

# MACRO GROUP UK POLYMER PHYSICS GROUP BULLETIN



**IOP** | Institute of Physics  
Polymer Physics Group

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## Editorial

### Welcome to the second bulletin of 2007.

Following the departure of Sébastien Perrier to Sydney *the bulletin* has another change to the editorial team. We welcome Andrew Dove from the University of Warwick and wish Sébastien the best of luck in his new surroundings. Andrew will now be responsible for newsletter and bulletin items for MacroGroup UK.

This issue also sees a change of chairman of MGUK. After 3 years of service, Professor Peter Lovell has been succeeded by Professor David Haddleton (University of Warwick). We congratulate him on his recent appointment and we look forward to working with him in the future.

The first person to win the PPG student prize is announced and we congratulate Richard Jones (PPG chairman) on his recent appointment as the EPSRC's senior strategic advisor on Nanotechnology.

Unfortunately, this issue also brings sad news about the deaths of Pierre-Gilles DeGennes and John Bevington, great losses to the community.

**James Sharp**  
**Andrew Dove**  
*Bulletin Officers*

Contributions for inclusion in the **BULLETIN** should be emailed (preferably) or sent to either:

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Or

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The deadline for contributions for the next issue is  
**30 November 2007.**

*The Pure and Applied Macromolecular Chemistry Group  
(Macro Group UK) is a joint group of the Royal Society of Chemistry and the Society of Chemical Industry.  
The Polymer Physics Group is a joint group of the Institute of Physics and the Royal Society of Chemistry.*

## From the Chairman of Macro Group



I am very pleased to be elected to Chair of the Macro Group for the next period and hopefully we can continue to strengthen UK polymer science, it is an honor to follow so many distinguished polymer chemists.

Our most pressing objective is to maintain a healthy membership and to do this we must encourage the new members of our community to join. Essentially the best way to do this is for our academic members to encourage all of their students to join either through the RSC or the SCI. Both routes are easy and for example a member of the RSC just has to phone the number on their membership card and agree to pay the small membership fee, the SCI is equally simple. In fact there are full joining instructions at our web site.

So please ask your students and coworkers to join.

Also if you control your own website why not put the logo with a link to our website on your front page

[www.macrogroupp.org.uk](http://www.macrogroupp.org.uk)

Also use the site to advertise your positions read the bulletin, etc.

It seems to me that although we have seen a fragmentation of the polymer industry in the UK there seems to be a growing need for polymer scientists in the UK and the University groups continue to be training in an essential area. The applications and uses of polymers are increasing in diversity and complexity. The Macro Group UK seeks to serve this diverse community.

We have two medals up for nomination so any suggestions please use the form you will find in this bulletin.

Also don't forget the D H Richards bursaries to fund student travel to conferences we are keen for our students to attend as many conferences as possible.

**Dave Haddleton**

Chairman  
Macro Group

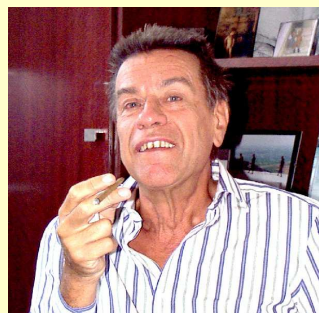
## Thoughts from the PPG Chair:



## Pierre-Gilles de Gennes

(1932 – 2007)

Pierre-Gilles de Gennes, who died on the 18<sup>th</sup> of May this year, was a remarkable and influential physicist whose work has had a huge importance in shaping our field of polymer physics. As a theorist, he connected polymer physics to the wider



*Nobel Laureate and champion of polymer physics, Pierre-Gilles de Gennes who died earlier this year.*

concepts of modern statistical mechanics, establishing deep and powerful analogies with other branches of physics, in particular with the theory of phase transitions. He brought together the previously disparate fields of liquid crystals, polymer physics and colloid science, effectively inventing – and naming – the field of soft matter physics. For these contributions he was awarded the Nobel Prize in physics in 1991.

De Gennes was the kind of theoretical physicist who was fascinated by the everyday world. His ambition was always to see the simplicity at the heart of complex phenomenon, and his work was presented in simple language, with powerful physical concepts uncluttered by complicated mathematics. Not the least of his gifts was his ability to coin apt, memorable and colourful names for the concepts he developed. For the motion of a polymer chain in a dense melt, he conceived the analogy of a snake moving through long grass, hence the name *reptation*. The complexities of chain statistics in polymer solution somehow seem much more manageable when conceived as a *melt of blobs*, and polymers attached by one end to an interface are easily visualised as *mushrooms* or *brushes*.

De Gennes spent virtually all his career in Paris, at various times in Orsay, the College de France and the Institute Curie. He was a frequent visitor to the UK (and an unashamed anglophile), and undoubtedly had a considerable influence on the course of the subject here. Anyone who was lucky enough to interact scientifically with him will remember his courtesy, his enthusiasm, and his infectious fascination with science.

**Richard Jones**  
PPG Committee Chairman

## PPG &amp; Macro Group Committees

## PPG Committee 2006-2007

**Chair:**

Professor Richard Jones

**Vice-Chair:**

Dr. Simon Hanna

**Honorary Secretary and Treasurer:**

Dr. Nigel Clarke

**Ordinary members:**

Professor Athene Donald

Professor Mark Matsen

Dr. Gerhard Goldbeck-Wood

Dr. Roy Christopherson

Dr. Sally Organ

Dr. Ian Robinson

Dr. Joseph Keddie

Dr. Michael Butler

Dr. João Cabral

Dr. Alex Routh

Dr. James Sharp (Bulletin Officer)

Dr. Daniel Read

## Macro Group Committee

**Chairman:** Prof. David Haddleton (University of Warwick) 2007 - 2010**Secretary:** Dr Wayne Hayes (University of Reading) 2004 - 2008**Treasurer:** Prof. Stephen Yeates (University of Manchester) 2005 - 2009**Ordinary Members:**

Mr Jeffrey Carter (ICI) 2005 - 2008

Dr Nigel Clarke (Durham University) 2005 - 2008

Dr Rob Hunter (Unilever) 2005 - 2008

Dr Peter Cormack (University of Strathclyde), *Membership Officer* 2005 - 2008Dr Joachim Steinke (Imperial College), *Meetings Programme Officer* 2005 - 2008

