

Curriculum Vitae: Charles Creffield

Date of Birth 8th December 1970

Nationality British

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Research history

Since Oct 2012 Profesor contratado doctor (lecturer) at the Universidad Complutense de Madrid

2007 – 2012 “Ramón y Cajal” Fellow at the Departamento de Física de Materiales, Universidad Complutense de Madrid

2004 - 2007 Research Fellow at University College London, working with Professor Tania Monteiro

2002 - 2003 Research Assistant at the University of Rome, in the group of Professor Carlo di Castro

1999 - 2002 Research Assistant at the Instituto de Ciencia de Materiales in Madrid, working with Professor Gloria Platero

1997 - 1999 Research Assistant at King's College London, working with Professor Sarben Sarkar

Education

1993 - 1997 **King's College London**
Doctor of Philosophy, Theoretical Condensed Matter Physics
Thesis: “Correlation Effects in Models of High T_c Superconductors”

1992 - 1993 **University of Cambridge**
Certificate of Advanced Study in Mathematics

1989 - 1992 **Imperial College, London**
Bachelor of Science in Physics, with First Class Honours

Fields of Research

- using condensed matter systems for quantum computation
- modelling and simulation of strongly correlated fermion and boson systems
- effects of Coulomb interactions and ac-fields on transport in nanostructures
- simulation of time-dependent dynamics of Bose-Einstein condensates

Computing skills

- development and implementation of methods to propagate time-dependent, many-particle quantum systems
- numerical algorithms for diagonalisation of large matrices, and statistical data analysis
- classical and quantum Monte Carlo routines
- system administration of unix workstations and Linux PCs

Research funding obtained

“Dynamic interactions in electron and cold atom systems”

- co-principal investigators: Dr Charles Creffield and Professor Fernando Sols
- Spanish National Project (FIS2017-84368-P)
- duration: 2017 to 2021

“Dynamics of atoms, molecules, and electrons driven by light or sound”

- co-principal investigators: Dr Charles Creffield and Professor Fernando Sols
- Spanish National Project (FIS2013-41716-P)
- duration: 2013 to 2017

“Dynamics and interactions in electron and cold atom systems”

- principal investigator: Professor Fernando Sols
- Spanish National Project (FIS-2010-21372)
- duration: 2010 to 2013

“ac control of Bose-Einstein condensates”

- principal investigator: Dr Charles Creffield
- Accion Integrada with the group of Professor Ennio Arimondo, Pisa, Italy
- duration: 2009 to 2011

“Ramón y Cajal fellowship”, supplementary funding

- principal investigator: Dr Charles Creffield
- duration: 2007 to 2009

“Dynamics, transport, and decoherence in quantum systems”

- principal investigator: Professor Fernando Sols
- Spanish National Project (FIS-2007-65723)
- duration: 2007 to 2010

Professional activities

- evaluator on the physics panel of the “Juan de la Cierva” programme, 2018
- grant evaluator for the Fund for Scientific Research, Belgium (FRS-FNRS)
- “Distinguished Referee” for Europhysics Letters
- referee for journals including Nature Physics, Physical Review (Lett, A, B, E, and X), and the New Journal of Physics
- organiser of three one-day meetings of the “Madrid Cold Atoms Network”, held in the Universidad Complutense; December 2011, June 2013, and January 2016
- organiser and co-founder of the “Inter-Departmental Seminars in Condensed Matter Physics” of the Universidad Complutense (2007 – present)
- Member of the Institute of Physics, Royal Spanish Physics Society (RSEF), and the European Physical Society
- voluntary service in English language practice at the local primary school

Language skills

English	native speaker
Spanish	excellent spoken and reading/writing skills
French	moderate speaking level, good reading/writing skills

Teaching experience

- evaluation "Muy Positiva" in Programa Docencia-UCM, (2017 - 2020)
- coordinator of the second-year laboratory course, "Mecánica y Ondas" (2019 - 2021)
- as lab coordinator, responsible for converting the practicals to online versions in response to the covid-19 lockdown, and introducing covid-safe laboratory practices

Lecturer of the Master's course module "Temas Avanzadas en Materia Condensada" (Advanced Topics in Condensed Matter Physics)

Lecturer of "Solid State Physics", a third-year undergraduate course

Lecturer of "Fundamental Physics I", a first-year undergraduate course

Lecturer of "Matemáticas I", a first-year undergraduate course on basic mathematics

