

## Jimena D. Gorfinkiel

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### EMPLOYMENT

<b>Senior Lecturer</b>	since 10/11
School of Physical Sciences, The Open University	
<b>Lecturer</b>	12/05-09/11
Department of Physics and Astronomy, The Open University	
<b>Postdoctoral Research Fellow</b>	01/00-11/05
Department of Physics and Astronomy, University College London	
<b>Associate lecturer</b>	03/96-09/96
Department of Chemistry, Universidad Autónoma de Madrid	

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### EDUCATION

<b>Ph. D. in Theoretical Chemistry</b> (Cum Laude)	1999
<i>Theoretical study of non-adiabatic processes in ion-diatomic molecule collisions. The <math>C^{4+} + H_2</math> system.</i>	
Universidad Autónoma de Madrid. Supervisor: Dr. Luis Mendez	
<b>M. Sc. in Theoretical Chemistry</b> (Special Award)	1996
Universidad Autónoma de Madrid.	
<b>Degree in Chemistry (main field: Quantum Chemistry)</b>	1994
Universidad Autónoma de Madrid	

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### FUNDING (as PI unless otherwise stated; when Co-I only OU funds indicated)

#### **Molecular B-spline algebraic diagrammatic construction: High-performance ab initio software package for attoscience**

6 month project, Embedded CSE Support (eCSE), EPCC £44365 (to OU) 03/19

#### **Positrons in biosystems**

4 year project, ARC, £10000 (to OU) 01/19

#### **UK Atomic, Molecular and Optical Physics Consortium (UK-AMOR)**

4 year High end Consortium, EPSRC EP/R029342/1, £20885 (to OU) plus equivalent of £1.2M in supercomputer time, **Co-investigator** 6/18

#### **RMADAM-R-matrix suites for multielectron attosecond dynamics in atoms and molecules irradiated by arbitrarily polarised light**

2 year Software Infrastructure, EPSRC £203915, **Co-investigator** 09/17

#### **ELEvaTE (Achievement of Excellence in Electron Processes),**

3 year H2020 Twinning project, EU £170,000, **Co-investigator** 01/16

#### **RAMPA- R-matrix based Atomic and Molecular Physics on ARCHER**

2 year ARCHER Leadership project, equivalent to £130,000 **Co-investigator** 10/15

#### **Modelling of Magnetron Sputtering for High Value Manufacturing**

2 year project, EPSRC £233,039, **Co-investigator** 10/14

#### **Efficient computation of two-electron integrals in a mixed Gaussian/B-spline basis**

1 year project, Embedded CSE Support (eCSE), EPCC £73715 06/14

#### **Parallelisation and porting of UKRMol-in, the electron-molecule scattering inner region R-matrix codes**

1 year project, Distributed CSE Support (dCSE), NAG Ltd. £45,000 04/11

#### **UK R-matrix Atomic and Molecular Physics HPC Code Development Project (UK-RAMP)**

5 year project, EPSRC EP/G055599/1 £245,264 10/09

#### **Electron interactions with small molecular clusters**

3 year project, EPSRC EP/E001238/1 £234,875 09/06

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## ADMINISTRATIVE AND OTHER EXPERIENCE

<b>Specialist Editor</b> for Computer Physics Communications	since 04/19
<b>Head</b> of Physics Research Discipline	since 08/17
<b>Scholarship Lead</b> , School of Physical Sciences	since 08/17
<b>Member</b> of the eSTeEM (OU centre for STEM pedagogy) Coordination Group	since 04/15
<b>Member</b> of the Commission on Atomic, Molecular, and Optical Physics (C15) of the International Union of Pure and Applied Physics	since 11/14
<b>Member</b> of the Direction Board of the Portuguese Radiation Biology and Biophysics Doctoral Training Network	since 06/13
<b>Member</b> of the CCPQ <i>Quantum Dynamics in Atomic, Molecular and Optical Physics</i> (previously, CCP2) steering committee	since 01/06
<b>Chair</b> of the IOP Atomic and Molecular Interactions (AMIG) group	09/11-03/16
<b>Member</b> of the ICPEAC General Committee	2007-2011
<b>Departmental Postgraduate Tutor</b>	09/10-08/13
<b>Reviewer</b> and <b>Panel member</b> for EPSRC; <b>reviewer</b> for NSF	
<b>Referee</b> for Chemical Physics Letters, Journal of Chemical Physics, Journal of Physics B, New Journal of Physics, The European Physical Journal D, Physical Review A and Molecular Physics	

