorder in giant magnetocaloric materials*, **XXXIst International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC)**, 24 - 30 July 2019, Deauville, France.
- [N12] *Nested sampling for atomic physics data: the nested fit program*, **39th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT)**, 30 June - 5 July 2019, Garching, Germany.
- [N13] *Ion irradiation for tailoring giant magnetocaloric materials properties*, **13th European Conference on Atoms Molecules and Photons (ECAMP)**, 8-12 April 2019, Florence, Italy.
- [N14] *High-resolution Wavelength-dispersive Spectroscopy of K-shell Transitions in Hydrogen-like Gold*, **13th European Conference on Atoms Molecules and Photons (ECAMP)**, 8-12 April 2019, Florence, Italy.
- [N15] *Optimization of giant magnetocaloric materials with ion irradiation*, **19th International Conference Physics of Highly Charged Ions (HCI)**, 3-7 September 2018, Lisbon, Portugal.
- [N16] *Measurement of the pion mass from X-ray spectroscopy of exotic atoms*, **19th International Conference Physics of Highly Charged Ions (HCI)**, 3-7 September 2018, Lisbon, Portugal.

- [N17] *Quantum mechanics from two postulates*, **Foundations of quantum mechanics and their impact on contemporary society**, 11-12 December 2017, London, United Kingdom.
- [N18] *Caractérisation à l'échelle sub-micrométrique des modifications induites par impact d'ions lourds dans les matériaux à effet magnétocalorique géant*, **18ème Colloque Louis Néel**, 24-27 September 2017, Paris, France.
- [N19] *Bayesian Statistics for Atomic Physics*, **18th International Conference on the Physics of Highly Charged Ions (HCI)**, 11-16 September 2016, Kielce, Poland.
- [N20] *Measurement of the pion mass from X-ray spectroscopy of exotic atoms*, **12th European Conference on Atoms Molecules and Photons (ECAMP)**, 5-9 September 2016, Frankfurt, Germany.
- [N21] *Bayesian Statistics for Atomic Physics*, **12th European Conference on Atoms Molecules and Photons (ECAMP)**, 5-9 September 2016, Frankfurt, Germany.
- [N22] *Impacts d'ions lents multichargés, une voie prometteuse pour les matériaux à effet magnétocalorique géant*, **17ème Colloque Louis Néel**, 27 March - 1 Avril 2016, Saint-Dié-des-Vosges, France.
- [N23] *Highly charged ions interaction to modify proprieties of giant magnetocaloric thin films*, **Swift Heavy Ions in Matters (SHIM)**, 18-21 May 2015, Darmstadt, Germany.
- [N24] *Taking advantages of highly charged ions interaction to tune modifications in giant magnetocaloric material*, **26th International Conference on Atomic Collisions in Solids (ICACS)**, 13-18 July 2014 2014, Debrecen, Hungary.
- [N25] *Collisions dynamics of electrons, photons, and highly-charged ions with clusters to probe the clustering process in a pulsed supersonic jet*, **46th Conference of the European Group on Atomic Systems (EGAS)**, 1-4 July 2014 2014, Lille, France.
- [N26] *Modifications of the magnetic properties of MnAs thin films under impact of slow highly charged ions*, **XXVIII International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC)**, 24-30 July 2013, Lanzhou, China.
- [N27] *Determining clustering properties through the selectivity of collision dynamics*, **XXVII International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC)**, 27 July - 2 August 2011, Belfast, Northern Ireland, UK.
- [N28] *Interaction of slow HCI with gaseous targets: absolute x-ray emission cross sections and contribution of multi-capture processes*, **XXVII International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC)**, 27 July - 2 August 2011, Belfast, Northern Ireland, UK.
- [N29] *Temporal Evolution of Clustering Rate in a Pulsed Supersonic Jet*, **International Conference on the Physics of Highly Charged Ions (HCI)**, August 30 - September 3 2010, Shanghai, China.
- [N30] *Collisions of Ar^{17+} ions with gaseous and solid targets at a few tens of keV/q probed by X-ray spectroscopy*, **XXVI International Conference on Photonics, Electronics and Atomic Collisions (ICPEAC)**, July 22-28, 2009, Kalamazoo, MI, USA.

