

CURRICULUM VITAE

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Further and Higher Education

- 1984-1986 High school
Institution: Curso de 2º. Grau do Núcleo Pedagógico Integrado,
Universidade Federal do Pará – Belém - PA-Brazil
Emphasis: Ciências Exatas (Physics and Mathematics)
- 1987-1989 Undergraduate Studies
Institution: Departamento de Física, Universidade Federal do Pará – Belém-
PA-Brazil
- 1990-1991 Undergraduate Studies
Institution: Instituto de Física de São Carlos, Universidade de São Paulo –
São Carlos-SP-Brazil
(transferred from the Universidade Federal do Pará)
Degree: Bachelor of Science
Date of award: 20th of December, 1991
(final grade: 8.86 out of 10).
- 1992-1994 Postgraduate Studies
Institution: Instituto de Física de São Carlos, Universidade de São Paulo –
São Carlos -SP- Brazil
Degree: Master of Science
Date of award: 25th of January, 1994
(equivalent to the German “Dipl. Phys. ”)
Thesis title: *"Spatial Configurations for a Two-Level Atom in Magneto-
Optical Traps: Ring Shaped Structures"*
(final grade: 10 with distinction out of 10 with distinction)
Supervisor: Prof. Dr. V.S. Bagnato
- 1995-1999 Doctoral Studies
Institution: Technische Universität Berlin/Max Born Institut für nichtlineare
Optik und Kurzzeitspektroskopie, Berlin, Germany
Degree: Dr. rer. nat. („Doctor rerum naturalis“)
Thesis title: *"Interaction of Atoms with Intense Laser Fields and Ultrashort*

Pulses"

Financial support: Deutscher Akademischer Austauschdienst (DAAD)

Date of award: 19th of May, 1999

Final grade: "sehr gut" (more than 90%)

Supervisor: Prof. Dr. Wolfgang Sandner, Dr. Martin Dörr

Postdoctoral Experience

- June 1999 – December 2001 Max Planck Institut für Physik komplexer Systeme, Dresden, Germany
Fellowship from the Max-Planck Society
- January 2002 – May 2003 Max Born Institut für nichtlineare Optik und Kurzzeitspektroskopie, Berlin, Germany
Bat-IIA-Ost Research Contract from the Deutsche Forschungsgemeinschaft
- June 2002 – October 2002 Technische Universität Wien, Vienna, Austria
Teaching and research assistant (C1 position; equivalent of a tenure track)
- June 2003 – December 2004 Universität Hannover, Hanover, Germany
Fellowship from the Deutsche Forschungsgemeinschaft
(European Graduate College „Interference and Quantum Applications“)
- October – December 2004 Visiting Research Fellow, Centre for Mathematical Science, City University
- March 2004 – Present date Visiting Research Fellow, Optics Section, Imperial College
- January 2005 – September 2006 University Research Fellow, Centre for Mathematical Science, City University
- October 2006 – March 2007 Lecturer in Mathematics and EPSRC Advanced Fellow, City University
- April 2007 – October 2011 Lecturer and EPSRC Advanced Fellow, AMOPP group, Dept. of Physics and Astronomy, University College London
- November 2011-- present Lecturer, AMOPP group, Dept. of Physics and Astronomy, University College London

Publications

(reverse
chronological
order)

h = 16 (ISI Web of Knowledge); 21 (Google Scholar); 17 (SCOPUS)

- 2013 [57] Xuanyang Lai and C. Figueira de Morisson Faria, "*Temporal and spatial interference in molecular above-threshold ionization with elliptically polarized fields*", arXiv:1304.3298 [atom.ph]
- [56] J. Wu, A. S. Sanz, B. B. Augstein and C. Figueira de Morisson Faria, "*Bohmian-trajectory analysis of high-order harmonic generation:*

Probing the local dynamics", arXiv:1301.1916 [atom.ph]

- 2012
- [55] C. Figueira de Morisson Faria, T. Shaaran and M. T. Nygren, "*Time-delayed nonsequential double ionization with few-cycle laser pulses: importance of the carrier-envelope phase*", Phys. Rev. A **86**, 053405 (arXiv:1206.5185 [atom-ph])
- [54] A. S. Sanz, B. B. Augstein, J. Wu and C. Figueira de Morisson Faria, "*Revisiting the core dynamics of high-order harmonic generation using Bohmian trajectories*", arXiv:1205.5298 [quant-ph] (submitted to Phys. Rev. Lett.)
- [53] B.B. Augstein, J. Wu, T. Shaaran and C. Figueira de Morisson Faria, "*High-harmonic generation and nonsequential double ionization in atoms and molecules: quantum interference, causality, excitation and the role of multiple orbitals*", Proceedings of the CDAMOP conference, in press.
- [52] B. Augstein and C. Figueira de Morisson Faria, "*High-order harmonic generation in diatomic molecules: quantum interference, nodal structures and multiple orbitals*", Modern Physics Letters B **26**, 1130002 (brief review)
- [51] T. Shaaran, C. Figueira de Morisson Faria and H. Schomerus, "*Causality and quantum interference in time-delayed laser-induced nonsequential double ionization*", Phys. Rev. A **85**, 023423
- 2011
- [50] C. Figueira de Morisson Faria and J. Biegert, Introduction to the Special Issue on Advances on Strong Field and Attosecond Physics, J. Mod. Opt. **58**, 1074
- [49] T. Shaaran, B.B. Augstein and C. Figueira de Morisson Faria, "*Excitation, two-center interference and the orbital geometry in laser-induced nonsequential double ionization of diatomic molecules*", Phys. Rev. A **84**, 013429
- [48] E. Hijano, C. Serrat, G. N. Gibson, C. Figueira de Morisson Faria, J. Biegert, "*Optimal pulse for orbital reconstruction from ionization maps in aligned molecules*", J. Mod. Opt. **58**, 1166
- [47] B.B. Augstein and C. Figueira de Morisson Faria, "*Influence of asymmetry and nodal structures on high-harmonic generation in heteronuclear molecules*", J. Phys. B **44**, 055601 (arXiv:1009.0503)
- [46] C. Figueira de Morisson Faria and X. Liu, "*Electron-electron correlation in strong laser fields*", J. Mod. Opt. **58**, 1076 (invited topical review)
- [45] B.B. Augstein and C. Figueira de Morisson Faria, "*Multielectron corrections in molecular high-order harmonic generation for different formulations of the strong-field approximation*", J. Mod. Opt. **58**, 1173 (arXiv:1007.2135)