Dr Carl Waterson (Infineum International) 2006 - 2009

Dr Neal Williams (ICI Paints) 2006 - 2009

Dr Raj Bhardwaj (Polymer Laboratories) 2007 - 2010

Prof. Steve Brocchini (London University) 2007 - 2010

Dr Andrew Dove (University of Warwick), *Bulletin Officer* 2007 - 2010

Prof. Steve Howdle (University of Nottingham) 2007 - 2010

Dr Andrew Lewis (Biocompatibles) 2007 - 2010

Dr Christopher Sammon (Sheffield Hallam University), *Web Site Officer* 2007 - 2010**Co-opted Member:***Dr Fred Davies (University of Reading), Polymer Roadshow Officer***Representative Members:****Representing Society of Chemical Industry:***Prof. Richard Jones (University of Kent)***Representing Colloid & Interface Science Groups, RSC and SCI:***Prof. Peter Williams (NEWI)***Representing Materials Chemistry Forum, RSC:***Prof. Stephen Yeates (University of Manchester)***Representing Polymer Physics Group, IoP:***Dr Nigel Clarke (Durham University)***Representing Biomaterials Chemistry Group, RSC:***Dr Chris Ansell (BITECIC Ltd)***Representing Institute of Materials, Minerals and Mining:***vacant***Representing European Polymer Federation:***Dr Wayne Hayes (University of Reading)***Representing Polymer Degradation Discussion Group:***Dr Michelle Edge (Manchester Metropolitan University)***Representing Polymer Colloids Forum:***Prof. Peter Lovell (University of Manchester)***Representing RAPS Network:***Dr Rachel O'Reilly (University of Cambridge)*

# IOP Institute of Physics

**Career Break Grants**

The Institute's Career Break Grants help members to stay in touch with the wider physics community.

Contributions towards attendance and associated costs are available.

Members can apply by going to [http://www.iop.org/activity/academia/Career\\_Break\\_Grants/page\\_5466.html](http://www.iop.org/activity/academia/Career_Break_Grants/page_5466.html)

or by emailing [cbg@iop.org](mailto:cbg@iop.org)

**Career Break Rates for Conferences**

Members can attend all Institute of Physics conferences at a reduced rate.

**Reduced Membership Subscription Rates**

Members on a career break are entitled to a reduced membership subscription rate, which is currently just £10.

Email [membership.iop.org](mailto:membership.iop.org), including your membership ID number in the text, to qualify for this rate.

## PPG Chair Appointed as EPSRC's Senior Strategic advisor on Nanotechnology

We are delighted to announce that Professor Richard Jones (University of Sheffield) took up an appointment as the EPSRC's Senior Strategic Advisor for Nanotechnology on 1<sup>st</sup> June 2007.

Richard will spend 3 days per week advising EPSRC on the development and implementation of its Nanotechnology Strategy. He will also act as an advocate for nanotechnology and for EPSRC both within the UK and internationally. Nanotechnology is a priority area of research for EPSRC.

He is quoted as saying that "Nanotechnology, responsibly developed, could help meet a number of society's pressing needs in areas like sustainable energy and medicine. I am looking forward to working with EPSRC and the research community to ensure the UK is at the forefront of the global competition to develop exciting science and valuable applications in nanotechnology."

Richard is a Professor of Physics. He leads the Polymer Physics group in Sheffield and conducts research into the properties of polymers and biopolymers at surfaces and interfaces. He aims to learn from some of the principles used by nature - self-assembly and molecular responsiveness - to create synthetic nanodevices such as molecular motors. He is also involved in public engagement activities in the area of nanotechnology, both in explaining the technology itself and in debating the social and ethical issues.



*Prof. Richard Jones giving a plenary lecture at Nano-Expo in Nottingham earlier this year.*

In addition, Richard is also the author of a recent book on soft nanotechnology, "Soft Machines: nanotechnology and life" and he has spoken on the subject to a variety of audiences and in various media. He is also the chair of the Nanotechnology Engagement Group, a body set up by government to co-ordinate public engagement activities in this area.

I hope that you will join the PPG committee in congratulating Richard on his recent appointment and in wishing him all the best in his new role.

**James Sharp**

## PPG Paper Prize awarded to Surrey Student

The Polymer Physics Group has announced that Mr. Tao Wang, a Ph.D. student at the University of Surrey, will receive the 2007 Prize for the Best Student Paper. Mr. Wang will present his award-winning paper at the forthcoming PPG Biennial Meeting to be held at Durham University on September 10 - 12, 2007.



*Mr Tao Wang (Uni. of Surrey), recipient of the PPG student prize*

The purpose of the prize is to recognise the best publication in a journal, on a topic of relevance to polymer physics, in which a PhD student is one of the authors. The scientific quality, originality and significance of the research were all considered in choosing the winner. There was strong competition for the prize, and the judges were faced with a pleasingly difficult choice.

Tao Wang's publication (which appeared in *Advanced Materials* in 2006) reports that soft nanocomposite adhesives made from polymer colloids and carbon nanotubes. These composite materials have a high adhesion energy, while also being electrically conducting and optically transparent, thus paving the way for demanding applications, such as in electronics packaging. The research provides insights into how the addition of carbon nanotubes adjusts the viscoelasticity of these materials to achieve increased adhesion. The paper was also previously selected as a highlight in the Editor's Choice section of *Science* magazine.

Tao works under the supervision of Drs. Joe Keddie and Alan Dalton at Surrey. The research has benefited from collaborations with ESPCI (France), Clemson University (USA) and the University of the Basque Country (Spain). Mr Wang is the author of six publications on polymer science and is the recipient of an Overseas Research Student scholarship from Universities UK and a University Research Scholarship from Surrey.

## Professor John Bevington

1922 - May 4th 2007

John Bevington was born in 1922 and after an education in Winchester he read Natural Sciences at Queens' College Cambridge. His PhD focused on the polymerization of aldehydes. In 1948 he took up a lectureship in Chemistry at the University of Birmingham and joined the research group of Professor (later Sir) Harry Melville. In 1964 John took up his post as the first Professor of Chemistry at the newly founded University of Lancaster. He was the first Principal of Bowland College and also served as a Pro-Vice-Chancellor. John was awarded the Macro Group UK Medal in 2001 in recognition of his contributions to polymer chemistry.