Lecturer of "Física General", a first-year undergraduate course on classical mechanics

Laboratory instructor for "Electromagnetismo II" and "Electromagnetismo III" (2nd and 3rd year undergraduate courses in classical electromagnetism), and "Mecánica Clásica" (2nd year course in classical mechanics)

Head of laboratory for the 4th year course "Estado Sólido" (solid state physics)

Instructor for the course module "CETOM" (science of electrons, thermodynamics, and materials), designed to introduce students from other quantitative sciences, such as biology and chemistry, to fundamental physics concepts

Co-supervisor (with Gloria Platero) of the PhD thesis of Juan Zurita (2020 - present)

Co-supervisor (with Fernando Sols) of the PhD theses of:

- Jesús Mateos (2019 – present)
- Gregor Pieplow (2014 – 2019)
- Martin Heimsoth (2009 – 2013)

Co-supervisor (with Fernando Sols) of the Master's project ("Trabajo Fin de Máster") of Eduardo Bernal Molinero (2020-2021), "Exotic superfluidity in a driven Bose gas"

Co-supervisor (with Gloria Platero) of the Master's project ("Trabajo Fin de Máster") of Juan Zurita (2019-2020), "Topological insulators in systems of interacting bosons"

Supervision of undergraduate students as "Trabajos Fin de Grado", a research-based project undertaken in their final year of studies:

- Pablo Blanco Mas (2021 - 2022) "Soliton dynamics in an ultracold boson gas" (*awarded the RSEF/GEFES prize for student research*)
- Alba Pascual Tevar (2020 - 2021) (with Fernando Sols) "Exotic superfluidity and quantum chaos"
- Juan Pablo Guerrero (2019 – 2020) "Floquet engineering of topological insulators"
- Eduardo Bernal (2019 – 2020) (with Fernando Sols) "Quantum simulation with cold atoms"

- Juan Zurita (2018 – 2019) “Topological phases, edge states, and Hofstadter’s butterfly in 1D topological systems” (*awarded the RSEF/GEFES prize for student research*)
- Miguel Bello (2013 - 2014) “Dynamics of strongly correlated electrons with time dependent spin-orbit interactions”
- Laura Ortiz (2012 - 2013) “The effect of spin-orbit interactions on edge states in topological insulators”

Publications

- 54 publications in international peer-reviewed journals
- 1234 citations (WoK) as of 5th October 2021 (average of 22.8 per article)
- h-index 21 (WoK), 26 (Google Scholar)

"Expansion of a one-dimensional Bose gas: the role of interactions and kinetic-energy driving", E.B. Molinero, C.E. Creffield, and F. Sols, [arXiv:2107.13398](https://arxiv.org/abs/2107.13398)

"Fractals on a benchtop: Observing fractional dimension in a resistor network", C.E. Creffield, accepted for publication in "The Physics Teacher", [arXiv:2107.02322](https://arxiv.org/abs/2107.02322).

"Tunable zero modes and symmetries in flat-band topological insulators", J. Zurita, C.E. Creffield, and G. Platero, [arXiv:2105.10250](https://arxiv.org/abs/2105.10250).

"Riemann zeros from Floquet engineering a trapped ion qubit", R. He, M.-Z. Ai, Y.-F. Huang, Y.-J. Han, C.-F. Li, G.-C. Guo, G. Sierra, and C.E. Creffield, *njp Quant. Inf.* **7**, 109 (2021).

"Cat states in a driven superfluid: role of signal shape and switching protocol", J. Mateos, G. Pieplow, C. Creffield, and F. Sols, *Eur. Phys. J. Spec. Top.* **230**, 1013 (2021).

"Controlling spin without magnetic fields: the Bloch-Rashba rotator", C.E. Creffield, *Phys. Rev. B* **102**, 085436 (2020).

"Identifying the Riemann zeros by periodically driving a single qubit", Ran He, Ming-Zhong Ai, Jin-Ming Cui, Yun-Feng Huang, Yong-Jian Han, Chuan-Feng Li, Tao Tu, C.E. Creffield, G. Sierra, and Guang-Can Guo, *Phys. Rev. A* **101**, 043402 (2020).