- 2010 [44] T. Shaaran, M. T. Nygren and C. Figueira de Morisson Faria, “*Laser-induced nonsequential double ionization at and above the recollision-excitation-tunneling threshold*”, Phys. Rev. A **81**, 063413
- [43] C. Figueira de Morisson Faria and B.B. Augstein, “*Molecular high-order harmonic generation with more than one active orbital: quantum-interference effects*”, Phys. Rev. A **81**, 043409
- [42] T. Shaaran and C. Figueira de Morisson Faria, “*Laser-induced nonsequential double ionization: kinematic constraints for the recollision-excitation-tunneling mechanism*”, J. Mod. Opt. **57**, 984
- 2009 [41] W. Quan, X. Liu and C. Figueira de Morisson Faria, “*Non-sequential double ionization with polarization-gated pulses*”, J Phys B **42**, 134008
- [40] C. Figueira de Morisson Faria, “*One and two-center processes in high-order harmonic generation in diatomic molecules: influence of the internuclear separation*”, Laser Phys. **19**, 797
- [39] C. Figueira de Morisson Faria, “*Laser-induced nonsequential double ionization in diatomic molecules: one and two-center rescattering scenarios*”, J. Phys. B: At. Mol. Opt. Phys. **42**, 105602
- 2008 [38] C. Figueira de Morisson Faria, T. Shaaran, X. Liu and W. Yang, “*Quantum interference in laser-induced nonsequential double ionization in diatomic molecules: the role of alignment and orbital symmetry*”, Phys. Rev. A **78**, 043407
- [37] X. Liu, C. Figueira de Morisson Faria and W. Becker, “*Attosecond electron thermalization in laser-induced nonsequential multiple ionization: hard versus glancing collisions*”, New J. Phys **10**, 025010
- 2007 [36] C. Figueira de Morisson Faria, “*High-harmonic generation in diatomic molecules: a quantum orbit analysis of the interference patterns*”, Phys. Rev. A **76**, 043407
- [35] H. Hetzheim, C. Figueira de Morisson Faria and W. Becker, “*Interference effects in above-threshold ionization from diatomic molecules: determining the internuclear separation*”, Phys. Rev. A **76**, 023418
- [34] C. Figueira de Morisson Faria and P. Salieres, “*High-Harmonic generation with a strong laser field and an attosecond-pulse train: the Dirac-Delta comb and monochromatic limits*”, Laser Phys. **17**, 390
- [33] C. Figueira de Morisson Faria and A. Fring, “*Non-Hermitian Hamiltonians with real eigenvalues coupled to an electric field: from the time-independent to the time-dependent formulation*”, Laser Phys. **17**, 424
- [32] C. Figueira de Morisson Faria and X. Liu, “*Speed-up and slow-down*

collisions in laser-induced nonsequential multiple ionization", J. Mod. Opt. **54**, 1107

[31] C. Figueira de Morisson Faria, X. Liu and W. Becker, "*S-Matrix theory of nonsequential double ionisation*", Progress in Ultrafast Laser Science II, Chapter 4, K. Yamanouchi, S.L. Chin, P. Agostini, G. Ferrante (Eds.) (Springer, Berlin, Heidelberg, New York, 2007)

2006 [30] C. Figueira de Morisson Faria and A. Fring, "*Isospectral Hamiltonians from Moyal Products*", Czech. J. Phys. **56**, 899

[29] C. Figueira de Morisson Faria, P. Salieres, P. Villain and M. Lewenstein, "*Controlling high-harmonic generation and above-threshold ionisation with an attosecond-pulse train*", Phys. Rev. A **74**, 053416

[28] C. Figueira de Morisson Faria and A. Fring, "*Time evolution of non-Hermitian Hamiltonian systems*", J. Phys. A **39**, 9269

[27] X. Liu, C. Figueira de Morisson Faria, W. Becker and P.B. Corkum, "*Attosecond thermalization by laser-induced electron recollisions in atoms*", J. Phys. B **39**, L305

[26] C. Figueira de Morisson Faria, X. Liu and W. Becker, "*Classical aspects of laser-induced nonsequential double ionisation at and below the threshold*", J. Mod. Opt. **53**, 193

2005 [25] C. Figueira de Morisson Faria and M. Lewenstein, "*Bound-state corrections in laser-induced nonsequential double ionisation*", J. Phys. B **38**, 3251

2004 [24] C. Figueira de Morisson Faria, X. Liu, A. Sanpera and M. Lewenstein, "*Classical and quantum-mechanical treatments of nonsequential double ionization with few-cycle laser pulses*", Phys. Rev. A **70**, 043406

