

## Christopher Patrick (Paddy) Royall

HH Wills Physics Laboratory, University of Bristol, Bristol, BS8 1TL, UK  
School of Chemistry, University of Bristol, Bristol, BS8 1TS, UK

Nationality: British

Age: 39

email: paddy.royall@bristol.ac.uk  
www.padrus.com

### Employment

- 2012- University of Bristol, UK **Physics-Chemistry** Permanent joint appointment to Lecturer (assistant professor) at fellowship end (2015)
- Jul-Nov 2011 Materials Nanoarchitectonics **International Centre for Young Scientists** (Joint appointment with University of Bristol)  
World Premier Institute,  
Tsukuba, Japan.
- 2007- University of Bristol, UK **Royal Society University Research Fellow**, (Independent research position).
- 2004- University of Tokyo, **JSPS fellow**, with Prof Hajime Tanaka. “Real  
2006 Japan space analysis of colloidal phase separation”.
- 2002- University of Utrecht, **Postdoctoral fellow**, with Prof Alfons van  
2004 Netherlands Blaaderen. Phase behaviour of colloidal suspensions.
- 2001-2 UBS Warburg, London **Investment Banking**, in financial multinational. Marketing/developmental role in leading quantitative analysis group CreditDelta.

### Education

- 1997- University of Cambridge, **PhD in Physics**, with Prof Athene Donald,  
2001 (St Catharine’s College) Polymers and Colloids Group. Graduated 12th May 2001.
- 1996-7 Gap Year Long-distance sailing trip, England to the Caribbean.
- 1992-6 University of Edinburgh **BSc in Physics**, 1<sup>st</sup> class honours, graduated 10<sup>th</sup> July 1996.

### Publication highlights

Speck T, Malins A and **Royall CP** “First-Order Phase Transition in a Model Glass Former: Coupling of Local Structure and Dynamics”, *Phys. Rev. Lett.* **109** 195703 (2012).

Klix CL, **Royall CP** and Tanaka H ‘Structural and dynamical features of multiple metastable glassy states in a colloidal system with competing interactions’, *Phys. Rev. Lett.* **104**, 165702, (2010).

**Royall CP**, Williams SR, Ohtsuka, T and Tanaka H, ‘Direct observation of a local structural mechanism for dynamic arrest’, *Nature Materials*, **7**, 556-561, (2008).

Williams SR, **Royall CP**, and Bryant G, ‘Crystallisation of Dense Binary Hard-Sphere Mixtures with Marginal Size Ratio’, *Phys. Rev. Lett.*, **100**, 225502 (2008).

**Royall CP**, Aarts DGAL, and Tanaka H ‘Bridging length scales in colloidal liquids and interfaces from near-critical divergence to single particles’, *Nature Physics*, **3**, 636-640, (2007).

**Royall CP**, Dzubiella J, Schmidt M and van Blaaderen A, ‘Nonequilibrium Sedimentation of Colloids on the Particle Scale’, *Phys. Rev. Lett.*, **98**, 188304 (2007).

Leunissen ME, Christova CG, Hyninen A-P, **Royall CP**, Campbell AI, Imhof A, Dijkstra M, van Roij R and van Blaaderen A, ‘Ionic colloidal crystals of oppositely charged particles’, *Nature* **437**, 235 (2005).

### **Awards**

- Royal Society University Research Fellowship ‘Direct observation of surface melting’: The UK’s most prestigious early career research post.
- Japan Society for the Promotion of Science (JSPS), Invitational fellowship.
- JSPS Postdoctoral Fellowship.

### **Organisation of conferences, workshops and symposia**

- Centre Européen de Calcul Atomique et Moléculaire (CECAM) international meeting “The role of interfaces in crystallisation”, May 2013, 50 Participants. Lausanne, Switzerland.
- Conference to celebrate the retirement of Prof Bob Evans FRS ‘Soft Matter 2012’. 3-day event at the University of Bristol. 150 participants. Apr 2012.
- Royal Society of Chemistry Prize Symposium for Prof Daan Frenkel. 50 participants. 1-day event at the University of Bristol. May 2011.
- CECAM international meeting entitled ‘Crystallisation: from colloids to pharmaceuticals’. 50 participants. July 2010.
- I have initiated a 2-day annual Soft Matter workshop with workers across the field from Physics and Chemistry in Bristol, with contributions from Bath and international speakers from across Europe and the US. [www.chm.bris.ac.uk/pt/paddy/workshop.html](http://www.chm.bris.ac.uk/pt/paddy/workshop.html).