"Topology and interactions in the photonic Creutz and Creutz-Hubbard ladders", J. Zurita, C.E. Creffield, and G. Platero, *Adv. Quantum Technol.* **3**, 1900105 (2020).

"Protected cat states from kinetic driving of a boson gas", G. Pieplow, C.E. Creffield, and F. Sols, *Phys. Rev. Research* **1**, 033013 (2019).

"Relativistic motion of an Airy wavepacket in a lattice potential", C.E. Creffield, *Phys. Rev. A* **98**, 063609 (2018).

"Generation of atypical hopping and interactions by kinetic driving", G. Pieplow, F. Sols, and C. Creffield, *New Journal of Physics* **20**, 073045 (2018).

"Many-body quantum chaos and entanglement in a quantum ratchet", M.A. Valdez, G. Shchedrin, M. Heimsoth, C.E. Creffield, F. Sols, and L.D. Carr, *Phys. Rev. Lett.* **120**, 234101 (2018).

"Sublattice dynamics and long-range transfer of doublons in 2D lattices", M. Bello, C.E. Creffield, and G. Platero, *Phys. Rev. B* **95**, 094303 (2017).

"Realization of uniform synthetic magnetic fields by periodically shaking an optical square lattice", C.E. Creffield, G. Pieplow, F. Sols, and N. Goldman, *New Journal of Physics* **18**, 093013 (2016).

“Long-range doublon transfer in a dimer chain induced by topology and ac fields”, M. Bello, C.E. Creffield, and G. Platero, *Scientific Reports* **6**, 22562 (2016).

“Quantum dot spin cellular automata for realizing a quantum processor”, A. Bayat, C.E. Creffield, J.H. Jefferson, M. Pepper, and S. Bose, *Semicond. Sci. Technol.* **30**, 105025 (2015).

“Finding zeros of the Riemann zeta function by periodic driving of cold atoms”, C.E. Creffield and G. Sierra, *Phys. Rev. A* **91**, 063608 (2015).

“Generation of uniform synthetic magnetic fields by split driving of an optical lattice”, C.E. Creffield, and F. Sols, *Phys. Rev. A* **90**, 023636 (2014).

“Quantum simulation of correlated-hopping models with fermions in optical lattices”, M. Di Liberto, C.E. Creffield, G.I. Japaridze, and C. Morais Smith, *Phys. Rev. A* **89**, 013624 (2014).

“Effective Josephson dynamics in resonantly driven Bose-Einstein condensates”, M. Heimsoth, D. Hochstuhl, C.E. Creffield, L.D. Carr, and F. Sols, *New Journal of Physics* **15**, 103006 (2013).

“Comment on *Creating artificial magnetic fields for cold atoms by photon-assisted tunneling* by Kolovsky A.R.”, C.E. Creffield, and F. Sols, *Europhysics Letters* **101**, 40001 (2013).

“Orbital Josephson effect and interactions in driven atom condensates”, M. Heimsoth, C.E. Creffield, L.D. Carr, and F. Sols, *New Journal of Physics* **14**, 075023 (2012).

“Directed transport in driven optical lattices by phase generation”, C.E. Creffield and F. Sols, *Phys. Rev. A* **84**, 023630 (2011).

“Coherent control of interacting particles using dynamical and Aharonov-Bohm phases”, C.E. Creffield and G. Platero, *Phys. Rev. Lett.* **105**, 086804 (2010).

“Expansion of matter waves in static and driven periodic potentials”, C.E. Creffield, F. Sols, D. Ciampini, O. Morsch, and E. Arimondo, *Phys. Rev. A* **82**, 035601 (2010).

“Spin-filtering and entanglement swapping through coherent evolution of a single quantum dot”, J.G. Coello, A. Bayat, J.H. Jefferson, S. Bose, and C.E. Creffield, *Phys. Rev. Lett.* **105**, 080502 (2010).

“Weakly-driven quantum coherent ratchets in cold atom systems”, M. Heimsoth, C.E. Creffield, and F. Sols, *Phys. Rev. A* **82**, 023607 (2010).

“Creffield and Sols Reply”, C.E. Creffield and F. Sols, *Phys. Rev. Lett.* **104**, 228902 (2010).

“Coherent ratchets in driven Bose-Einstein condensates”, C.E. Creffield and F. Sols, *Phys. Rev. Lett.* **103**, 200601 (2009).