[23] C. Figueira de Morisson Faria, H. Schomerus, X. Liu, and W. Becker, "*Electron-electron dynamics in laser-induced nonsequential double ionization*", Phys. Rev. A **69**, 043405

[22] X. Liu and C. Figueira de Morisson Faria, "*Nonsequential double ionization with few-cycle laser pulses*", Phys. Rev. Lett. **92**, 133006

[21] C. Figueira de Morisson Faria, X. Liu, H. Schomerus and W. Becker, "*Coulomb repulsion and quantum-classical correspondence in laser-induced nonsequential double ionization*", Phys. Rev. A **69**, 021402(R)

2003 [20] C. Figueira de Morisson Faria and W. Becker, "*Quantum-orbit analysis of laser-induced non-sequential double ionization*", Laser Phys. **13**, 1196

[19] C. Figueira de Morisson Faria and I. Rotter, "*High-harmonic generation in a driven two-level atom: an analogy with the three-step model*", Laser Phys. **13**, 985

- [18] O.A. Castro-Alvaredo, A. Fring and C. Figueira de Morisson Faria, "*Relativistic treatment of harmonics from impurity systems in quantum wires*", Phys. Rev. B **67**, 125405
- 2002 [17] C. Figueira de Morisson Faria, H. Schomerus, and W. Becker, "*High-order above-threshold ionization: the uniform approximation and the effect of the binding potential*", Phys. Rev. A **66**, 043413
- [16] C. Figueira de Morisson Faria and I. Rotter, "*High-harmonic generation in a driven two-level atom: periodic level crossings and three-step processes*", Phys. Rev. A **66**, 013402
- [15] C. Figueira de Morisson Faria, R. Kopold, W. Becker and J.M. Rost, "*Resonant enhancements of high-harmonic generation*", Phys. Rev. A **65**, 023404
- 2001 [14] C. Figueira de Morisson Faria and M.L. Du, "*Enhancement of bichromatic high-harmonic generation with a high-frequency field*", Phys. Rev. A **64**, 023415
- 2000 [13] C. Figueira de Morisson Faria, A. Fring and R. Schrader, "*Existence criteria for stabilization from the scaling behavior of ionization probabilities*", J. Phys. B **33**, 1675
- [12] C. Figueira de Morisson Faria and J.M. Rost, "*High-harmonic generation from a confined atom*", Phys. Rev. A **62**, 051402(R)
- [11] H. Steudel, C. Figueira de Morisson Faria, A. M. Kamchatnov and M. G. A. Paris, "*The inverse problem for second harmonic generation with amplitude-modulated pulses*", Phys. Lett. A **276**, 267
- [10] C. Figueira de Morisson Faria, D. B. Milošević and G.G. Paulus, "*Phase-dependent effects in bichromatic high-harmonic generation*", Phys. Rev. A **61**, 063415
- [9] C. Figueira de Morisson Faria, A. Fring and R. Schrader, "*Stabilization not for certain and the usefulness of bounds*", Proceedings of the VIII International Conference on Multiphoton Processes, p. 150
- [8] C. Figueira de Morisson Faria, M. Dörr and W. Sandner, "*Time-frequency analysis of high-harmonic generation*", Proceedings of the VIII International Conference on Multiphoton Processes, p. 349
- 1999 [7] C. Figueira de Morisson Faria, M. Dörr, W. Becker and W. Sandner, "*Time-frequency analysis of two-color high-harmonic generation*", Phys. Rev. A **60**, 1377
- [6] C. Figueira de Morisson Faria, W. Becker, M. Dörr and W. Sandner, "*Phase- and intensity dependence of the cutoffs in two-color high-harmonic generation*", Laser Phys. **9**, 388

- [5] C. Figueira de Morisson Faria, A. Fring and R. Schrader, "*Analytical treatment of stabilization*", Laser Phys. **9**, 379
- 1998 [4] C. Figueira de Morisson Faria, A. Fring and R. Schrader, "*On the influence of pulse shapes on ionization probability*", J. Phys. B **31**, 449
- [3] H. Steudel, C. Figueira de Morisson Faria, M.G.A. Paris, A. Kamchatnov and O. Steuernagel, "*Second harmonic generation: the solution for an amplitude-modulated initial pulse*", Opt. Comm. **150**, 363
- [2] C. Figueira de Morisson Faria, M. Dörr and W. Sandner, "*Importance of excited bound states in harmonic generation*", Phys. Rev. A **58**, 2990
- 1997 [1] C. Figueira de Morisson Faria, M. Dörr and W. Sandner, "*Time profile of harmonic generation*", Phys. Rev. A **55**(5), 3961

Conference Organization

- June 2012 Scientific Coordination of the Annual Institute of Physics AMIG (Atomic And Molecular Interactions Group) Meeting (University College London, UK)
Local Organizing Committee of the Annual Institute of Physics AMIG (Atomic And Molecular Interactions Group) Meeting (University College London, UK)
[This meeting was mainly focused at UK-Based young researchers, and involved around 35 participants from the UK and abroad. It is an important outreach channel in this country.](#)
- December 2011 International Advisory Committee—Strong-Field and Attosecond Physics Section,
"*Current Developments in Atomic, Molecular, Optical and Nano Physics*" (CDAMOP) Meeting – Delhi – India
[This was a meeting with over 200 participants from across the globe.](#)
- July 2010 Co-Chair of Seminar 2 (Strong-Field and Attosecond Physics): *19th International Workshop on Laser Physics*.
[This is one of the most important conference series in my research field.](#)
- June 2010 Scientific Coordination, "*Advances in Strong Field and Attosecond Physics*" (University College London, UK).
Local Organizing Committee, "*Advances in Strong Field and Attosecond Physics*" (University College London, UK).
[This was a high-profile international conference with over 100 participants from across the globe, including the main leaders in the field.](#)
- June 2007 Local Organizing Committee, "*International Workshop on Non-Hermitian Hamiltonians in Quantum Physics*" (City University, London, UK)
[This is one of the most important conference series in this area, with over 100 participants.](#)
- June 2004 Local Organizing Committee, "*Annual European Graduate College Workshop: Interference and Quantum Applications*" (Universität Hannover, Germany).
[This is a meeting with around 40 participants, targeted at young researchers in the](#)

