

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

NEWSLETTER No 2

Welcome from Andrew Ellis, Molecular Physics Group Chair

As Chair of the Molecular Physics Group (MPG), it is a pleasure to be able to welcome you to our first newsletter in quite a long time. The intention is to reintroduce annual newsletters in order to update group members about events and activities that specifically involve the MPG in some way or another. We would welcome suggestions from the MPG community about things you might like to see included in future issues and we will consider individual items of news or announcements, as long as they are of relevance to the MPG. Suggestions should be directed to either myself or the MPG Secretary/Treasurer, Mike Parkes.

In this particular newsletter you will find a variety of information including a list of the group officers, and reports on conferences and symposia we have helped to sponsor in the past year or so. As a group we are sometimes able to find a modest level of funding to help support events that have a significant involvement of MPG members. Equally, we plan to organise and support at least two one-day symposia each year on topics relevant to the MPG and have funds to cover the travel costs of one or two invited speakers, including speakers from overseas. Each symposium will focus on a particular research theme and we'd like to see some variation of topics over the next few years. Consequently, we are on the lookout for new ideas, as well as new hosts, so please feel free to make suggestions! Our eventual aim is have an established pipeline of symposia stretching a couple of years ahead. We are not quite there yet but at the time our writing out plans are as follows:

8 th November 2018	Emerging Spectroscopies (UCL – see below)
March/April 2019	Molecular structure and conformation (Newcastle; joint with AIMG)
Oct/Nov 2019	Topic and location to be decided

There will be no registration fee for these meetings. Note also that we are happy to organise symposia jointly with other groups in IOP (see the proposed meeting in Newcastle next year, where the plan is a joint symposium with the Atomic and Molecular Interactions Group (AIMG)). Joint meetings with groups from other bodies such as the RSC are also encouraged.

Note that the group AGM will precede the scientific meeting on the 8th November at UCL and so if you want to become involved with the MPG, or simply make suggestions for activities, it would be great to see you there.

Andrew M. Ellis
Chair of IOP Molecular Physics Group

Report from Secretary/Treasurer, Mike Parkes

Though we are a small group we are doing well in terms of funding. Over the last few years we have been successful in receiving the money that we request from the IOP. This money has been used to run regular focussed one day symposia. We have also been able to provide funding for meetings that provide early career researchers with a friendly environment to present their work, such as the successful and long running (now in its 28th year) Annual Northern Universities Meeting of Chemical Physics (ANUMOCP) meetings and the younger Southern Universities Spectroscopy and Dynamics Group (SUSDG).

MOL PHYS CONTACTS

Chair: Professor Andrew Ellis

Secretary and Treasurer: Dr Michael Parkes

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

Reports from conferences**XXVIII Annual Northern Universities Meeting of Chemical Physics**

Postgraduate students, postdocs, and academics assembled for the 28th Annual Northern Universities Meeting of Chemical Physics (ANUMOCP). The meeting was held on 3rd July 2018 at Manchester Metropolitan University and the local organiser was Dr Sven Koehler. This was the first time the meeting has been held in Manchester and possibly the first time to be west of the Pennines! Despite it being the 'Northern' meeting, it attracted participation from across the country, including from Oxford, the Open University and STFC at Harwell in the South, to Glasgow and Edinburgh in the North.

ANUMOCP is typically a great opportunity for young scientists to present their research in the area of Physical Chemistry/Chemical Physics in front of a friendly audience, and this meeting was no exception. Short of reciting the programme (which is still available at www.svenkoehler.eu/ANUMOCP), we were treated to fantastic talks on optical tweezers (Glasgow and Newcastle), gas-phase dynamics (York, Heriot-Watt, Oxford, Open University), rotational and vibrational spectroscopy (Sheffield, Newcastle, and Leicester), devices for solar and sensor applications (Sheffield and Birmingham), and ultra-fast dynamics (CLF at STFC, Durham, Edinburgh, Manchester), just to name a few.

We had 17 oral contributions altogether (which hence had to be cut down to 15 min compared to previous years' 20 min), and around 20 posters, which attracted plenty of attention during lunch and the afternoon coffee/tea break.

Speaking of food and refreshments, the very modest registration fee of £10 was only possible due to the generous support of the Molecular Physics group of the IOP and the Spectroscopy and Dynamics group of the RSC.

It is worth stressing at this point that we had a gender-balanced programme, with 8 contributions

from male participants and 9 talks presented by female participants.

Overall, the 3rd July was a fantastic day, not only because the England football team won the penalty shoot-out in the evening, but more importantly because we were treated to some great science and could also catch-up with friends and colleagues.

Dr Derek Wann has kindly agreed to host the next ANUMOCP in 2019 at the University of York.

Ultrafast Chemical Physics in Scotland

A one-day meeting was held on the 19th of March in Edinburgh with the aim to bring together research groups in Scotland working on ultrafast chemical physics. There was a wide range of topics covered from bio and materials to fundamental light-matter interactions. Speakers included Eleanor Campbell (Edinburgh), Jeremy Coe (Paterson group, Heriot-Watt), Gordon Hedley (Glasgow), Neil Hunt (Strathclyde), Olof Johansson (Edinburgh), Anita Jones (Edinburgh), Adam Kirrander (Edinburgh), Arvydas Ruseckas (Samuel group, St Andrews), Dave Townsend (Heriot-Watt), and Klaas Wynne (Glasgow). The large number of groups participating, both from theory and experiments, demonstrates that ultrafast chemical physics is indeed very active in Scotland. The meeting was very well received and there was an overwhelming majority that wanted to turn the meeting into an annual event and so a new online forum for ultrafast chemical physics in Scotland was created: <http://ultrachemphys.org>.