John published over 200 papers between 1946 his last paper appearing in 2006 in European Polymer Journal (2006, 42, 1433-1436). John was part of the founding scientists that developed and established polymerization and more specifically free radical polymerization as an industrially useful and at the same time a rigorous academic discipline. In all polymer text books we find continued reference to Johns' founding and cornerstone work. As a scientist he was an inspiration and always willing to offer generous and sound advice to less experienced colleagues. All UK polymer scientists today owe John a debt and I would recommend them to read some of Johns' papers to see how much can be done with such little access to modern instrumentation and spectroscopy.

John was the worthy recipient of the MACRO group medal in 2000 – the first UK winner of our medal. John was the founding executive editor of European Polymer Journal publishing his first paper in the journal in the first issue on pages 19-24 "Reactivities of esters of methacrylic acid—II. studies of radical copolymerizations".

John married Helena Stewart in Cambridge in 1948. It was a very happy marriage with four children – David, Richard, Katherine and Stephen. Unhappily David died in 1996 followed very shortly afterwards by Helena. Helena had been ill for many years which she endured with great courage and dignity. Richard, Katherine and Stephen survive and there are two grandsons – Andrew and Robert Beale. He was a very keen golfer, achieving a handicap of three.

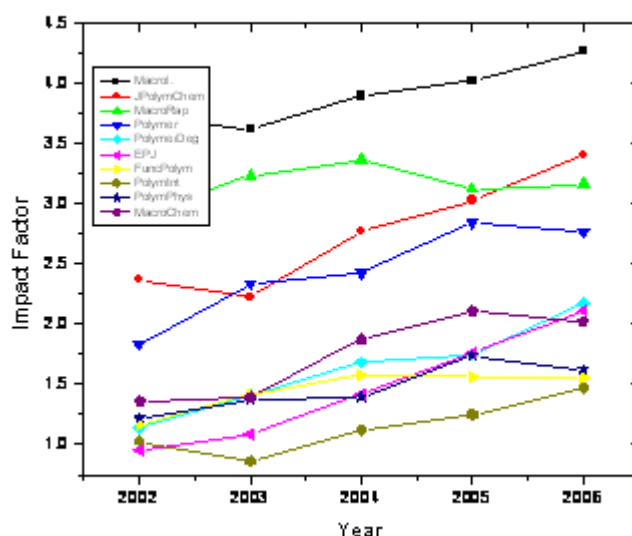
John Ebdon said at his funeral "John Bevington was a charismatic teacher, a consummate scientist, a gifted scholar, a tireless servant of Lancaster University, a gentleman of the old school, and a good friend and colleague." I think we can quite safely replace the words Lancaster University with Polymer Science.

Thanks John from all at the Macro Group.

D M Haddleton

## Impact Factor Trends for Polymer Journals

There is a general increase in impact factors in polymer journals but we see some jockeying for position. The figure shows data for some selective journals.



### What is your h-factor?

The h-index is being increasingly used as a measure of scientific excellence see the entry on Wikipedia at

[http://en.wikipedia.org/wiki/Hirsch\\_number](http://en.wikipedia.org/wiki/Hirsch_number)

or the original article at

<http://arxiv.org/abs/physics/0508025>

Polymer Scientists include

Bob Grubbs	88
Craig Hawker	66
Jean Fréchet	87

How do you measure up?

## MacroGroup UK Awards

### Nominations for MACRO Group Medal Now Open!

#### **Macro Group UK Medal**

Awarded to a UK-based scientist who has made a significant and substantial contribution to the development of polymer science through his/her scientific achievements and/or services to the UK polymer science community. The recipient will be awarded a silver medal and will be expected to deliver a medal award lecture at an appropriate Macro Group UK meeting.

Nominations for this award are invited annually and the next deadline of 30th September 2007.\*

#### **Macro Group UK Young Researchers Medal**

Awarded to a UK-based scientist, normally under the age of 36 on December 31st of the preceding year, whose contributions to polymer science show outstanding promise for the future. The recipient will be awarded a bronze medal and will be expected to deliver a medal award lecture at an appropriate Macro Group UK meeting.

Nominations for this award are invited annually and the next deadline of 30th September 2007.\*

#### **Nominations**

All Macro Group UK awards are open to scientists from any organisation (industrial, commercial, government, academic...). Nominations for the Macro Group UK Medal and the Macro Group UK Young Researchers' Medal are restricted to scientists currently working in the UK, whereas the Macro Group UK Medal for Outstanding Achievement is open to scientists from all countries of the world.

Nominations should consist of a proposer and a seconder (both current members of Macro Group UK), who should provide:

- 1) A supporting statement (describing the contributions for which the nominee is notable) and
- 2) A brief (1-4 page) CV of the nominee.

Nominations for the Macro Group UK Medal for Outstanding Achievement may also be made by proposers and/or seconders who are not Macro Group UK members with prior approval from the Macro Group UK Chairman. All nominations must be received by the Macro Group UK Secretary no later than the nomination deadline.

\* Note that 2007 medal lectures and presentation awards will take place at the *Frontiers of Research* meeting in April 2008. Please inform nominees of this meeting.



### **Macro Group UK Medal for Outstanding Achievement \***

- 2006** J.M.J. Fréchet
- 2005** K. Matyjaszewski
- 2004** P. Hodge
- 2003** A.B. Holmes
- 2002** D.C. Sherrington
- 2001** J.M.G. Cowie
- 2000** J.C. Bevington
- 1999** E.W. Meijer
- 1998** W.J. Feast
- 1997** G. Wegner

### **Macro Group UK Medal**

- 2006** D.M Haddleton

### **Macro Group UK Young Researchers Medal**

- 2006** S. Périer
- 2005** P.A.G. Cormack
- 2004** W.C. Hayes
- 2003** N.R. Cameron
- 2002** A.I. Cooper
- 2001** W. Huck
- 1999** A. Slark
- 1997** S. Rannard

\* previously known as the Macro Group UK Lectureship and Medal (1997-2005)

## Conference Reports

## 4th Annual conference on Foundations of Nanoscience: Self Assembled Architectures and Devices

18<sup>th</sup>-21<sup>st</sup> April 2007, Snowbird, Utah, USA

"Foundations of Nanoscience" (FNano) is an annual conference held for the 4<sup>th</sup> time this year in Snowbird, Utah (USA). The conference covers a wide range of topics from the *Theory of Self-Assembly* to *Molecular Motors* and *Biomedical Nanotechnology*. It brings together Computer Scientists, Chemists, Biochemists, Physicists and Engineers to promote an interdisciplinary approach to Nanoscience and Nanotechnology.