**Conference
Participation**

- 1991 (May) XIV Brazilian Meeting on Condensed Matter Physics
(Caxambu, MG, Brazil)
Poster: *"A numerical simulation study for obtaining a monoenergetic laser beam"*
- 1992 (May) XV Brazilian Meeting on Condensed Matter Physics
(Caxambu, MG, Brazil)
Poster: *"Study of transverse diffusion processes during an atomic beam cooling"*
- 1992 (October) V Symposium on Lasers and Applications of the State of São Paulo
(São Paulo, SP, Brazil)
Poster: *"Numerical studies of the transverse heating process and changes in the velocity distribution during an atomic beam cooling"*
- 1993 (May) XVI Brazilian Meeting on Condensed Matter Physics
(Caxambu, MG, Brazil)
Poster: *"Study of the influence of the intensity imbalance and asymmetrical misalignments on spatial configurations of neutral atoms in a magneto-optical trap"*
- 1996 (March) Spring Conference of the German Physical Society (Rostock, Germany)
Oral presentation: *"Numerical simulations in 1D for laser-atom interactions"*
- 1996 (September) VII International Conference on Multiphoton Processes
(Garmisch-Partenkirchen, Germany)
Poster: *"When are harmonics generated?"*
- 1998 (March) Spring Conference of the German Physical Society (Konstanz, Germany)
Oral presentation: *"Spectral and time-frequency analysis of the bound state and continuum contributions to harmonic generation"*
Poster: *"Two-color high-harmonic generation"*
- 1998 (July) 7th International Workshop on Laser Physics (Berlin, Germany)
Invited talk: *"The general solution for non-stationary second harmonic generation with amplitude-modulated incident pulses"*
Poster: *"Time-frequency analysis of two-color high-harmonic generation"*
Poster: *"On the absence of stabilization"*
- 1999 (March) Spring Conference of the German Physical Society (Heidelberg, Germany)
Oral presentation: *"Cutoff law for phase-dependent two-color high-harmonic generation"*
- 1999 (June) Applications of High Field and Short Wavelength Sources VIII
(Potsdam, Germany)
Poster: *"Phase-related effects in bichromatic high-harmonic generation"*

- 1999 (October) VIII International Conference on Multiphoton Processes (Monterey, California, U.S.A.)
Poster: *"Spectral and time-frequency analysis of high-harmonic generation"*
- 2000 (March) International Conference on Atomic Systems in Extreme Fields (Dresden, Germany)
Invited talk: *"Control of high-harmonic generation"*
- 2000 (April) Spring Conference of the German Physical Society (Bonn, Germany)
Oral presentation: *"Phase-dependent effects in bichromatic high-harmonic generation"*
Poster: *"High-harmonic generation from a confined atom"*
- 2000 (December) International Workshop on Dynamical Approaches in Atomic and Cluster Physics (Dresden, Germany)
Poster: *"Schemes for high-harmonic control"*
- 2001 (April) Spring Conference of the German Physical Society/ VII ECAMP (Berlin, Germany)
Oral presentation: *"Resonance-like enhancements in high-harmonic generation"*
- 2002 (July) 11th International Workshop on Laser Physics (Bratislava, Slovakia)
Invited talk: *"High-harmonic generation in a driven two-level atom: periodic level crossings and three-step processes"*
Poster: *"High-order above-threshold ionization: the uniform approximation and the effect of the binding potential"*
- 2002 (December) International Workshop on Atomic Physics (Dresden, Germany)
Invited talk: *"Quantum-orbit analysis of above-threshold ionization and nonsequential double ionization"*
- 2003 (March) Spring Conference of the German Physical Society (Hannover, Germany)
Oral presentation: *"Quantum-orbit analysis of nonsequential double ionization"*
- 2003 (June) European Graduate College Meeting (Glasgow, Scotland)
Oral presentation: *"High-harmonic generation in a driven two-level atom: periodic level crossings and three-step processes"*
- 2003 (August) 12th International Workshop on Laser Physics (Hamburg, Germany)
Poster: *"Laser-induced nonsequential double ionization with few-cycle pulses"*
Invited talk: *"Nonsequential double ionization in the strong-field approximation: recent results"*
- 2004 (February) Quantum Limited Atom Optics (Hannover, Germany)
Poster: *„Laser-induced nonsequential double ionization with monochromatic fields and few-cycle pulses“*