- [N31] *The Fast Ion Slow Ion Collision project for atomic physics*, **SPIRAL2 Week 2009**, January, 26-29 2009, Caen, France.
- [N32] *Accurate Spectroscopy of Excited Levels in He-like Uranium*, **International Conference on the Physics of Highly Charged Ions (HCI)**, September 1-5, 2008, Tokyo, Japan.
- [N33] *Correlations and Quantum Electrodynamics effects in He-like uranium*, **International Conference on X-ray and Inner-Shell Processes (X08)**, June 22-27 2008, Paris, France.
- [N34] *Development of an X-ray Bragg Spectrometer for Intrashell Transitions in High-Z Few Electron Ions*, **XXV International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC)**, July 25-31 2007, Freiburg, Germany.
- [N35] *He-like Argon, Chlorine and Sulfur Spectra Measurement from an Electron Cyclotron Resonance Ion Trap*, **The 13th International conference on the Physics of Highly Charged Ions (HCI)**, August 28 - September 1 2006, Belfast, United Kingdom.
- [N36] *High accuracy crystal spectroscopy of the $n = 2$ energy level of helium-like uranium*, **International Workshop on Precision Physics of Simple Atomic Systems (PSAS)**, June 12-16, 2006 Venice, Italy.
- [N37] *Measurement of the Lamb shift of $n = 2$ excited states in helium-like uranium using crystal spectroscopy methods*, **European Group on Atomic Systems Conference (EGAS)**, June 7-10 2006, Ischia, Italy.
- [N38] *Hyperfine structure, recoil and self-energy corrections in pionic hydrogen*, **QED, Quantum Vacuum and the Search for New Forces**, June 5-9 2005, Les Houches, France.
- [N39] *Hyperfine structure in pionic atoms: relativistic calculation*, **International Conference on Exotic Atoms (EXA)**, February 21-25 2005, Vienna, Austria.
- [N40] *Characterization of a CCD detector for exotic atom Bragg crystal spectroscopy*, **International Conference on Exotic Atoms (EXA)**, February 21-25 2005, Vienna, Austria.
- [N41] *Pionic and highly charged atoms X ray spectroscopy*, **Study Week on Trapping and Manipulating Atomic and Subatomic Particles**, June 2-6 2003, Leuven, Belgium.

Contribution from other authors on projects I direct

He-like uranium spectroscopy

- [Oa1] **Invited talk presented by A. Gumberidze**
Precision spectroscopy of intra-shell transition in He-like uranium: status and future perspectives, **20th SPARC Topical Workshop**, 5 - 7 Sept. 2023, Edimbourg, United Kingdom.
- [Oa2] **Invited talk presented by R. Löttsch**
New stringent test of bound-state QED: high-resolution measurement of an intra-shell transition in He-like uranium, **XXXIII International Conference on Photonic, Electronic, and Atomic Collisions (ICPEAC)**, 25 July - 1 Aug. 2023.

- [Oa3] **Selected talk presented by R. Loetzsch**
High resolution measurement of the $2p3/2 \rightarrow 2s1/2$ intra-shell transition in He-like uranium, **20th International Conference on the Physics of Highly Charged Ions (HCI)**, 29 Aug. - 3 Sept. 2022, Matsue, Japan (hybrid).
- [Oa4] **Selected talk presented by L. Duval**
Testing QED with spectroscopy of Highly charged ions from medium Z to high Z, **FAIRness 2022**, 23 - 27 May 2022, Pieria, Greece.
- [Oa5] **Seminar presented by R. Löttsch**
New stringent test of bound-system QED from high-resolution measurement of He-like uranium intrashell transitions, **Seminar of the Institute of Optics and Quantumelectronics**, 12 November 2021, Friedrich-Schiller-University Jena.
- [Oa6] **Seminar presented by R. Löttsch**
New stringent test of bound-system QED from high-resolution measurement of He-like uranium intrashell transitions, **GSI atomic physics group seminar**, 3 November 2021, Online conference.
- [Oa7] **Talk presented by R. Löttsch**
New stringent test of bound-system QED from high-resolution measurement of He-like uranium intrashell transitions, **Annual meeting of the Helmholtz Institute Jena**, 6 October 2021, Online conference.
- [Oa8] **Invited talk presented by R. Löttsch**
FAIR Phase-0: X-ray spectroscopy experiments, **18th SPARC Topical Workshop**, 6 - 9 September 2021, Online conference.
- [Oa9] **Poster presented by R. Löttsch**
New stringent test of bound-state QED: high-resolution measurement of an intra-shell transition in He-like uranium, **32nd International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC)**, 20 - 23 July 2021, Online conference.