“Instability and control of a periodically-driven Bose-Einstein condensate”, C.E. Creffield, *Phys. Rev. A* **79**, 063612 (2009).

“Dynamical control of cold bosons using oscillating potentials”, C.E. Creffield, *J. Phys.: Conf. Ser.* **150**, 032107 (2009).

“Controlled generation of coherent matter-currents using a periodic driving field”, C.E. Creffield and F. Sols, *Phys. Rev. Lett* **100**, 250402 (2008).

“Dynamical instability in kicked Bose-Einstein condensates”, J. Reslen, C.E. Creffield, and T.S. Monteiro, Phys. Rev. A **77**, 043621 (2008).

“Quantum control and entanglement using periodic driving fields”, C.E. Creffield, Phys. Rev. Lett. **99**, 110501 (2007).

“Coherent control of self-trapping of cold bosonic atoms”, C.E. Creffield, Phys. Rev. A **75**, 031607 (Rapid Comm.) (2007).

“Tuning the Mott transition in a Bose-Einstein condensate by multiple photon absorption”, C.E. Creffield and T.S. Monteiro, Phys. Rev. Lett. **96**, 210403 (2006).

“Theory of 2d-kicked quantum rotors”, C.E. Creffield, S. Fishman, and T.S. Monteiro, Phys. Rev. E **73**, 066202 (2006).

“Localization-delocalization transition in a system of quantum kicked rotors”, C.E. Creffield, G. Hur, and T.S. Monteiro, Phys. Rev. Lett. **96**, 024103 (2006).

“Quantum chaotic ratchets and filters with cold atoms in optical lattices: Analysis using Floquet states”, G. Hur, C.E. Creffield, P.H. Jones, and T.S. Monteiro, Phys. Rev. A **72**, 013403 (2005).

“Dynamical control of electronic states in AC driven quantum dots”, C.E. Creffield and G. Platero, AIP Conference Proceedings, **772**, 805 (2005).

“Phonon softening and dispersion in the 1D Holstein model of spinless fermions”, C.E. Creffield, G. Sangiovanni, and M. Capone, Eur. Phys. J. B **44**, 175 (2005).

“Phase dependence of localization in the driven two-level model”, C.E. Creffield, Europhysics Letters **66**, 631 (2004).

“Localization of two interacting electrons in quantum dot arrays driven by an ac-field”, C.E. Creffield and G. Platero, Phys. Rev. B **69**, 165312 (2004).

“Coherence and localization in ac-driven quantum dots”, C.E. Creffield and G. Platero, Microelectronics Journal **35**, 19 (2004).

“Location of crossings in the Floquet spectrum of a driven two-level system”, C.E. Creffield, Phys. Rev. B **67**, 165301 (2003).

“Optimum pinning of the vortex lattice in extremely type-II layered superconductors”, C.E. Creffield and J.P. Rodriguez, Phys. Rev. B **67**, 144510 (2003).

“Electron dynamics in ac-driven quantum dots”, C.E. Creffield and G. Platero, published as a chapter in “The Anderson Transition and its Ramifications”, Springer-Verlag Lecture Notes in Physics Vol. **630** (2003) [<http://uk.arxiv.org/abs/cond-mat/0211690>].

“Spin-polarised pumping in a double quantum dot”, E. Cota, R. Aguado, C.E. Creffield, and G. Platero, Nanotechnology **14**, 152 (2003).

“Dynamical control of correlated states in a square quantum dot”, C.E. Creffield and G. Platero, Phys. Rev. B **66**, 235303 (2002).

“AC-driven localization in a two-electron quantum dot molecule”, C.E. Creffield and G. Platero, Phys. Rev. B **65**, 113304 (2002).

“Spin and charge Tomonaga-Luttinger parameters in quantum wires”, C.E. Creffield, W. Häusler, and A.H. MacDonald, *Europhysics Letters* **53**, 221 (2001).

“Magnetic field dependence of the low-energy spectrum of a two-electron quantum dot”, C.E. Creffield, J.H. Jefferson, S. Sarkar and D.L. Tipton, *Phys. Rev. B* **62**, 7249 (2000).

“Interacting electrons in polygonal quantum dots”, C.E. Creffield, W. Häusler, J.H. Jefferson, and S. Sarkar, *Phys. Rev. B* **59**, 10719 (1999).