- 2004 (March) Spring Conference of the German Physical Society (Munich, Germany)
 Oral presentation: *"Nonsequential double ionization with few-cycle laser pulses"*
 Oral presentation: *"Electron-electron dynamics in laser-induced nonsequential double ionization"*
- 2004 (June) European Graduate College Meeting (Harz, Germany)
 Oral presentation: *„Laser-induced nonsequential double ionization with monochromatic fields and few-cycle pulses“*
- 2004 (July) 13th International Workshop on Laser Physics (Trieste, Italy)
 Poster: *"Electron-electron dynamics in laser-induced nonsequential double ionization"*
 Invited talk: *" Nonsequential double ionization with few-cycle laser pulses: quantum-classical correspondence"*
- 2004 (December) UK Theory Meeting (Durham, United Kingdom)
- 2005 (January) High-Field Attosecond Physics (Oberurgl, Austria)
 Invited talk: *"S-Matrix theory of laser-induced nonsequential double ionisation: from electron-electron dynamics to absolute-phase diagnostics"*
- 2006 (March) Spring Conference of the German Physical Society (Frankfurt, Germany)
 Invited talk (Hauptvortrag): *"S-Matrix theory of laser-induced nonsequential double ionisation"*
 Oral presentation: *"Controlling above-threshold ionisation and high-order harmonic generation with an attosecond-pulse train"*
- 2006 (April) Ultra-fast Dynamic Imaging of Matter (Imperial College London)
 Poster: *"Controlling above-threshold ionisation and high-order harmonic generation with an attosecond-pulse train"*
 Poster: *"Attosecond thermalization by laser-induced recollision of electrons"*
- 2006 (July) 15th Workshop on Laser Physics (Lausanne, Switzerland)
 Invited Talk: *"Controlling high-harmonic generation and above-threshold ionisation with an attosecond-pulse train"*
 Invited Talk: *"Attosecond thermalization by laser-induced electron recollisions with atoms"*
 Poster: *"Time evolution of non-Hermitian Hamiltonian systems"*
- 2007 (May) International Workshop on Open Quantum Systems (ECT, Trento, Italy)
 Panel discussion contribution: *"Non-Hermitian Hamiltonians with real eigenvalues"*
 Invited Talk: *"Non-Hermitian Hamiltonian systems with real eigenvalues: from the time-independent to the time-dependent quantum-mechanical formulation"*
- 2007 (June) "Theoretical Approaches to the Dynamics of Many-electron systems in Strong Laser Fields"(STFC Network for Science with Advanced Light Sources) Daresbury, United Kingdom
 Talk: *"High-harmonic generation in diatomic molecules: a quantum-orbit*

analysis of the interference patterns”

- 2007 (July) “Pseudo-Hermitian Hamiltonians in Quantum Physics” (Centre for Mathematical Science, City University, UK)
- 2007 (August) International Workshop on Attosecond Physics 2007 (Max Planck Institut for Physics of Complex Systems, Dresden)
Poster: “*Interference effects in above-threshold ionization and high-order harmonic generation in diatomic molecules*”
- 2007 (September) QUAMP (University College London)
Poster: “*Quantum-interference effect in high-order harmonic generation and above-threshold ionization from diatomic molecules*”
- 2007 (November) Symposium on Ultrafast Laser Physics (University College London)
Talk: “*Quantum-interference effect in high-order harmonic generation from diatomic molecules*”
- 2008 (February) WE-Heraeus International Seminar “Novel Light Sources and Applications” (Oberurg, Austria)
Invited Talk: “*Quantum-interference effects in high-order harmonic generation and above-threshold ionization: from attosecond pulses to diatomic molecules*”
- 2008 (June) 17th Workshop on Laser Physics (Trondheim, Norway)
Invited Talk: “*Quantum interference in laser-induced non sequential double ionization in diatomic molecules: the role of alignment and orbital symmetry*”
- 2008 (September) XI International Conference on Multiphoton Processes (Heidelberg, Germany)
Poster: *Laser-induced non sequential double ionization in diatomic molecules: the role of alignment, orbital symmetry and different scattering scenarios*
- 2008 (October) Research half day on Ultrafast Coherent Control (University College London)
- 2009 (March) Ultra-fast dynamic imaging (Ischia, Italy)
Contributed talk: : *Laser-induced non sequential double ionization in diatomic molecules: one and two-center rescattering scenarios*
- 2009 (July) 18th Workshop on Laser Physics (Barcelona, Spain)
Invited Talk: “*Nonsequential double ionization with polarization-gated pulses*”
Poster: *Laser-induced non sequential double ionization in diatomic molecules: one and two-center rescattering scenarios*
- 2010 (January) Workshop on Ultra-fast Physics (Belfast, Northern Ireland, UK)
- 2010 (June) Advances in Strong-Field and Attosecond Physics (UCL, London, UK)
Poster: “*Multielectron corrections in molecular high-order harmonic*”

generation for different formulations of the strong-field approximation"
Poster: "*Laser-Induced nonsequential double ionization in diatomic molecules: the role of excitation*"
Poster: "*Laser-induced nonsequential double ionization at and above the recollision-excitation-tunneling threshold*"
Poster: "*Molecular high-order harmonic generation with more than one active orbital: quantum-interference effects*"