Bayesian data analysis

- [Ob1] **Invited talk presented by L. Maillard**
Nested sampling for studying nuclear quantum effects, **John Skilling 80th birthday meeting**, 5 Sept. 2025, Cambridge, United Kingdom.
- [Ob2] **Selected talk presented by L. Maillard**
Nested Sampling for exploring Lennard-Jones clusters, **Atoms, Molecules and Clusters in Motion Conference (AMOC)**, 15 - 18 Apr. 2024, Champs-sur-Marne, France.
- [Ob3] **Selected talk presented by L. Maillard**
Nested Sampling for exploring Lennard-Jones clusters, **43rd International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT)**, 1 - 5 July 2024, Ghent, Belgium.
- [Ob4] **Poster presented by J. Machado**
Tests of bound state quantum electrodynamics in 2-electron medium-Z systems, **20th SPARC Topical Workshop**, 5 - 7 Sept. 2023, Edimbourg, United Kingdom.

- [Ob5] Selected talk presented by C.A. Godinho
Strong Field QED Analysis With Bayesian Model Selection for He-Like Ions, **XVII Iberian Joint Meeting on Atomic and Molecular Physics (IBER)**, 5 - 8 Sept. 2023, Coimbra, Portugal.
- [Ob6] Selected talk presented by L. Duval
Study of B-like ions x-ray emission spectra in an electron-cyclotron resonance ion source plasma, **20th SPARC Topical Workshop**, 5 - 7 Sept. 2023, Edimbourg, United Kingdom.
- [Ob7] Selected talk presented by L. Duval
Study of B-like ions X-ray Emission Spectra in an Electron-Cyclotron Resonance Ion Source plasma, **The 14th international colloquium on atomic spectra and oscillator strengths for astrophysical and laboratory plasmas (ASOS)**, 10 - 14 July 2023, Paris, France.
- [Ob8] Selected talk presented by L. Duval
Study of B-like ions X-ray Emission Spectra in an Electron-Cyclotron Resonance Ion Source plasma, **42nd International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT)**, 3 - 7 July 2023, Garching, Germany.
- [Ob9] Selected talk presented by C.A. Godinho
Bayesian Analysis of Strong Field QED Tests for He-Like Ions Using the Nested Sampling Algorithm, **42nd International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT)**, 3 - 7 July 2023, Garching, Germany.
- [Ob10] Poster presented by L. Maillard
Nested sampling for the exploration of potential energy surfaces, **42nd International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT)**, 3 - 7 July 2023, Garching, Germany.
- [Ob11] Poster presented by L. González Miret
Study of the relevance of the nuclear three-body interaction in $0f_{7/2}$ -shell nuclei via Bayesian statistical, **41st International Conference on Bayesian and Maximum Entropy methods in Science and Engineering (MAXENT)**, 18 - 22 July 2022, Paris, France.
- [Ob12] Selected talk presented by L. Maillard
Nested sampling for the exploration of potential energy surfaces, **41st International Conference on Bayesian and Maximum Entropy methods in Science and Engineering (MAXENT)**, 18 - 22 July 2022, Paris, France.
- [Ob13] Selected talk presented by L. Maillard
Nested fit: developments and tests, **1ère journée GDR Intelligence Artificielle en Sciences des Matériaux**, 30 May - 1 June 2022, Paris, France.
- [Ob14] Poster presented by L. Maillard
Clustering Methods for Exploration of Potential Energy Surfaces, **40th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT)**, 4 - 9 July 2021, Online conference.

[Ob15] **Poster presented by L. González Miret**

Bayesian-assisted strategies to Landau-like effective Hamiltonians, **40th International Workshop on Bayesian Inference and Maximum Entropy Methods in Science and Engineering (MAXENT)**, 4 - 9 July 2021, Online conference.

Ion – magnetic surface collisions

[Oc1] **Selected talk presented by E.M. Tosi**

Probing Surface Magnetism with X-ray Emission Spectroscopy from Highly Charged Ions, **25th International Workshop on Inelastic Ion-Surface Collisions (IISC)**, 14 - 19 Sept. 2025, Frankenfels, Austria.

[Oc2] **Poster presented by E.M. Tosi**

High-resolution X-ray detection for magnetic surface investigation, **Colloque Louis Néel**, 17 - 20 June 2025, Vogüé, France.