I am a D.Phil student in the Oxford University Physics department and I attended the conference with the help of a student bursary from the IoP Polymer Physics Group. My work is concerned with building nanostructures from DNA molecules. At FNano I presented a poster on our recent work on DNA bipyramids: nanometre sized cages that form in single step self-assembly from synthetic DNA strands.

One of the most fascinating new results within my field was presented by William Shih from Harvard University. His self-assembled 800 nm-long DNA Nanotubes form liquid crystals that can be used in the structure determination of membrane proteins by Nuclear Magnetic Resonance (NMR). Unlike other liquid crystalline media used for the alignment of water-soluble proteins in NMR, the DNA nanotubes are compatible with the detergents required to solubilise membrane proteins. Other highlights of the conference included talks about applications of metallic nanostructures and plasmonics (Naomi Halas, Rice University) and the design and construction of new materials from molecular building blocks (Omar Yaghi, UCLA).

FNano 2007 provided a fascinating overview of the diverse and exciting field of nanoscience research.

*Christoph Erben, University of Oxford*

PPG provided a bursary to enable Christoph to attend this conference

## Macro Group Young Researchers' Meeting

University of Nottingham, April 11<sup>th</sup>-12<sup>th</sup> 2007

The annual Macro Group Young Researchers' Meeting was held at Nottingham this spring, before the summer rains set in....

The meeting opened with an excellent lecture from Professor Dame Julia Higgins, FRS, who managed to explain clearly and insightfully how polymer properties can be predicted, modelled and measured – and a straw poll of the audience, many of whom were synthesis specialists, indicated that even the complexities of neutron scattering had been lucidly explained and exemplified. Dr Derek Irvine, newly arrived at Nottingham, put an industrial and chemical engineering perspective on some examples of hyper-branched polymer synthesis, and his lecture was followed by Dr Daniel Read, from the University of Leeds, who took the meeting further into polymer theory, and again his mixture of enthusiasm and demonstrations carried the audience.

After the caffeine break, the Young Researcher talks began. These were all of a high standard, and indicated that there are some excellent PhD and post-doctoral projects being carried out in the UK. Posters and wine blurred into the conference dinner and further 'discussion' in the bar....

Dr Wim Thielemans, from the home team at Nottingham introduced the next morning's session, and his talk featured natural polymers and variations in properties that can be induced by synthetic modifications. More Young Researcher talks took the meeting to the coffee break, and Dr Steve Rimmer from Sheffield concluded the meeting, describing how polymer synthesis and biomaterials coalesce.

In total, 69 people took part in the meeting, and the range of topics really indicated the breadth of research currently underway in the UK polymer scene: topics included engineering, processing and modelling of polymers, synthesis and applications in engineering, electronics and the biosciences. Ten Young Researcher talks were given - with the prize for the best Presentation going to *Phillip Mountney, University of Leeds*. There were 21 posters, and this session included subjects varying from novel ATRP and RAFT polymerisation chemistries to biocompatible surface-modifiers. *Jin Geng from the University of Warwick* won the Best Poster prize.

Another promising indicator from the meeting was that there was very good discussion after the talks. It was particularly encouraging that a large number of questions were from Young Researchers - and all subject areas received the same level of discussion. It was fun hosting the meeting in Nottingham, and we wish next year's organisers the same level of enjoyment and success.

*Cameron Alexander, University of Nottingham*

The meeting was generously sponsored by the Macro Group and Polymer Laboratories.

## Frontiers of Research: Controlled Synthesis – Functional Polymers by Design

*Tuesday 3 April 2007 at the SCI, London*

This was the latest in the popular series of Frontiers of Research meetings organised for award of Macro Group UK medals and as the vehicle for the Macro Group Annual General Meeting (AGM). The attendance at these meetings continues to increase and on this occasion 105 people were present, around 60 % of whom were young researchers. As for previous meetings, the science was excellent and the Macro Group AGM integrated smoothly into the programme for the day.

The meeting began with a plenary lecture from Roeland Nolte (Radboud University Nijmegen, The Netherlands) in which he presented the synthesis of poly(isocyanato amino acids) of very high molar mass which with fluorescent labelling have been used to visualise reptation, synthesis of catalysts that bind to a chain and glide along it whilst simultaneously performing reactions on the backbone, and use of click chemistry to synthesise self-assembling block copolymers with polypeptide end-blocks. Neil Cameron (Durham University) then described glycopolymers and their synthesis before proceeding to discuss development of glycopolymers for a range of applications from protein binding to elastin mimics. On a completely different topic, Steve Armes (University of Sheffield) described the synthesis of micron-size polypyrrole particles and their use in hypervelocity physics experiments as mimics for carbonaceous micrometeorites to help with the interpretation of data collected by cosmic dust analysers fitted to probes sent into space. After a short coffee break, we returned to be entertained by Steve Howdle (University of Nottingham) who managed to combine amusing clips from football matches with a serious scientific talk on synthesis of polycaprolactone-poly(methyl methacrylate) and poly(methyl methacrylate)-polystyrene block copolymers in supercritical CO<sub>2</sub>. The morning session was completed by Andy Cooper (University of Liverpool) who discussed the highly-demanding targets for hydrogen storage and the development of new high surface area microporous systems for this application, emphasising that both surface area and enthalpy of adsorption are important..

Following lunch and the Macro Group AGM, the afternoon session was devoted to the medal lectures and awards. First, Sébastien Perrier (University of Leeds) presented the 2006 Macro Group UK Young Researchers Medal Lecture entitled "From Macromolecular Engineering to Functional Materials". He described the use of atom transfer radical polymerisation (ATRP) and reversible addition-fragmentation chain transfer (RAFT) polymerisation for synthesis of polymers of controlled structure. Sébastien's lecture spanned a wide range of topics from alternative routes to RAFT agents, recovery of RAFT agents directly and through use of solid supports, to grafting of poly(dimethylaminoethyl methacrylate) to cellulose for use in killing viruses.