- 2010
(July) 19th Workshop on Laser Physics (Foz do Iguacu, Brazil)
Invited Talk: "*Laser-induced nonsequential double ionization at and above the recollision-excitation-tunneling threshold*"
Poster: "*Multielectron corrections in molecular high-order harmonic generation for different formulations of the strong-field approximation*"
Poster: "*Laser-Induced nonsequential double ionization in diatomic molecules: the role of excitation*"
- 2010
(August) ICONO/LAT (Kazan, Russia)
Invited Talk: "*High-order harmonic generation and nonsequential double ionization in atoms and molecules: quantum-interference, excitation and the influence of multiple orbitals*"
- 2011
(July) 20th Workshop on Laser Physics (Sarajevo, Bosnia)
Invited Talk: "*The recollision-excitation tunneling pathway in laser-induced nonsequential double ionization: causality and quantum interference*"
- 2011
(September) International Symposium on Attoscience and Ultrafast Quantum Control (Imperial College London, UK)
Talk: "*Influence of asymmetry and nodal structures on high-harmonic generation in heteronuclear molecules*"
- 2011
(December) CDAMOP (Delhi, India)
Invited Talk: "*High-harmonic generation and nonsequential double ionization: quantum interference, causality, excitation and the role of multiple orbitals*"
- 2012
(March) HILAS (Berlin, Germany)
Talk: "*Quantum interference, excitation and multiple orbitals in atomic and molecular high-harmonic generation and nonsequential double ionization*"
- 2012
(May) FINITE 2012 (Max Planck Institute for Physics of Complex Systems, Dresden, Germany)
[This meeting could only be attended by invitation](#)
Invited Talk: "*High-harmonic generation and nonsequential double ionization in atoms and molecules: quantum interference, causality, excitation and the role of multiple orbitals*"
- 2013
(January 28-February 1) 523rd WE Heraeus Seminar, "High-Harmonic Spectroscopy Bad Honnef, Germany
Invited Talk: "*Quantum interference, multiple orbitals and Bohmian-trajectory*"

analysis of high-harmonic generation

2013
(March 20
and 21) IoP Atomic and Molecular Interactions Group (AMIG) Meeting
National University of Ireland, Maynooth
Invited Talk: *“Quantum interference, multiple orbitals and Bohmian-trajectory
analysis of high-harmonic generation”*

Scientific Visits (these are only the visits including invited talks)

1997 Universidade Federal de Pernambuco (Recife, Brazil)
Talk: *“Atoms in ultra-intense laser fields”*

Universidade Federal da Paraíba (Joao Pessoa, Brazil)
Talk: *“Atoms in ultra-intense laser fields”*

Universidade Federal do Pará (Belém, Brazil)
Talk: *“Atoms in ultra-intense laser fields”*

1999 Universität Potsdam (Potsdam, Germany)
Talk: *“Atoms in ultra-intense laser fields”*

Universität Hannover (Hanover, Germany)
Talk: *“Atoms in ultra-intense laser fields”*

2001 Institute of Theoretical Physics, Beijing (Beijing, China)
Talk: *“Control of high-harmonic generation”*

Technische Universität Wien (Vienna, Austria)
Talk: *“Control of high-harmonic generation”*

2005 University of Durham (Durham, UK)
Talk: *“S-Matrix theory of laser-induced non-sequential double
ionisation: from electron-electron dynamics to absolute-phase
diagnosis”*

Queen’s University of Belfast (Belfast, UK)
Talk: *“S-Matrix theory of laser-induced non-sequential double
ionisation: from electron-electron dynamics to absolute-phase
diagnosis”*

2006 Max Planck Institut für Kernphysik, Heidelberg (Heidelberg, Germany)
Bothe Colloquium: *“Laser-induced non-sequential double and multiple
ionization: electron-electron dynamics, absolute-phase diagnosis and
attosecond thermalization”*

University College London (London, UK)
AMOPP Seminar: *“Laser-induced non-sequential double and multiple
ionization: electron-electron dynamics, absolute-phase diagnosis and
attosecond thermalization”*

2007 University of Kent (Canterbury, UK)

Mathematics Seminar: *“Non-Hermitian Hamiltonian systems: from the time-independent to the time-dependent quantum-mechanical formulation”*

University of Stellenbosch (Stellenbosch, South Africa)

Theoretical Physics Seminar: *“Non-Hermitian Hamiltonian systems: from the time-independent to the time-dependent quantum-mechanical formulation”*

Optics Seminar: *“Laser-induced non-sequential double and multiple ionization: electron-electron dynamics, absolute-phase diagnosis and attosecond thermalization”*

2008

Max Born Institute, Berlin (Division B)

Seminar: *“Quantum interference effects in high-order harmonic generation, above-threshold ionization and nonsequential double ionization: from attosecond pulses to diatomic molecules”*

ICFO Barcelona

Seminar: *“Quantum interference effects in strong laser fields: from attosecond pulses to diatomic molecules”*

2009

Daresbury Laboratory

Seminar: *“Quantum interference effects in strong laser fields: from attosecond pulses to diatomic molecules”*

2011

Imperial College London

Quantum Optics and Laser Science (QOLS) Seminar: *“High-order harmonic generation and nonsequential double ionization in atoms and molecules: quantum-interference, excitation and the influence of multiple orbitals”*

2012

Max Born Institute, Berlin

Seminar (Division B): *“High-harmonic generation and nonsequential double ionization in atoms and molecules: quantum interference, causality, excitation and the role of multiple orbitals”*

Teaching Experience

1992

Subject: Quantum Mechanics II

Task: Exercise classes for undergraduate students
(Prof. Dr. J.F. Fontanari, USP, Brazil)

2003

Universität Freiburg (Freiburg, Germany)

Lecture Series: *“Saddle-point treatment of nonsequential double ionization”*
(19.11.2003-21.11.2003; postgraduate level)

2004

Universität Hannover (Hanover, Germany)