[Oc3] **Selected talk presented by E.M. Tosi**

Investigation on magnetic materials, **XPANSE**, 20 - 22 Nov. 2024, Abu Dhabi, Emirates (online conference).

[Oc4] **Poster presented by V. Ahmad**

Detection of surface magnetism with hollow atoms using high-resolution X-ray spectroscopy, **24th National Conference on Atomic and Molecular Physics (NCAMP)**, 8 - 11 Jan. 2025, Dhanbad, India.

[Oc5] **Poster presented by V. Ahmad**

Development of a High-Resolution X-ray Spectrometer with a Hybrid Pixel Detector for probing the Dynamics of Ion–Magnetised Surface Interactions, **21st International Highly Charged Ions Conference**, 2 - 6 Sept. 2024, Egmond aan Zee, The Netherlands.

[Oc6] **Poster presented by E. Lamour**

Detecting sample surface magnetism with highly charged ions, **XXXIII International Conference on Photonic, Electronic, and Atomic Collisions (ICPEAC)**, 25 July - 1 Aug. 2023, Ottawa, Canada.

[Oc7] **Poster presented by P. Dergham**

Probing surface magnetism with highly charged ions, **20th International Conference on the Physics of Highly Charged Ions (HCI)**, 29 Aug. - 3 Sept. 2022, Matsue, Japan (hybrid).

[Oc8] **Selected talk presented by P. Dergham**

Probing surface magnetism with highly charged ions by X-ray spectroscopy, **29th international conference on atomic collisions in solids & 11th international symposium on swift heavy ions in matter (ICACS-SHIM)**, 19 - 24 June 2022, Helsinki, Finland.

[Oc9] **Poster presented by P. Dergham**

Probing surface magnetism with highly charged ions by X-ray spectroscopy, **32nd International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC)**, 20 - 23 July 2021, Online conference.

[Oc10] **Poster presented by M. Werl**

Using highly charged ions to probe the magnetic structure of 2D materials, **European Congress and Exhibition On Advanced Materials And Processes (EUROMAT)**, 13-17 September 2021, Online conference.

Ion irradiation of giant magnetocaloric materials

[Od1] **Poster presented by S. Cervera**

Modification des propriétés des couches minces de matériaux à effet magnétocaloriques géant par irradiation d'ions lourds, **18ème Colloque Louis Néel**, 24-27 September 2017, Paris, France.

[Od2] **Poster presented by M. Lo Bue**

Modification of the Thermal Hysteresis in Magnetocaloric Materials by Highly Charged Ion Bombardment, **7th International Conference on Magnetic Refrigeration at Room Temperature (THERMAG)**, 11-14 September 2016, Torino, Italy.

[Od3] **Selected talk presented by S. Cervera**

Les mécanismes responsables de la suppression de l'hystérésis thermique des matériaux magnétocaloriques par implantation d'ions multichargés, **Colloque Louis Néel**, 29 March - 1 April 2016, Saint-Dié-des-Vosges, France.

[Od4] **Selected talk presented by M. Marangolo**

Modification of the Thermal Hysteresis in Magnetocaloric Materials by Highly Charged Ion Bombardment, **Joint European Magnetic Symposia (JEMS)**, 21-26 Aug. 2016, Glasgow, United Kingdom.

[Od5] **Poster presented by S. Cervera**

Impacts of highly charged ions as seeds in a magneto-structural phase transition of magnetocaloric thin films, **XXIX International Conference on Photonic, Electronic and Atomic Collision (ICPEAC)**, 22-28 July 2015, Toledo, Spain.

[Od6] **Selected talk presented by S. Cervera**

Impacts of highly charged ions as seeds in a magneto-structural phase transition of magnetocaloric thin films, **XXIX International Conference on Photonic, Electronic and Atomic Collision (ICPEAC)**, 22-28 July 2015, Toledo, Spain.

[Od7] **Invited seminar presented by D. Vernhet**

Tuning the magnetic properties of surfaces/thin films by highly charged ion impact, **Seminar at the university of Rosario**, 10 September 2014, Rosario, Argentina.

[Od8] **Selected talk presented by C. Prigent**

Taking advantages of highly charged ions interaction to tune modifications in giant magnetocaloric material, **17th International Conference on the Physics of Highly Charged Ions (HCI)**, 31 August - 5 September 2014, Bariloche, Argentina.