We also had a specially invited international speaker, Oriol Vendrell (Aarhus), who spoke about the new field of cavity femtochemistry. There was also a talk from Mark Goossens, representing local laser manufacturer Chromacity, who connected applications in chemical physics with the large photonics community in Scotland. We had a long lunch break during which lively discussions among the 35 participants were held. The meeting also attracted interested from outside Scotland with participants from northern England.

The organisers would like to thank ScotCHEM and the RSC photochemistry and IOP Molecular Physics groups for funding.

Neil Hunt, University of Strathclyde
Olof Johansson, University of Edinburgh

Feedback from participants

- *"I think it was a great day and very useful for the community. "*
- *"I had great time at the meeting, most of the talks were very informative and helpful. I do think that it ought to be an annual event."*
- *"Inspiring to attend as an undergraduate. The topics were interesting and the speakers were good. Talking to some of the researchers was useful as well, learning about their work and what kind of groups there are working in this area of research. "*
- *"It was very good, the venue too and the truth is that I got some good ideas with the talks. It's a great idea to bring together those of us who do ultrafast chemical physics and who are close by. "*
- *"I really enjoyed the meeting. I think it could work as either an annual or biannual event "*



UPCOMING EVENTS OF THE MOLECULAR PHYSICS GROUP

International Plasma Spectroscopy (IPS 2018)

Location: Worcester College, Oxford

Date: Sunday 23 September - Wednesday 26 September 2018

Requires registration: Yes

Enquiries: ips2018@chem.ox.ac.uk.

Further info : <http://ips2018.chem.ox.ac.uk>

The IPS workshop is held every two years and is a main international forum for gathering the community of scientists and engineers working in research and technology related to plasmas and their applications. In particular it is a unique opportunity to bring together plasma physicists, physical chemists and engineers developing new spectroscopic tools, methodologies and techniques, all working on plasma science.

Naturally we want this meeting to be an immense success, following on from the recent conferences in Inuyama, Japan in 2016 and Hoboken, New York, in 2014. We have already attracted an impressive set of invited speakers to this meeting, and the details can be seen on our website.

Emerging spectroscopies: from the gas-phase to complex systems

Location: University College London

Date: Thursday 8 November 2018 12.30 - 17.30

Requires registration: Yes

Further info : <https://www.events.iop.org/d/f/worldwide/IOPGroupEvents/page.html>

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 Professor Helen Fielding (h.h.fielding@ucl.ac.uk)

Understanding the role of light in physical, chemical and biological change at the microscopic scale is important in a diverse range of processes in nature and technology, from light harvesting and photodynamic therapy to nanoscale machines and electronic devices. A major goal is to develop our understanding to the point where it becomes possible to design molecular systems, for a particular function, from first principles. The talks in this symposium will present three state-of-the-art spectroscopic methods aimed at making increasingly differential measurements on systems ranging from isolated molecules in the gas-phase to complex molecular systems.

Time	Title	Speaker
12:30	AGM of the Molecular Physics Group of the IOP	
14:30	Intra- and inter-molecular processes in aqueous solutions: photoemission from liquid microjets and new developments	Professor Bernd Winter (Fritz-Haber-Institut der Max-Planck-Gesellschaft, Germany)
15:20	Tea Break	
15:40	Gas-phase mid-infrared frequency comb spectroscopy	Dr Julia Lehman (University of Leeds, UK)
16:30	Exploring ultrafast dynamics of biomolecules and nanomaterials with multidimensional optical spectroscopies	Dr Tom Oliver (University of Bristol, UK)
17:30	Wine reception	

AGM

Date for the next AGM is below and an agenda will follow in due course:

Thursday 8th November 2018 @12.30pm
 University College London

IOP Prizes and Awards

MPG members are encouraged to suggest colleagues for awards and to approach the MPG Committee with suggestions. The call for nominations is made at the end of October with a closing date for submissions at the end of January. The award categories are broad and flexible, in order to attract high-quality nominations across all research areas – including new and emerging areas – and institutions. The IOP welcomes nominations that reflect and celebrate the breadth, geographic spread and diversity of the community. The MPG encourages all members to look at the range of awards made and to forward suggestions (or self-nominations) to the MPC Committee for support in

putting forward a nomination. Typically the information needed is a *Biographical statement* (1000 words or two page CV) and *Additional information* (500 words). Details of what is required for each nomination can be found under 'Entry Guidelines' for each award. See also the following link:

<http://www.iop.org/about/awards/index.html>

Committee

Chair

Prof Andrew Ellis, FInstP, University of Leicester ame2@le.ac.uk

Secretary and Treasurer

Dr Michael Parkes, MInstP, University College London: michael.parkes@ucl.ac.uk

Ordinary Members

Dr Arend Dijkstra, MInstP, University of Leeds: a.g.dijkstra@leeds.ac.uk

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Dr Nick Walker, University of Newcastle: nick.walker@newcastle.ac.uk

Dr Derek Wann, MInstP, University of York: derek.wann@york.ac.uk

Please note that members of the MPG who are looking for referees for MInstP or FInstP applications should feel free to approach committee members?