Lecture Series: *“Atoms in strong laser fields”*

- (15.01.2004-15.02.2004; postgraduate level)
- 2005 and 2006 City University (London, UK)
Further Mathematics for Economists
(January-April 2005, lecture and exercise classes; undergraduate level)
(January-April 2006, lecture and exercise classes; undergraduate level)
- 2005 City University (London, UK)
Cass business school
Foundations of Numerical Methods
(October 2005- January 2006, lecture and exercise classes; postgraduate level)
- 2008 University College London (London-UK)
Quantum Mechanics (lecture and exercise classes; undergraduate level)
- University College London (London-UK)
Post-Graduate Certificate on Teaching and Learning in Higher Education: Module A
- 2008- University College London (London-UK)
Personal tutor
- Tutor for “Developing Effective Communication”
- 2009--present University College London (London-UK)
Atom-Photon Physics (lecture; postgraduate level)
- 2011 and 2012 University College London
Tutor—Practical Computing (first-year undergraduate course)
- 2013 University College London
Problem Solving Tutorials- Atomic And Molecular Physics
(second-year undergraduate level)
- 2013 University College London
Crash course (Doctoral Training Center): “Strong-Field and Attosecond Physics”(one-day workshop aimed at first-year PhD students)

Editorial and Reviewing Work

- 2003- Referee for Journal of the Optical Society of America B
- 2004- Referee for Optics Letters
- 2005- Referee for Journal of Modern Optics and Optics Communications
- 2006- Member of the EPSRC Peer Review College
- 2008- Referee for Physical Review Letters

2008-	Referee for Journal of Nonlinear Mathematical Physics
2009-	Referee for J. Phys. B
2009-	Referee for Phys Rev A
2010-	Referee for New J. Phys.
2010-	Guest Editor, Journal of Modern Optics Special Issue: “Advances in Strong-Field and Attosecond Physics”
2010-	Reviewer for the Deutsche Forschungsgemeinschaft
2011-	Referee for Optics Express
2012-	Referee for Nature Communications
2012-	Editorial Board, “Conferences in Physics”

Complementary and Administrative Experience

1990 –1992	Apprenticeship Subject: Numerical Studies on Laser Cooling of Sodium Atoms (Prof. Dr. V.S. Bagnato, USP, Brazil)
2003 – 2004	Maintenance of the European Graduate College Homepage (Universität Hannover, Germany)
2006	Organization of the Mathematics Research Seminar Series (City University, London, UK)
2008-2009	Organization of the Atomic Physics Seminar Series (University College London, UK)
2010	Responsible for space allocation (AMOPP group – UCL)
2013	Organization of the Atomic Physics Seminar Series (University College London, UK)

Outreach

2011	Article in UCL Annual Review, which is aimed at a non-specialist audience (p18-20 therein).
2007—present	Maintenance of the website http://www.homepages.ucl.ac.uk/~ucapcfi/ , in which the work of my research group is publicized.

Participation in the UCL Postgraduate Open Day – Atomic, Molecular, Optical and Positron Physics (AMOPP) Group, with several posters every year.

Examination Committees

2008	M. Sc. oral presentation (second examiner) Student: David Reid
2008	Oral assessment test – Quantum Mechanics (second examiner) Student: Rainer Engelken
2010	External Examiner – MPhil Student: David Bartram (Imperial College London)
2012	Internal Examiner – PhD Student: Stephen Harrison (University College London)
2012	MSc thesis and oral presentation (first examiner) Student: Ms Toni Das MSc thesis and oral presentation (first examiner) Student: Ms Zhaohe Liang

Supervision

PhD students (first supervisor)

Please note: Brad Augstein and Tahir Shaaran have successfully completed their PhD degrees in a little more than three years. They were hired as PDRAs at UCL subsequently.

October 2007 – December 2010	Mr Tahir Shaaran University College London Thesis title: “ <i>A rigorous treatment of excitation and quantum interference in laser-induced nonsequential double ionization of atoms and molecules</i> ” Winner of an UCL/EPSRC PhD+ Award 2010 Winner of the UCL Carey Foster Prize for Outstanding Postgraduate Research (AMOPP) (2011)
October 2008 – December 2011	Mr Bradley Augstein University College London Thesis title: “ <i>Orbit-based studies of quantum-interference effects in atomic and molecular high-order harmonic generation</i> ” Winner of the EPSRC Doctoral Training Prize 2011 Winner of the UCL Carey Foster Prize for Outstanding Postgraduate Research (AMOPP) (2012)
October 2010 --	Mr Jie Wu

University College London
Topic: Alternative approaches for high-order harmonic generation
Winner of the CSC/BIS China-UK Studentship for Excellence

October 2012 -- Ms Toni Das
University College London
Topic: Nonsequential double ionization with elliptically polarized fields

MSc students (first supervisor)

January 2011-
September 2012 Ms Zhaohe Liang
University College London
Topic: Nonsequential double ionization in N₂ with few-cycle laser pulses
Project mark: 82/100

October 2011-
September 2012 Ms Toni Das
University College London
Topic: High-order harmonic generation in molecules with elliptically polarized fields
Project mark: 70/100
Now a PhD student at UCL

October 2011 -- Mr Mark Donnelly
University College London
Mr Donnelly has interrupted his studies due to unforeseen circumstances. It is not yet clear whether he will complete his M.Sc.

Post-Doctoral Research Associates

January 2011–
December 2011 Responsible for a Post-doctoral Research Associate (Dr Tahir Shaaran)

January 2012–
January 2013 Responsible for a Post-doctoral Research Associate (Dr Brad Augstein)

September 2012 -- Responsible for a Post-Doctoral Research Associate
Dr Xuanyang Lai (Chinese Academy of Sciences, Wuhan)

April 2013 -- Responsible for a Post-Doctoral Research Associate
Dr Carlos Zagoya

Visitors

October 2007 –
December 2007 Responsible for a junior scientific visitor (Dr Weifeng Yang)
Institution: University College London
Subject: Quantum-interference effects in nonsequential double ionization from diatomic molecules
(Permanent address: Chinese Academy of Sciences, Shanghai)