“Analytic continuation of Matsubara Green's functions”, C.E. Creffield, E.G. Klepfish, and E.R. Pike, *Nucl. Phys. B* **63**, 655 (1998).

“Frequency dependent spin-susceptibility in the two-dimensional Hubbard model”, C.E. Creffield, E.G. Klepfish, P.E. Kornilovitch, E.R. Pike, and S. Sarkar, *J. Phys. Cond. Matt.* **9**, L267 (1997).

“Dynamics of single-particle and collective excitations from Quantum Monte Carlo”, C.E. Creffield, E.G. Klepfish, P.E. Kornilovitch, E.R. Pike, and S. Sarkar, *Czech. J. Phys.* **46**, 2655 (1996).

“Spectral weight function for the half-filled Hubbard model - a Singular Value Decomposition Approach”, C.E. Creffield, E.G. Klepfish, E.R. Pike, and S. Sarkar, *Phys. Rev. Lett.* **75**, 517 (1995).

Visits to international research institutes

University of Utrecht, the Netherlands

- July 2012 – September 2012
- hosted by Professor Cristiane de Morais Smith
- topic: topological insulators and driven condensates

University of Pisa, Italy

- November 2010
- hosted by Professor Ennio Arimondo
- topic: coherent control of Bose-Einstein condensates

University College London, UK

- June 2009 – September 2009
- hosted by Professor Sougato Bose
- topic: using quantum dots for quantum computation

University of Ulm, Germany

- March 2006
- hosted by Professor Wolfgang Schleich
- topic: dynamical localization in driven quantum systems

University of Freiburg, Germany

- April 2002
- hosted by Professor Hermann Grabert
- topic: Luttinger liquids

QinetiQ, Malvern, UK

- Jan. 1999 – April 1999
- hosted by Professor John Jefferson
- topic: magnetic properties of quantum dots

Presentations and Seminars

- July 2021 "Finding zeros of the Riemann zeta function by Floquet engineering a trapped ion qubit", invited seminar, Max Planck Institute of Quantum Optics, Garching, Germany.
- June 2021 "Controlling spin without magnetic fields: the Bloch-Rashba rotator", invited talk, conference on Condensed Matter and Quantum Materials (CMQM-2021), organised by Bristol University and the IOP.
- Oct. 2020 "Using cold atoms to simulate relativistic dynamics", invited talk, Cold Atoms Workshop 2020, virtual conference organised by the Foro de Física de Átomos Fríos of the RSEF.
- Aug. 2019 "Kinetic driving – a new form of Floquet engineering", workshop on "Dynamics and interactions in quantum gases", Mahon, Menorca (poster presentation).
- July 2019 "Kinetic driving – a new form of Floquet engineering", conference on "Designing artificial quantum matter", San Sebastián (poster presentation).
- Apr. 2019 "Relativistic motion of an Airy wavepacket in a lattice – quantum mechanics at high speed", invited seminar, University of Ljubljana, Slovenia.
- Jan. 2019 "Relativistic motion of an Airy wavepacket in a lattice – quantum mechanics at high speed", invited seminar, Instituto de Ciencia de Materiales de Madrid.
- July 2018 "Creating a superfluid by kinetically driving a Mott insulator", 26th International conference on Atomic Physics (ICAP 2018), Barcelona, Spain (poster presentation).
- Mar. 2018 "Creating a superfluid by kinetically driving an insulator", contributed talk, DPG Spring Meeting, Berlin, Germany.
- Sept. 2017 "Creating a superfluid by kinetically driving an insulator", International Conference on Quantum Atomic, Molecular and Plasma Physics (QuAMP 2017), Glasgow, UK (poster presentation).
- Feb. 2017 "Floquet engineering of non-ergodic driven systems", conference on "Breakdown of ergodicity in quantum systems: from solids to synthetic matter", the Royal Society, London, UK (poster presentation).
- Sept. 2016 "Realizing uniform synthetic magnetic fields by periodically shaking an optical lattice", contributed talk, Quantum Technologies Conference VII, Warsaw, Poland.
- Sept. 2015 "Floquet engineering of driven lattice systems", contributed talk, International Conference on Quantum Atomic, Molecular and Plasma Physics (QuAMP 2015), University of Sussex, UK.
- June 2015 "Using driven cold atoms as quantum simulators", contributed talk, Quantum Technologies Conference VI, Warsaw, Poland.
- Feb. 2015 "From Hofstadter's butterfly to Riemann's zeros: using driven cold atoms as quantum simulators", conference on "Quantum Simulation", Centro de Ciencias de Benasque, Spain (poster presentation).