The day ended with the 2006 Macro Group UK Medal Lecture by Dave Haddleton (University of Warwick) on the topic of "Controlled Radical Polymerisation - Chain Transfer to Living Polymerisation". Dave began by describing catalytic chain transfer polymerisation and its importance in preparing methacrylate macromonomers, before moving on to discuss the development of ATRP and the synthesis of multi-arm star polymers. He then took us on a journey through various medically-related applications of this chemistry with examples of PEGylation of proteins, grafting from initiator sites attached to proteins, and use of click chemistry to attach sugars to polymer backbones. There ended another excellent meeting, which was a wonderful way to complete my period as Chairman of Macro Group UK.



**Speakers** (L to R): Steve Armes, Sébastien Perrier, Steve Howdle, Dave Haddleton, Neil Cameron and Roeland Nolte



**Sébastien Perrier** receiving the 2006 Macro Group UK Young Researchers Medal from Peter Lovell



**Dave Haddleton** receiving the 2006 Macro Group UK Medal from Peter Lovell

## D H Richards Memorial Bursaries (Macro Group UK)

- Are you:**
- a student member of Macro Group UK?
  - desperate to go to an important conference?
  - short of all the funding needed?

then the D H Richards Memorial Bursaries scheme can help you!

### About the bursaries

Macro Group set up the bursaries as a memorial to D H Richards, who was one of the founding officers of Macro Group and worked hard to establish it as a major group in the UK. Under this scheme, Macro Group sets aside funds each year to support its student members that wish to attend a scientifically-important conference, but are short of funds to make this happen. Only one student from a particular department/school will be granted a bursary for a particular conference. The applicant must be a current Macro Group member, have their supervisor's support, and be planning to make an oral or poster contribution at the conference. It is expected that part of the funds needed to attend the conference will be obtained from other sources. A particular student can only receive one bursary award during their period of study and the maximum amount awarded will be £300. A condition of receiving a bursary award, is that the student will be required to write a short conference report for publication in the *Bulletin*.

### How to apply

Application forms can be obtained from the Macro Group Secretary, Wayne Hayes, by sending an email request to: [w.c.hayes@reading.ac.uk](mailto:w.c.hayes@reading.ac.uk) The *completed application form must be sent by the applicant's supervisor* (to confirm their support of the application) via email to Wayne Hayes in accord with the following three deadlines:

1 November, 1 February and 1 May

Decisions will normally be announced less than 4 weeks after the deadline.

## Polymer Physics Group Bursaries

The Polymer Physics Group grants a limited number of bursaries to Research Students wishing to participate in a conference at home or abroad. Bursaries are also available for recent appointees to polymer science positions who are in their first five years in an academic post.

All applicants should be Polymer Physics Group members and be making an oral or poster contribution to the conference. A report, suitable for publication in the bulletin, should be submitted to the Group Secretary (Nigel Clarke, [nigel.clarke@durham.ac.uk](mailto:nigel.clarke@durham.ac.uk)) within one month of the end of the conference.

Bursaries are limited to £250 for students and £500 for Academics, or half the conference costs (whichever is the lesser). Applications and conference reports should be sent to the Group Secretary. Students should enclose a letter of support from their academic supervisor.

## Forthcoming Meetings &amp; Conferences



## Recent Appointees in Polymer Science 8<sup>th</sup> Annual Meeting, 19<sup>th</sup> -21<sup>st</sup> September 2007

The next annual RAPS meeting will be hosted in the picturesque surroundings of Jesus College at the University of Cambridge

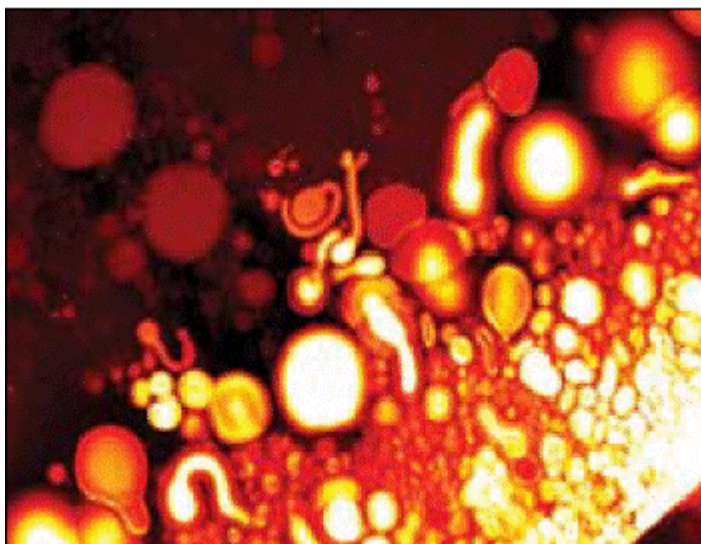
RAPS is an organisation that is dedicated to supporting recent academic and industrial appointees at the beginning of their careers (with at least one years postdoctoral experience)

If you would like to receive more information, then please email the **RAPS membership secretary (Andrew Dove, [a.p.dove@warwick.ac.uk](mailto:a.p.dove@warwick.ac.uk))** with your contact details and he will be happy to add you to the RAPS circulation list.

Alternatively, you can visit the RAPS web site at [www.raps.org.uk](http://www.raps.org.uk)

## Faraday Discussion 139: The importance of polymer science for biological systems

### 26-28<sup>th</sup> March 2008, University of York



This meeting, hosted by the RSC's Faraday Division, will aim to focus on two main strands: the physical chemistry of macromolecules as common ground between biology and polymer science; and the problems associated with biocompatibility and biodegradability of polymers, particularly with regard to their role as therapeutic delivery vehicles.

We hope that the discussion will bring researchers from different backgrounds together to share their knowledge and foster new collaborations and directions.

**Meeting registration opens in September 2007**

**Further Details can be found at :**

[www.rsc.org/ConferencesAndEvents/RSCConferences/](http://www.rsc.org/ConferencesAndEvents/RSCConferences/)

## The 2007 IOP Polymer Physics Group Biennial Meeting

10th – 12th September 2007  
Grey College, Durham University

We look forward to welcoming you to the beautiful city of Durham in 2007.

During the meeting we will have the opportunity to congratulate Alan Windle on the award of the 2007 Founders' Prize.

Invited Speakers: Masao Doi (Tokyo), Steve Granick (Illinois), Hans Spiess (Max-Planck Institute) and Dek Woolfson (Bristol).