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## INVITED TALKS

### **Resonance formation in biological molecules**

DAMOP, Milwaukee, May 2019

### **Cross sections for electron collisions with molecules leading to excitation and dissociation**

REACPLAS Workshop: Collisional processes and reactivity of transient species in the gas phase: From Elementary Processes to Applications for Cold Plasmas and Astrophysics, Orsay, France, November 2017

### **Core-excited resonances in biological molecules**

POSMOL 2017: XIX International Workshop on Low-Energy Positron and Positronium Physics and XX International Symposium on Electron-Molecule Collisions and Swarms, Australia, July 2017

### **Towards an R-matrix suite for attosecond multielectron dynamics in molecules**

MACUMB: Massive Computation for Ultrafast Molecular Breaking, Madrid, Spain May 2017

### **Temporary Anion States of Biologically Relevant Molecules**

New Frontiers in Anion Spectroscopy, York, March 2017

### **Electron collisions with molecules and molecular clusters using the R-matrix method**

21st Symposium on Applications of Plasma Processes (SAPP XXI), Slovakia, January 2017

### **Modeling electronically inelastic processes in electron collisions with biologically relevant molecules**

International Meeting on Atomic and Molecular Physics and Chemistry, France, June 2016

### **Electron initiated chemistry in biological molecules**

3rd XLIC General Meeting, Hungary, November 2015

### **Low energy electron interactions with cyclic azines**

Expert meeting on biomolecules organized by XLIC (XUV/X-ray light and fast ions for ultrafast chemistry) COST Action, Serbia, April 2015

### **Latest developments in low energy electron-molecule scattering: the R-matrix approach**

SPIG 2014: 27th Summer School and International Symposium on the Physics of Ionized Gases, Serbia, August 2014

### **Calculations of electron-molecule scattering cross sections using the Rmatrix method**

Joint ITAMP/IAEA Workshop on Uncertainty Assessment for Atomic and Molecular Data Cambridge, U.S.A., July 2014

### **Electron scattering from molecular aggregates and molecules of biological relevance**

XXVIII ICPEAC: 28 International Conference on Photonic, Electronic, and Atomic Collisions

Lanzhou, China, July 2013

**Resonance formation in electron collisions with diazines**

POSMOL 2013: XVII International Workshop on Low-Energy Positron and Positronium Physics and XVIII International Symposium on Electron-Molecule Collisions and Swarms  
Kanazawa, Japan, July 2013

**Low energy electron scattering from pyrimidine**

Nano-IBCT workshop on quantum scattering calculations and Monte Carlo simulations of radiation damage

Madrid, Spain, November 2012

**Low energy electron collisions of relevance to biological radiation damage**

63rd Gaseous Electronics Conference

Paris, France, October 2010

**Low energy electron collisions with small molecular clusters**

QuAMP09: International Conference on Quantum, Atomic, Molecular and Plasma Physics

Leeds, UK, September 2009

**Electron interactions with small molecular clusters**

ESF Conference: Chemical Control with Electrons and Photons

Obergurgl, Austria, November 2008

**Electron collisions of relevance to biological processes**

QuAMP IV

London, UK, September 2007

**Theoretical studies of electron interactions with biologically relevant molecules**

ESF Conference: Biomolecules - From Gas Phase Properties to Reactions relevant in Living Cells

