

# **IOP** | Institute of Physics **Molecular Physics Group**

NEWSLETTER No 1

News from 2012-2013

## **Welcome from Chris Mayhew, Molecular Physics Group Chair**

Welcome to our Newsletter for 2012-2013, which provides an update of our recent activities as well as some of our plans for 2013-2014. This is the first newsletter for our group (?), and we now plan to publish a newsletter annually. We very much welcome contributions from group members to future newsletters (send contributions to Dr Caroline Dessent, [caroline.dessent@york.ac.uk](mailto:caroline.dessent@york.ac.uk)).

During this year there have been only minor changes to the committee, with myself remaining as chair and Dr Neil Hunt continuing to act as Honorary Secretary and Chairman. We welcomed Dr Emily House and Dr Margaret O'Hara to the committee as ordinary members.

Details of our previous and forthcoming events are included here for your information. Thank-you for your continued support of the Group and I look forward to meeting you at one of our events during the course of this year.

Chris Mayhew

### **MOL PHYS CONTACTS**

**Chair:**

Dr Chris Mayhew

**Secretary and Treasurer:**

Dr Neil Hunt

**Web Site:**

<http://www.iop.org/activity/groups/subject/mol/index.html>

## **Group Activities 2012-2013**

The beginning of the 2012-2013 academic year was marked by several half-day research meetings organised by the Molecular Physics Group. In September, the group organised a well-attended meeting entitled “Atoms and Molecules in Ultra Cold Environments” at the University of Birmingham. Invited talks were given by Prof Kai Bongs (Birmingham), Prof Andrew Ellis (Leicester), Prof Jeremy Hudson (Durham) and Prof Paul Scheier (Innsbruck) covering a range of topics from electron driven reactions in doped helium nanodroplets through to Feshbach association of ultracold atoms. This meeting was followed in November by two-half day meetings related to applications of soft chemical ionisation. The first of these was entitled “Soft Ionisation Mass Spectrometric Techniques and the Environmental Sciences”, and featured talks from Prof. Paul Monks (Leicester), Prof. Carl Percival (Manchester), Dr Mark Blitz (Leeds), and Dr Fraser Reich (Kore Technology Ltd, Ely). This was a joint meeting with the RSC Environmental Chemistry Group that provided a forum for the discussion of recent applications and developments of soft chemical ionisation techniques for use in environmental science research. The second meeting of this series focused on applications of soft chemical ionization for breath analysis for medical applications, and included contributions from Dr Philipp Sulzer (Ionicon Analytik GmbH, Innsbruck), Prof. Jochen Schubert (Rostock), and Dr Wilfried Szymczak (Helmholtz Zentrum, Munich).

In April 2013, the group co-sponsored a very well-attended two-day meeting with the Royal Society of Chemistry on “Photoinitiated Quantum Molecular Dynamics” at the University of Nottingham. The conference covered recent advances in experimental technology and computational methodology in the area of quantum-level photochemistry and photophysics, including photo-initiated quantum molecular dynamics.

The annual ANUMOCP meeting was organised by Dr June McCombie at the University of Nottingham on July 9<sup>th</sup>, 2013. The meeting was very well attended, with over 75 students, post-docs and

academics managing to attend the day in spite of a major rail signalling break-down that morning . The oral presentations slots were oversubscribed, illustrating the continued popularity of the meeting, and the standard of presentations was excellent. Over 25 posters were also presented at the meeting.

The annual QuAMP meeting was held at Swansea University from the 8<sup>th</sup> September to 11<sup>th</sup> September. The Molecular Physics group jointly organises this meeting with the Atomic and Molecular Interactions, Plasma Physics, QQQ and QEP groups of the IOP, alternating between a summer school for research students and a research meeting in alternate years. This year, the meeting ran in the research meeting with sessions on ultrafast phenomena, ultra-cold atom physics, quantum optics, plasma physics, antimatter, atomic and molecular interactions, and molecular physics. The molecular physics session included invited talks by Prof. Jeremy Hutson (ultracold chemistry), Dr Amy Gardner (State detection of molecular ions), Dr A. Cournal (Laser cooling of CaF molecules) and Prof. Paul Scheier (electron driven reactions in doped helium droplets).

Finally, the group organised its second half-day meeting on Soft Chemical Ionisation at the University of Birmingham, on the 20<sup>th</sup> November 2013. The meeting was again held jointly with the RSC Environmental Chemistry Group, and attracted over 60 registered participants. Invited talks were presented on a diverse range of topics ranging across atmospheric to medial applications from Prof. Jonathan Williams (MPI Mainz), Dr Emily House (University of Lancaster), Prof. Armin Wisthaler (NILU/University of Innsbruck), and Prof. Paul Thomas (Loughborough University). This topical meeting will now become an annual event, with the 2014 meeting being organised by Dr Emily House at the University of Lancaster in November 2014.