Much of the conference will be devoted to contributed talks and there will be ample opportunity for scientific discussion.

The social highlight of the meeting will be the conference dinner in the unique setting of Durham Castle and our after-dinner speaker will be Jim Feast, President of the RSC.

Registration info and details of how to submit a poster presentation can be found at  
[http://www.iop.org/activity/groups/subject/pol/Events/page\\_7728.html](http://www.iop.org/activity/groups/subject/pol/Events/page_7728.html)

16 - 18 Sept 2007

UKPCF

International Conference  
on Polymer Colloids

[go.warwick.ac.uk/UKPCF2007](http://go.warwick.ac.uk/UKPCF2007)

University of Warwick

1  $\mu\text{m}$

## Forthcoming Meetings & Conferences

Date(s)	Title and Location	Organiser
10-12 Sept 2007	Institute of Physics, Polymer Physics Group, Biennial Meeting Grey College, Durham University	Nigel Clarke
16-18 Sept 2007	UKPCF International Meeting on Polymer Colloids University of Warwick ( <a href="http://go.warwick.ac.uk/ukpcf2007">http://go.warwick.ac.uk/ukpcf2007</a> )	Stefan Bon
19-21 Sept 2007	Recent Appointees in Polymer Science, 8th Annual Meeting Jesus College, Cambridge ( <a href="http://www.raps.org.uk">http://www.raps.org.uk</a> )	Rachel O'Reilly
15-20 Dec 2007	7th International "APME-2007 Conference - Advanced Polymers via Macromolecular Engineering". Miami Beach, Florida, USA ( <a href="http://apme-2007.home.att.net/">http://apme-2007.home.att.net/</a> )	M.K. Mishra, Y.Yagci, T.Kitayama
17-20 Mar 2008	Zing Conference on Polymer Synthesis, Cancun, Mexico ( <a href="http://www.zingconferences.com">http://www.zingconferences.com</a> )	David Haddleton and Tom Davis
26-28 Mar 2008	Faraday Discussion 139: The Importance of Polymer Science for Biological Systems	Tony Ryan and Athene Donald
11-16 July 2010	IUPAC World Polymer Congress 2010 Scottish Exhibition and Conference Centre, Glasgow	Peter Lovell and Nicole Morgan (RSC)

### Advertising within the BULLETIN & Newsletter

The membership of the Macro Group UK and the Polymer Physics Group comprises many of the UK's premier polymer scientists in both industry and academia; scientists involved in teaching, training, research and consultancy, and scientists who buy, or influence the buying of, books and journals, scientific equipment and chemicals, in fact goods and services of many kinds. The *BULLETIN* is posted on the Macro Group web site and the *Newsletter* is mailed twice a year (usually in January and July).

### Material for circulation with the Macro Group UK/PPG Newsletter

Material may be mailed with the *Newsletter* to members of the Macro Group UK and/or to members of the Polymer Physics Group (excluding those members who have asked not to receive such material). **Please note that this is not a free service and you will be charged at the rate in force at the time of circulation.**

A notification of intention to circulate, together with a copy of the item for circulation, should be sent to the Macro Group Secretary, Dr Wayne Hayes (Department of Chemistry, University of Reading, e-mail: [w.hayes@reading.ac.uk](mailto:w.hayes@reading.ac.uk)), and to the Bulletin Officers, Dr Andrew Dove (MGUK) and Dr James Sharp (PPG), who can then advise on the procedure to be followed.



# Polymer Science and Technology

9 Day Modular Course

29th October – 8th November 2007

Venue: Novotel Sheffield

## Intended Audience



This course is designed for personnel with a need to know more about polymer science and technology and should appeal to those with some background in the sciences and who wish to broaden their horizons with a general overview of these topics. It has been approved by IOM3 for professional development.

This course is specifically for you if: you interact with polymer scientists (either as customers, suppliers or research and development teams); or you are commercial/ engineering/production based and need to understand more about how your products and/or processes work.

## Course Structure

Please note that we reserve the right to make changes to the course content and lecturers should it be necessary. Provisional course details are as follows

**WEEK ONE** (29th October 2007 – 2nd November 2007)

- Day 1: Basic Polymer Science part I
- Day 2: Basic Polymer Science part II
- Day 3: Polymer Chemistry
- Day 4: Polymer Engineering (Polymer Processing)
- Day 5: Polymer Physics

**WEEK TWO** (5th November 2007 – 8th November 2007)

- Day 6: Multi-phase Polymer Materials and Composites
- Day 7: Polymer Dynamics and Macromolecular Rheology
- Day 8: Polymeric Biomaterials
- Day 9: Polymer Nanotechnology

## Course Notes

Each participant will receive at the beginning of the course, a bound set of course notes and a CD of the same information.

**Further Details** further details can be found at <http://www.polymerirc.org/pages/CourseDescriptions>  
contact Miss S.H. Cowley, The Polymer Centre, Dainton Building, University of Sheffield, S3 7HF (Tel: 0114 222 9520)

**Discounted rates on  
course fees for PPG  
members**

**Student member  
50% discount**

**Non student member  
15% discount**

**Annual General Meeting of  
Macro Group UK  
14.15 pm Monday April 3 2007  
at the Society of Chemical Industry, London**

*Minutes*

**1. Committee Members in Attendance**

Professor P.A. Lovell (Chairman), Dr W. Hayes (acting as secretary), Professor Stephen Yeates, Professor David Haddleton, Dr Sebastien Perrier, Dr Robert Hunter, Dr Fred Davis, Dr Peter Cormack.

**Ordinary Members in Attendance**

Professor Howard Colquhoun, Professor Andrew Cooper, Professor Steve Howdle, Dr Neil Cameron, Dr Raj Bhadwaj, Professor Steven Armes, Dr Andrew Dove, Dr Simon Holder, Dr Derek Irvine, Dr Rachel O'Reilly, Dr Stephen Rimmer, Dr Andrew Slark.

**2. Minutes of the Annual General Meeting held on 3 April 2006**

- a) The minutes were accepted as a true record
- b) Matters arising – Professor Jones had provided information about the IUPAC educational web site.

**3. Chairman's Report**

The following is a transcript of Professor Lovell's report:

Today I complete my three-year term as chairman and so will look back not just over the past year, but also at what has been achieved in relation to the objectives I set three years ago. Please feel free to ask questions and offer your views and suggestions at the end of my report.