- Oct. 2014 “Finding zeros of the Riemann zeta function by periodic driving of cold atoms”, contributed talk, 7th Madrid Meeting on Ultracold Atoms, Instituto de Física Fundamental (CSIC).
- July 2014 “Generating synthetic gauge potentials by split driving of an optical lattice”, 46th Conference of the European Group on Cold Atom Systems (EGAS 46), Lille, France (poster presentation).
- Jan. 2014 “Synthetic gauge potentials for cold atoms”, invited talk, 6th Madrid Meeting on Ultracold Atoms, Institute of Theoretical Physics (IFT) of the Universidad Autonoma de Madrid (UAM/CSIC).
- Oct. 2013 “From Foucault's pendulum to Hofstadter's butterfly; synthetic gauge potentials for cold atoms”, invited seminar, Ludwig Maximilian University of Munich (group leader Immanuel Bloch)
- Sept. 2013 “Synthetic gauge potentials from periodic driving potentials”, conference on “Frontiers in quantum gases”, Sant Feliu, Spain (poster presentation).
- May 2013 “Quantum dot spin cellular automata for realizing quantum computation”, contributed talk, conference on “Nanoelectronics: Concepts, Theory, and Modelling”, North Uist, Scotland.
- May 2013 “Synthetic gauge potentials for cold atoms by periodic driving”, contributed talk, conference on “New magnetic field frontiers in atomic/molecular and solid-state physics”, Ecole de Physique, Les Houches, France.
- June 2012 “Synthetic gauge potentials for cold atoms”, invited talk, conference on “Quantum and Optical Dynamics in Transport Phenomena”, Instituto de Física Fundamental (CSIC).
- June 2012 “Controlling atoms with light”, Ornstein Colloquium in Theoretical and Experimental Physics, Utrecht University, the Netherlands.
- Feb. 2012 “Topology and phases: spin filtering and localization in interacting electrons”, contributed talk, International Physics School on “Fundamentals of Nanoelectronics”, Tenerife, Spain.
- June 2011 “Singlet-triplet measurement of the coherent evolution of a single quantum dot“, “Nanoelectronics beyond the roadmap”, Lake Balaton, Hungary (poster presentation).
- May 2011 “Controlling transport in driven optical lattices by phase generation”, invited seminar, Instituto de Ciencia de Materiales de Madrid (CSIC).
- May 2011 “A novel method for generating gauge potentials in atomic condensates”, invited talk, “Encuentro Gases Cuánticos en Madrid”, Instituto de Física Fundamental (CSIC).
- April 2011 “Controlling the coherent dynamics of electrons with phases”, invited talk, “Fluctuation Phenomena in Interdisciplinary Science”, Universitat Barcelona.
- Feb 2011 “Phase-controlled transport in periodically-driven optical lattices”, invited seminar, Universidad Autonoma de Madrid.