Obergurgl, Austria, June 2006

**Calculation of excitation and ionization cross sections for electron-molecule collisions at intermediate energies**

XXIV ICPEAC: 24 International Conference on Photonic, Electronic, and Atomic Collisions

Rosario, Argentina, July 2005

**Ab initio cross sections for electron-molecule collisions at intermediate energies**

ECAMP 8: 8<sup>th</sup> European Conference on Atomic and Molecular Physics

Rennes, France, July 2004

**Electron-molecule collisions at intermediate energies: the R-matrix with pseudostates method**

EMS 03: 13<sup>th</sup> International Symposium on Electron-Molecule Collisions and Swarms

Pruhonice, Czech Republic, August 2003

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## TEACHING EXPERIENCE

**Module Team Member, production: S380 TBD**

The Open University

2018-2019

**Module Team Member, presentation: MST224 *Mathematical Methods* and MST210**

*Mathematical Methods, Models and Modelling*

The Open University

2018-2019

**Module Team Member, production: S123 *Physics and Space***

The Open University

2016-2017

**Module Team Chair, presentation: S151 *Maths for science***

2016-2017

**Module Team Member, presentation: S141 *Investigative and mathematical skills in science***

The Open University

2016-2017

**Module Team Member, production: S111 *Questions in Science***

The Open University

2015-2016

**Module Team Member, presentation: S825 *Developing research skills in science***

The Open University

2015-2017

**Module Team Member, presentation: MST124 *Essential mathematics 1* and MS125**

*Essential mathematics 2*

The Open University

2015-2019

<b>Module Team Chair, production:</b> S217 <i>Physics: from Classical to Quantum</i> The Open University	2010-2015
<b>Course Team Chair, presentation</b> S207 <i>The Physical World</i> The Open University	2007-2010
<b>Course Team Member, presentation:</b> MST121 <i>Using mathematics</i> and MS221 <i>Exploring mathematics</i> The Open University	2007-2010
<b>Course Team Member production:</b> SM358, <i>The Quantum World</i> The Open University	2006
<b>Residential School Course Director:</b> SXR207 <i>Physics by Experiment</i> The Open University	2008, 2010
<b>Residential School Tutor:</b> SXR103 <i>Practicing Science</i> and SXR207 <i>Physics by Experiment</i> The Open University	2006-2009
<b>Lecturer of Atomic and Molecular Physics</b> Part-time Evening BSc Physics Degree University College London	2003
<b>Tutorials and Problem Solving classes</b> (Mathematics, Classical Mechanics and Electricity and Magnetism) for first year physics students University College London	2000-2002
<b>Supervision of a fourth year research project</b> University College London	2000
<b>Introduction to experimental Physical Chemistry</b> First year of Environmental Science, Physics and Chemistry degrees Universidad Autónoma de Madrid.	1994 -1996

## TEACHING-RELATED RESEARCH

<b>Gender differences in completion and credit on Physical Science Module S207</b> eSTEE M supported project	since 10/14
<b>Embedding mathematical content and figures in electronic assignments</b> $\pi$ cetl supported project	2007-2008

## TEACHING AWARDS

<b>Excellence in Innovation: S111, Questions in science, production team</b> Member of the production team for S111.	2017
<b>Team Award for work on the production and first presentation of S217, Physics: from Classical to Quantum</b> Chair of the production team for S217.	2016

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## RESEARCH INTERESTS

- Modelling of molecular electronic processes initiated by electrons, positrons and photons involving the continuum. Application of R-matrix based approaches.
- Electron and positron molecule collisions: description of electronic excitation, ionisation and rotational excitation. Application to radiation damage, astrophysics and plasma technologies.
- Effect of microhydration in electrons collisions with molecules; scattering from small molecular clusters. Multiple-scattering. Application to processes of relevance in biological radiation damage.
- Scientific Software Development