Soon after becoming chairman I set in place several strategic changes and actions which were designed to improve our services to the polymer community. The first concerned RAPS, the Recent Appointees in Polymer Science Network, which soon became part of Macro Group, giving RAPS greater security and helping Macro Group to assist in developing the careers of newly-appointed polymer scientists.

Communications was something I wanted to enhance and so responsibility for the joint Macro Group / PPG (Polymer Physics Group) Bulletin and the Macro Group web sites was separated into two roles so that we could focus on enhancements to both. The Bulletin's presentation was quickly and creatively improved by Chris Ansell. I am also pleased that the PPG content has been increased, such that there is now a good balance of content. We wanted to increase the number of special articles, but for various reasons only a few have appeared – this is something that should be addressed in future issues. Nevertheless, the new presentation is much more inviting and the content is both useful and informative.

Macro Group has three web sites, two hosted by the parent societies plus an independent site that had previously served only to hold back issues of the Bulletin. We decided to massively enhance the independent web site in order to better serve our members and to increase the value of membership. The new site was created by Cooke&Kaye, guided by myself and Patrick Fairclough. It went live in July last year and I believe it has been a good investment at a cost of about £3,200. I hope that, over time, it will become an important portal for polymer science. As you might expect, it carries lots of information about Macro Group activities and has links to other relevant sites. We are just about to add pages describing the history of Macro Group, thanks to the efforts of Geoff Eastmond. The site also has enabled us to do things that would not otherwise have been easily achieved. These include lists of meetings on polymer science and a list of job vacancies, both with RSS feeds. There is also a Skills & Services Finder that enables anyone visiting the site to find a member with the required types of skills and services. Members can advertise vacancies, meetings and conferences, gain access to member-only services, download all issues of the Bulletin and place their details on Skills & Services Finder, all free of charge – and all personal information is fully protected from 'phishing'. Use by members needs to increase in order for the full benefits to be realised, so if you have not already taken advantage of the site, I suggest that you do so in the near future.

Part of the reason for these enhancements is, of course, to increase the benefits of membership and provide more reasons for joining Macro Group. This is important because membership of our parent societies and, consequently, of Macro Group has been on an overall downward trend since the early 1990s. In the past two years, Simon

Holder has produced literature in the form of fliers, posters and bookmarks to help people recognise the professional and personal benefits of joining. You will have seen some of these at this meeting. Of particular concern is our need to encourage more young researchers to join Macro Group and they will be a particular target in the year ahead for Peter Cormack, Simon's successor as Membership Officer.

Not least amongst the benefits of membership for young researchers are the D H Richards Memorial Bursaries, which we use to assist our PhD student and post-doc members to attend conferences, mainly overseas. The original fund was exhausted many years ago. Nevertheless, Macro Group has ensured that the bursaries continue and we are actively publicising the revamped scheme in which six bursaries of up to £300 each can be awarded from Macro Group funds each year.

In 1997 Macro Group instituted two medals, which have been successful in giving recognition for achievements in polymer science. Two of my priorities three years ago were to catch up with their award, which had slipped behind a little, and to enhance their status. This we have done.

Due to ambiguities in the wording of criteria for the two medals and continuing difficulties in getting new society-level polymer awards accepted, we revised our medal portfolio last year. The *Young Researchers Medal* continues, now officially on an annual basis; Sébastien Perrier will receive the 2006 medal later this afternoon. The previous *Macro Group Lectureship and Medal* also continues, but is now a biennial award under the new name of *Macro Group Medal for Outstanding Achievement* and with eligibility opened up to scientists from all countries of the world to reflect its history, importance and prestige – the next of these medals will be awarded in 2008. And we now have a completely new annual *Macro Group Medal* which recognises significant and substantial contributions to polymer science and/or services to the UK polymer science community by scientists working in the UK. Dave Haddleton will today become the first recipient of this medal.

The call for nominations for the 2007 awards of the *Young Researchers Medal* and the *Macro Group Medal* will go out in July with a 30 September deadline.

A particular aim of mine was to integrate the Macro Group medal awards with the AGM at a meeting which could become an annual event that the UK polymer community would look forward to attending. I set up the *Frontiers of Research* series to achieve this and it has been a great success. The first of these meetings took place in December 2005 to award the 2004 medals and was attended by 85 people. The second was attended by 95 people in April 2006 and integrated the 2005 medal awards with the AGM, which consequently had its highest attendance for many years. And today we have again integrated the latest medal awards with the AGM – this time we have about 110 people in attendance. And of particular importance, at each of the meetings over 40 % of those present have been young researchers.

Continuing with the theme of meetings, I would like to highlight the other meetings that have taken place over the past year, all of which have been well attended and successful.

The programme began shortly after last year's *Frontiers of Research* meeting with a Macro Group affiliated meeting in Manchester on *Organic Biomaterials - Different Perspectives* which was organised by Nicola Tirelli and Mike Turner.

The main event of the year was the international *Polymer Synthesis* conference at Warwick in the cross-over week from July to August. It was excellent in all respects, thanks to the hard work of Dave Haddleton and his team at Warwick and the strong line-up and mix of speakers from all around the world. Over 350 people attended, including a high proportion of young researchers. The conference saw award of the 2006 *Macro Group Medal for Outstanding Achievement* to Jean Frechet from the University of California at Berkeley and, at long last, award of the 2003 variant of this medal to Andrew Holmes, who is presently at the University of Melbourne. We are now fully up-to-date with medal awards.

This conference was followed in quick succession by a number of other meetings. The *6th International Conference on Polymer-Solvent Complexes and Intercalates*, held at the end of August in Manchester, was organised by Alberto Saiani and affiliated with Macro Group. Next was the *11th Meeting of the UK Polymer Colloids Forum* which was organised by myself and Brian Saunders, and held in Manchester in September. Soon after, the *7th Annual RAPS Meeting was held at Astra Zeneca*, organised by Jonathan Booth. The year concluded with a one-day meeting on *Drug Delivery* which was organised by Chris Sammon and held here at the SCI in October.

Looking ahead, the 2007 *Young Researchers Meeting* will take place next Wednesday and Thursday at Nottingham, organised by Cameron Alexander. A 3-day conference on *Polymers in Solution and at Interfaces* had been planned for July to be run jointly with the RSC and SCI Colloid, Surface and Interface Science groups. However, when MC8 was announced by the RSC Materials Chemistry Forum we discovered that it clashed and so we postponed the joint conference – it is now planned for June

next year.