February 2012 – June 2012 and November 2012—present
Responsible for a senior scientific visitor (Dr Angel Sanz Ortiz)
(Permanent Address: Instituto de Fisica Fundamental, Madrid)

Other supervision

November 2008 – April 2009
Part-time B. Sc. Project (first supervisor)
University College London
Student: Mr Mikko Tuomas Nygren
Topic: Quantum interference effects in high-order harmonic generation
Project mark: 73/100

June 2009 – October 2009
Summer studentship (first supervisor)
Institution: University College London
Student: Mr Mikko Tuomas Nygren
Topic: Path integral methods in laser-induced nonsequential double ionization

January 2003 – May 2003 (less intensive supervision: 2005/2006)
Co-supervision of a diploma project (second supervisor) (together with Dr. Wilhelm Becker)
Institution: Max Born Institut, Berlin
Subject: Above-threshold ionization in molecules
Student: Mr Henrik Hetzheim

2011 -2012
Co-supervision of a MPhil project (second supervisor) (first supervisor: Prof. Jonathan Tennyson)
University College London
Student: Dermot Madden

Languages	Speaking ability	Writing ability	Reading ability
Portuguese	Native speaker	Native speaker	Native speaker
English	Fluent	Excellent	Excellent
French	Average	Good	Very good
German	Fluent	Very good	Excellent

Awards

- 1986 First prize at the 2nd Mathematics Olympiad of the State of Pará - Brazil
- 1996 DAAD PhD Studentship
- 1999 Third best poster at the VIII International Conference on Multiphoton Processes
- 2004 University Research Fellowship, City University
(a single fellowship for over 30 applicants from all research areas)
- 2006 EPSRC Advanced Research Fellowship
(30 fellowships/year for the whole of the UK)
- 2006 Highlight of the Year – Journal of Physics B
“*Attosecond thermalization by laser-induced electron recollisions in atoms*” (together with W. Becker, X. Liu and P.B. Corkum)

Memberships Institute of Physics (IoP), committee member of the Atomic and Molecular Interactions (AMIG) group, IoP

Programming skills Fortran 77, Fortran 90, mathematica, maple, html, standard word-processing programs, notions of C++ and MatLab

Research income

My research group is funded by a variety of grants, both internal and external to UCL. Details of such grants are provided below.

Larger grants

- Engineering and Physical Sciences Research Council- UK (EPSRC) Advanced Research Fellowship: “*Alternative S-Matrix Approaches for Matter in Strong Laser Fields*” (October 2006 – September 2011; £425000; Principal Investigator (PI)).
- EPSRC Research Base Funding Grant: “*Orbit-Based Methods for Multielectron Systems in Strong Fields*”; (January 2013—December 2015; £313000; Principal Investigator (PI)).

Postdoctoral Research Associates (PDRAs) and PhD studentships

- EPSRC PhD+ Award: “*Analytical treatment of the binding potential for matter in strong laser fields: fundamental concepts and attosecond-imaging applications*” (January 2011—December 2011; £25000 stipend + £2800 equipment + £2500 travel; PI; PDRA: Dr Tahir Shaaran). Previously, Dr Shaaran was a PhD student funded by the EPSRC Departmental Training Account (October 2007 – September 2010; £59790).
- EPSRC Doctoral Training Prize: “*Novel Orbit-Based Approaches for Multielectron Systems in Strong Fields*”, January 2012 — January 2013 ; £43445 including salary, travel and equipment; PI; PDRA: Dr Brad Augstein).

- EPSRC Collaborative Studentship with the Daresbury Laboratory. (October 2008 – September 2011; EPSRC contribution: £29895, Daresbury contribution: £17937; Departmental contribution: £11958; PI; student: Mr Brad Augstein)
- CSC China-UK Studentship for Excellence/UCL Overseas Research Studentship: “*Attosecond-pulse generation in multielectron targets*” (October 2010 – ; 30 studentships in the whole UK across all areas of knowledge, PI; student: Mr Jie Wu).
- IMPACT studentship: “*Novel strong-field approaches for nonsequential double ionization and attosecond imaging applications*”(October 2012— , £32534 funded by the central UCL administration, £32534 matched by the Physics Department and £4500 provided by the Max Planck Institute for Quantum Optics, Munich for secondments; PI; student: Ms Toni Das)

Related short-term funding

(I was the PI in all the funding stated below)

- 2007: UCL Start Up Fund (£4500)
- 2008 and 2010: UCL Graduate School Minor Award (£250) and Major Award (£1250) in order to send Mr Tahir Shaaran to a high-profile conference and fund a one-month stay at the ICFO-Barcelona.
- 2009: EPSRC summer studentship (£2200) in order to hire Mr Tuomas Nygren as a summer student for two months.
- 2010: CECAM funding (€9000), which was used to organize the high-profile conference “Advances in Strong-Field and Attosecond Physics” at UCL in June 2010, together with Dr Paul Durham (Daresbury).
- 2010: CCP2 funding for the Strong-Field and Attosecond Physics workshop at UCL (£1500; 2010)
- 2012: Institute of Physics (IoP) funding (£1700) in order to organize the Atomic, Molecular Interaction Group (AMIG) meeting at UCL (June 2012)
- 2012: CCPQ funding (£1500) in order to organize the Atomic, Molecular Interaction Group (AMIG) meeting at UCL (June 2012)

Funding prior to my appointment at UCL

- 2006: City University Pump Prime Grant (£10000; PI)
- 2004: City University Research Fellowship (over £50000; PI)
- 1996: DAAD PhD studentship (included subsistence, travel and equipment; co-PI; together with Prof. Dr. Wolfgang Sandner, Dr. Martin Dörr)