### **Promotion of Soft Matter Research**

- Total: 76 talks, of which 41 were international and 47 invited, including one public lecture 32 invited and international.
- Public lecture at the University of Cambridge ‘A close look at states of matter: from the familiar to the novel’, Nov 2008
- Press Releases : “A new way of making glass” [www.bris.ac.uk/news/2012/8866.html](http://www.bris.ac.uk/news/2012/8866.html)  
“A breakthrough in glass” [www.bristol.ac.uk/news/2008/212017945385.html](http://www.bristol.ac.uk/news/2008/212017945385.html)

### **Partnerships with Industry**

- Collaboration imaging film formation with AkzoNobel 2013-
- Funding for PhD student received from Bayer Cropscience. This has resulted in a publication in *Soft Matter* in 2013 [46].
- Collaboration with Kodak UK in Cambridge, developing principles underlying novel display technologies, resulting in publication in *J. Chem. Phys.* in 2009 [24]
- Latex imaging with ICI-Crosfield Group, Warrington, UK, 1997-2001 [1,4-6].

### **Teaching and Supervision Experience**

- Lecturing 4th year Soft Matter course
- Lecturing second year undergraduate course in Statistical Mechanics
- Lecturing ‘complexity science’ graduate school on liquid state theory and glass transition
- Supervising PhD, Masters’ and final year undergraduate students’ research projects.
- Second year undergraduate advanced mathematical physics, thermodynamics problems.
- Thermal physics lecture course, second year undergraduate. (supervising).

## Book

'*Complex Plasmas and Colloidal Dispersions: Particle-resolved Studies of Classical Liquids and Solids*', Ivlev A, Loewen, H, Morfill G and **Royall CP**. World Scientific. (2012).

## Publications

[52] Malins A, Williams SR, Eggers J and **Royall CP** "Identification of Structure in Condensed Matter with the Topological Cluster Classification", submitted (2013). arXiv:1307.5517.

[51] Malins A, Eggers J and **Royall CP** "Investigating Isomorphs with the Topological Cluster Classification", submitted (2013). arXiv:1307.5516.

[50] Malins A, Eggers J, Tanaka H and **Royall CP** "Lifetimes and Lengthscales of Structural Motifs in a Model Glassformer" *Faraday Discussions* **167** (2013). DOI: 10.1039/C3FD00078H; arXiv:1306.2983

[49] Klix CL, Murata K, Tanaka H, Williams SR, Malins A and **Royall CP** "Novel kinetic trapping in charged colloidal clusters due to self-induced surface charge organization" *Scientific Reports* **3** 2072 (2013).

[48] Taffs J, Williams SW, Tanaka H and **Royall CP**, "Structure and kinetics in the freezing of nearly hard spheres", *Soft Matter* **9** 297 - 305 (2013).

[47] **Royall CP**, Poon WCK, and Weeks ER, 'In search of colloidal hard spheres', *Soft Matter* **9** 17 - 27 (2013).

[46] Zhang I, **Royall CP**, Faers MA and Bartlett P, "Phase separation dynamics in colloid-polymer mixtures: the effect of interaction range" *Soft Matter*, **9**, 2076-2084 (2013).

[45] Dunleavy A, Wiesner K and **Royall CP**, "Using mutual information to measure order in model glass-formers" *Phys. Rev. E* **86** 041505 (2012).

[44] Speck T, Malins A and **Royall CP** "First-Order Phase Transition in a Model Glass Former: Coupling of Local Structure and Dynamics", *Phys. Rev. Lett.* **109** 195703 (2012).

[43] Taylor S.E., Evans, R. and **Royall CP\***, "Temperature as an external field for colloid-polymer mixtures : "quenching" by heating and "melting" by cooling", *J. Phys: Condens. Matter* **24** 464128 (2012).

[42] Malins A, Eggers J, **Royall CP\***, Williams SR and Tanaka H, "Identification of long-lived clusters and their link to slow dynamics in a model glass former" *J. Chem. Phys.* **138** 12A535 (2013).

[41]. **Royall CP\*** and Malins A "The role of quench rate in colloidal gels" *Faraday Discussions* 158 301-311 (2012).

[40]. Yoshizawa, K, Wakabayashi, N, Yonese M, Yamanaka J and **Royall CP\***, "Phase separation in binary colloids with charge asymmetry" *Soft Matter*, **8** 11732 (2012).

**Publications (continued)**

[39] **Royall CP**, Williams SR and Tanaka H, ‘The nature of re-entrant ergodic-non-ergodic transitions in sticky spheres’, *submitted* (2012).

[38] Rice R, Roth R and **Royall CP**, ‘Polyhedral colloidal ‘rocks’: low-dimensional networks’, *Soft Matter* **8** 1163-1167 (2012).

[37] Poon WCKP, Weeks ER and **Royall CP**, ‘On measuring colloidal volume fractions’, *Soft Matter* **8** 21-30 (2012).

[36] Loewen H, **Royall CP** Ivlev, A and Morfill GE, ‘Charged colloidal dispersions and their link to complex plasmas’, *American Institute of Physics Conference Proceedings* **1397**, 201 (2011).