The *12th Meeting of the UK Polymer Colloids Forum* will be a full international conference over three days from 16-18 September and is being organised by Stefan Bon at Warwick. This will be followed directly by the *8th Annual RAPS Meeting* which is being organised by Rachel O'Reilly at Cambridge from 19-21 September. We also hope that there will be a further one-day meeting in the Autumn.

The next in this *Frontiers of Research* series should take place next April for award of the 2007 medals, and the *2008 Young Researchers Meeting* is expected to be held at Warwick. Other meetings are in the planning stage and will be announced as they are firmed-up.

However, there is one new meeting for the future that I can announce. I am pleased to inform you that Macro Group successfully bid for a Faraday Discussion Meeting on *Direct Patterning of Polymers at the Nanoscale* which will be chaired by Wilhelm Huck and will take place in 2009. We thank Joachim Steinke, our Meetings Programme Officer, for his hard work in securing this meeting.

And looking even further ahead, I remind you that Macro Group will be hosting the *2010 IUPAC World Polymer Congress*, the largest polymer conference on the international calendar. Our plans for the Congress had been progressing well and in September I received firm commitments to assist in its organisation from the major UK polymer-related interest groups. However, during October and November the RSC Science and Technology Board (STB) made it clear that they wished to withdraw the RSC backing and underwriting of the Congress. I fought this vehemently and am pleased to say the RSC has recognised the obligations it made in 1998/9 when the bid to host the Congress was first submitted to and accepted by IUPAC. The Congress is now approved (again!) by RSC Council and by the STB Conferences Committee. With that unnecessary exercise and delay behind us, we can now proceed with confidence that the RSC will fully support the Congress by managing its administration through their Conference Office and by underwriting any losses the conference may incur. The Congress will take place at the Scottish Exhibition and Conference Centre in Glasgow from 11-16 July 2010. If its not already in your diary, put it in now – it will be an event not to be missed!

I had planned to contact all polymer societies across the world during the Winter to ensure they were aware of the dates for the 2010 Congress and to use this as an opportunity to enhance links with them. In view of the problems with the RSC, this had to be postponed, leaving my plans for enhancing links with overseas polymer societies incomplete.

One other objective that is not quite complete, is the project led by Fred Davis to develop aids to assist school teachers for delivering polymer science topics and for enthusing school children. This project has undergone several changes as Fred has become more aware of what is needed and what can be achieved, but it is now close to completion. The focus for the DVD is a recorded lecture by Howard Colquhoun with associated demonstrations, in the form of supplementary videos, together with displays providing details of the science behind each of the materials discussed in the lecture, some notes for teachers and links to informative web sites, including teaching materials on the Macro Group web site.

So in conclusion, a lot has been achieved in the past three years and almost all of the objectives I set have been realised, though some remain. The DVD for schools should be completed soon and efforts to increase cooperation with overseas polymer societies will gain momentum in the coming year with work on the 2010 World Polymer Congress. As you will soon discover, Macro Group finances remain strong and will ensure that the group can continue to make investments and organise meetings that make a real difference for its members and the wider polymer community. In all respects, therefore, my successor will be in a strong position to take the group forward.

Before I finish, I would like to thank everyone who has served on Macro Group Committee during my chairmanship, particularly those who have devoted significant amounts of time to execution of Macro Group business. I would especially like to thank conference organisers and the Macro Group Officers for their work and help. Finally, a special mention must go to Wayne Hayes, who has been unstinting in his support as Secretary.

Professor Lovell then invited questions, but none were asked.

#### 4. Accounts

The Chairman thanked Bill MacDonald and Steve Yeates for their work as Treasurers over the past three years, giving credit to Bill for arranging transfer of the bulk of Macro Group funds to a financially-secure high-interest earning account which has made a real difference to the annual Macro Group income.

He then presented a summary of the Macro Group accounts for 2006 and proceeded

to go through the income and costs incurred. Several one-off costs contributed to the operating deficit of about £7k, notably creation of the new independent web site, the die for the new 'Outstanding Achievement' medal and donations to RAPS. Additionally, surpluses from four meetings, totalling about £9k, were yet to be credited to the accounts, but this should soon be done and should lead to a positive operating balance for 2007. The Chairman also described the recurrent costs for the present Macro Group activities and highlighted that, in order to break even, Macro Group needs to generate an annual income of about £3.5k in addition to bank interest and RSC subscription income. He stated that this is realistic and that conference surpluses are the principal means of achieving this additional income. Overall the Macro Group financial situation is strong and gives the group confidence to organise large meetings, such as the Polymer Synthesis conferences held in Warwick.

#### 5. Elections to the Committee

The Chairman thanked the retiring committee members, Chris Ansell (as Bulletin Officer), Patrick Fairclough (as Web Site Officer), Fred Davis (as Polymer Roadshow Officer), Peter Foot, Derek Illsey and Jeff Carter, for their contributions to Macro Group affairs during their three years of service on the committee. He further stated that Fred Davis has kindly agreed to be co-opted back onto the committee for a while in order to finish off his work on the educational CD/DVD. He also announced that Sébastien Perrier had resigned from the committee due to his impending move to Australia in October 2007.

Six nominations had been received for the six Ordinary Committee Member vacancies: Dr. C. Sammon (Sheffield Hallam University); Professor S. Brocchini (London University); Dr. A. Lewis (Biocompatibles); Professor S. Howdle (University of Nottingham); Dr. A. Dove (University of Warwick) and Dr. R. Bhardwaj (Polymer Laboratories). The Chairman informed the meeting that Dr. Sammon had offered to take over as Web Site Officer and that Dr. Dove had offered to become Bulletin Officer. The meeting approved each of the nominations and, therefore, each person was declared elected.

One nomination had been received for the position of Chairman: Professor D. Haddleton (University of Warwick). The meeting approved this nomination. Professor Lovell then congratulated Professor Haddleton on his election to the chairmanship of Macro Group and duly passed on to him chairing of the remaining item on the agenda.

#### 6. Any Other Business

There were no items of further business.

The new chairman then asked the meeting to express their thanks to the outgoing chairman for his outstanding efforts in progressing the Macro Group.

Wayne Hayes  
School of Chemistry, The University of Reading