**UPCOMING EVENTS OF THE MOLECULAR PHYSICS GROUP****The Physics of Soft and Biological Matter:**

**Location:** Homerton College, University of Cambridge

**Date:** Monday, 14 April- Wednesday, 16 April 2014

**Requires registration:** Yes

**Contact details:** Joanne Hemstock. Tel: 020 7470 4800. E-mail: [joanne.hemstock@iop.org](mailto:joanne.hemstock@iop.org)

**Further info :** [softbio.iopconfs.org](http://softbio.iopconfs.org)

The conference will bring together the broad and diverse community interested in the physics of soft and biological matter, which includes liquids, liquid crystals, polymers, colloids, membranes, interfaces, cellular biophysics, and biological macromolecules. The programme will span a number of key cross-cutting themes, including self-assembly and patterning, rheology, biomimetrics, non-equilibrium phenomena, as well as molecular imaging, optical methods and spectroscopies, which are all relevant to the wide range of length- and time-scales present in these fascinating systems.

A detailed meeting programme will be circulated to group members once it is available.

**ANUMOCP XXIV:**

**Location:** University of York

**Date:** Thursday, 3 July 2013, 10:00-17:00

**Requires registration:** Yes

**Contact details:** Dr Caroline Dessent, [caroline.dessent@york.ac.uk](mailto:caroline.dessent@york.ac.uk)

The meeting will follow the usual format and comprise talks from students and postdocs, as well as posters. Please encourage your research students and postdocs to attend and make a contribution. This is an ideal opportunity for PhD students to give a talk in a relatively relaxed environment. Further details will be circulated closer to the event

**Quantum, Atomic, Molecular and Plasma Physics (QuAMP) Summer School:**

**Location:** Durham University

**Date:** Monday, 15 September – Friday, 19 September, 2014

**Requires registration:** Yes

**Contact details:** Amy Fitzgerald. Tel: 020 7470 4800. E-mail: [amy.fitzgerald@iop.org](mailto:amy.fitzgerald@iop.org)

The school features tutorial-style lectures from a range of distinguished international speakers, introducing themes of broad interest in the areas of quantum, atomic, molecular and plasma physics, providing an introduction to topics for the uninitiated and deepening knowledge of more experienced researchers.

**OTHER UPCOMING EVENTS OF INTEREST TO GROUP MEMBERS**

**SASP:** XIX<sup>th</sup> Symposium on Atomic, Cluster and Surface Physics

**Date:** 9-14 February, 2014

**Location:** Innsbruck

**Web:** [www.uibk.ac.at](http://www.uibk.ac.at)

**MOLEC 2014:** 20<sup>th</sup> European Conference on the Dynamics of Molecular Systems

**Date:** 24-29 August, 2014

**Location:** Gothenburg

**Web:** [www.molec2014.se](http://www.molec2014.se)

**Photoionization and Photodetachment 2014:** Gordon Research Conference

**Date:** 23-28 February, 2014

**Location:** Galveston, Texas

**Web:** [www.grc.org/meetings.aspx?year=2014](http://www.grc.org/meetings.aspx?year=2014)

**Faraday Discussion 168, Astrochemistry of Dust, Ice and Gas**

**Date:** 7-9 April, 2014

**Location:** Leiden, The Netherlands

**Web:** <http://www.rsc.org/ConferencesAndEvents/RSCConferences/FD/FD168/index.asp>

**Faraday Discussion 171, Astrochemistry of Dust, Ice and Gas**

**Date:** 9-11 April, 2014

**Location:** Sheffield

**Web:** <http://www.rsc.org/ConferencesAndEvents/RSCConferences/FD/FD171/index.asp>

## Research Student Conference Fund

Research students can apply for financial support to attend meetings pertinent to the molecular physics group. The Molecular Physics committee administers grants of up to £250 per student for such events. The funding is managed centrally by IOP, rather than through the allocation of a fixed sum by the group. Further details are included on the flyer below.

**Supporting research students**

# Research Student Conference Fund

Providing financial support to research student members, to attend international conferences and major national meetings.

Apply for up to £250 during the course of your PhD.

Applications are considered on a quarterly basis and should reach the Institute by: 1 March, 1 June, 1 September or 1 December

For further information see [www.iop.org](http://www.iop.org) or contact [supportandgrants@iop.org](mailto:supportandgrants@iop.org)

**IOP** Institute of Physics

## Members News

Members of the Molecular Physics Group are encouraged to submit news items, information of upcoming events or short research articles of interest to the Molecular Physics community for inclusion in the next newsletter. Please forward any suitable items via e-mail to Dr Caroline Dessent ([caroline.dessent@york.ac.uk](mailto:caroline.dessent@york.ac.uk)).

## **Committee**

### **Chair**

- Dr Christopher Mayhew CPhys FInstP, University of Birmingham: c.mayhew@bham.a.uk

### **Secretary and Treasurer**

- Dr Neil Hunt MInstP, University of Glasgow: neil.hunt@strath.ac.uk

### **Ordinary Members**

- Dr Caroline Dessent MInstP, University of York: caroline.dessent@york.ac.uk
- Dr Samuel Eden MInstP, University College London: s.p.eden@open.ac.uk
- Prof Andrew Ellis FInstP, University of Leicester: ame2@leicester.ac.uk
- Dr Emily House, MInstP, University of Birmingham: ecrhouse@hotmail.com
- Dr June McCombie CPhys, MInstP, Univ. of Nottingham:  
June.Mccombie@nottingham.ac.uk
- Dr Margaret O'Hara, AMInstP: m.a.ohara@bham.ac.uk
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- Prof Ivan Powis, CPhys FInstP, University of Nottingham: Ivan.Powis@nottingham.ac.uk
- Dr Jan Verlet, MInstP, University of Durham: j.r.r.verlet@durham.ac.uk