- Nov 2010 “Control and stability of periodically-driven Bose-Einstein condensates”, invited seminar, University of Pisa, Italy.
- Sept. 2010 “Topology and phase: two ways to control the dynamics of electrons”, contributed talk, “Nanoelectronics: Concepts, Theory and Modelling”, Malvern, UK.
- May 2010 “Coherent resonant ratchet currents in driven Bose-Einstein condensates”, workshop on “Time-dependent dynamics and non-equilibrium quantum systems”, Budapest, Hungary (poster presentation).
- Aug. 2009 “Control and stability of periodically-driven Bose-Einstein condensates”, invited talk, conference on “Ultracold matter: modelling and simulation”, Windsor Great Park, UK.
- Feb. 2009 “Dynamical instability in ac-driven Bose-Einstein condensates”, invited seminar, Universidad Autonoma de Madrid, Spain.
- Nov. 2008 “Instability and control of periodically-driven Bose-Einstein condensates”, invited seminar, Universidad de Castilla-La Mancha, Spain.
- Sept. 2008 “Quantum control of cold bosonic atoms using periodic driving fields”, invited seminar, University College London.
- Aug. 2008 “Dynamical control of cold bosons using oscillating potentials”, LT-25, Amsterdam, Netherlands (poster presentation).
- June 2008 “Quantum control of cold bosonic atoms using periodic driving fields”, invited seminar, Universitat Autonoma de Barcelona, Spain.
- March 2008 “Quantum control of cold bosons using periodic driving potentials”, contributed talk, “Nonlinear Phenomena in Degenerate Quantum Gases”, Toledo, Spain.
- Oct. 2007 “Quantum control of cold bosonic atoms using periodic driving fields”, invited seminar, Imperial College, London.
- Sept. 2007 “Quantum control of cold bosonic atoms using periodic driving fields”, contributed talk, QuAMP 2007, London, UK.
- Nov. 2006 “Controlling the dynamics of Bose-Einstein condensates with light”, Physics Colloquium at the University of Oldenburg, Germany.
- Oct. 2006 “Controlling Bose-Einstein condensates with light”, conference on “Quo Vadis BEC?”, Berlin, Germany (poster presentation).
- Mar. 2006 “Controlling Bose-Einstein condensates with light”, invited seminar, Universitat de les Illes Balears, Mallorca, Spain.
- Mar. 2006 “Tuning the Mott transition in Bose-Einstein condensates by photon absorption”, invited seminar, Universidad Complutense, Madrid, Spain.
- Sept. 2005 “Quantum chaos in cold atoms and Bose-Einstein condensates”, invited seminar, Instituto de Ciencia de Materiales, Madrid, Spain.

- Aug. 2005 “Coherent control of Bose-Einstein condensates with pulsed optical lattices”, invited talk, conference on “Ultra cold matter: modelling and simulation”, Windsor, UK.
- July 2005 “Chaotic dynamics and critical statistics in a kicked Bose-Einstein condensate”, conference on “Recent Challenges in Novel Quantum Systems”, Camerino, Italy (poster presentation).
- Feb. 2005 “Towards coherent control of Bose-Einstein condensates”, invited seminar, University of Ulm, Germany.
- Aug. 2004 “Dynamical localization in optically trapped cold atoms”, 3rd meeting of the UK Cold Atoms Network, St Andrews, UK (poster presentation).
- Jan. 2004 “Coherent control of electrons in nanoscale arrays”, invited seminar, University of Surrey, UK.
- Sept. 2003 “Control and localization of electrons in quantum dot systems”, invited seminar, University of Nottingham, UK.
- Sept. 2003 “Localisation transitions in 1D systems of interacting electrons, driven by an ac-field”, Euroconference on “Spin and charge transport in nanostructures”, Braga, Portugal (poster presentation).
- April 2003 “Location of crossings in the Floquet spectrum of a driven two-level system”, Condensed Matter and Materials Physics Conference, Belfast, UK (poster presentation).
- April 2002 “Dynamical control of entangled states in a double quantum dot”, invited talk, RTN meeting on “Nanoscale Dynamics, Coherence and Computation”, Rome.
- Nov. 2001 “AC-driven localisation of molecular states in a double quantum dot”, invited seminar, Instituto de Ciencia de Materiales, Madrid, Spain.
- Oct. 2001 “Coherent transport in a two-electron quantum dot molecule”, invited seminar, University of Freiburg, Germany.
- Sept. 2000 “Localisation and entanglement of interacting electrons in quantum dots”, invited talk, TMR Advanced Research School on “Space, Frequency and Time Resolved Quantum Transport” in Hamburg, Germany.
- Dec. 1999 “Magnetic properties of a two electron quantum dot”, Condensed Matter and Materials Physics Conference, Leicester, UK (poster presentation).
- Oct. 1999 “Luttinger liquid parameters and plasmons in quantum wires”, invited talk, TMR workshop on “Quantum Transport in the Frequency and Time Domains”, Genoa, Italy.
- Aug. 1999 “Extraction of Luttinger liquid parameters for quantum wires”, Summer School on “Exotic States in Quantum Nanostructures”, Windsor, UK (poster presentation).
- June 1999 “Quantum dots and Wigner molecules”, Europhysics Conference on “Statistical and Dynamical Aspects of Mesoscopic Systems” in Sitges, Spain (poster presentation)

Referees

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