[35] Vissers T, Rex M, Imhof, A, Loewen H, **Royall CP** and van Blaaderen A, ‘Lane Formation in Driven Colloidal Mixtures’, *Soft Matter*. **7** 2352-2356 (2011).

[34] Malins A, Williams SR, Eggers J, Tanaka H and **Royall CP** ‘The effect of inter-cluster interactions on the structure of colloidal clusters’, *J. Non-crystalline solids*. **375** 760-766 (2011).

[33] Godogna M, Malins A, Williams SR and **Royall CP** ‘The local structure of the gas-liquid interface’, invited submission to *Mol. Phys.* special issue in honour of Prof. R Evans’ 65<sup>th</sup> Birthday, **109** 1393-1402 (2010).

[32] **Royall CP** and Williams SR “C-60 : the first one-component gel?” *J. Phys. Chem. B* special issue on clusters in complex liquids **115** 7288-7293 (2011).

[31] Taffs J, Malins A, Williams SR, and **Royall CP** ‘The effect of attractions on the local structure of liquids and colloidal fluids’, *J. Chem. Phys.* **133** 244901 (2010).

[30] Klix CL, **Royall CP** and Tanaka H ‘Structural and dynamical features of multiple metastable glassy states in a colloidal system with competing interactions’, *Phys. Rev. Lett.* **104**, 165702, (2010).

[28] Leocmach, M. and **Royall CP** and Tanaka H ‘Novel zone formation due to interplay between sedimentation and phase ordering’, *EuroPhysics Lett* **89** 38006 (2010).

[27] Taffs J, Malins, A, Williams SR and **Royall CP** ‘A structural comparison of models of colloid-polymer mixtures’, *J. Phys:Condens. Matter* **22** 104119 (2010).

[26] Wysocki A, **Royall CP**, Winkler R, Gompper G, Tanaka H, van Blaaderen A and Loewen H, ‘Multi-particle collision dynamics simulations of sedimenting colloidal dispersions in confinement’, *Faraday Discuss.* **144** 245-252 (2010).

[25] Malins A, Williams SR, Eggers J and Tanaka, H and **Royall CP** ‘Geometric frustration in small colloidal clusters’, *J. Phys:Condens. Matter.* **21** 425103, (2009).

[24] Elsner N, Snoswell, DRE, **Royall CP** and Vincent, BV, ‘Simple models for 2D tunable colloidal crystals in rotating AC Electric fields’ *J. Chem. Phys.* **130** 154901 (2009).

**Publications (continued)**

[23] Wysocki A, **Royall CP**, Winkler R, Gompper G, Tanaka H, van Blaaderen A and Loewen H, 'Direct observation of hydrodynamic instabilities in driven non-uniform colloidal dispersions', *Soft Matter* **5**, 1340-1344 (2009).

[21] Ohtsuka T, **Royall CP** and Tanaka H, 'Local structure and dynamics in colloidal fluids and gels', *Europhys. Lett.* **84**, 46002 (2008).

[20] Schmidt M, **Royall CP**, van Blaaderen, A. and Dzubiella J, 'Non-equilibrium sedimentation of colloids: Confocal microscopy and Brownian dynamics simulations', *J. Phys.:Cond. Matter.* **20**, 494222, (2008).

[19] **Royall CP**, Vermolen, ECM, van Blaaderen, A. and Tanaka H, 'Controlling competition between crystallisation and glass formation in binary colloids with an external field', *J. Phys.:Cond. Matter.* **20**, 404225, (2008).

[18] **Royall CP**, Williams SR, Ohtsuka, T and Tanaka H, 'Direct observation of a local structural mechanism for dynamic arrest', *Nature Materials*, **7**, 556-561, (2008).

[17] **Royall CP**, Williams SR, Ohtsuka, T and Tanaka H, 'Direct observation low-energy clusters in a colloidal gel', *American Institute of Physics Conference Proceedings*, **982** 97 (2008).

[16] Williams SR, **Royall CP**, and Bryant G, 'Crystallisation of Dense Binary Hard-Sphere Mixtures with Marginal Size Ratio', *Phys. Rev. Lett.*, **100**, 225502 (2008).

[15] **Royall CP**, Louis, AA and Tanaka H, 'Measuring colloidal interactions with confocal microscopy', *J. Chem. Phys.* **127**, 044507 (2007).

[14] **Royall CP**, Aarts DGAL, and Tanaka H 'Bridging length scales in colloidal liquids and interfaces from near-critical divergence to single particles', *Nature Physics*, **3**, 636-640, (2007).

[13] **Royall CP**, Dzubiella J, Schmidt M and van Blaaderen A, 'Nonequilibrium Sedimentation of Colloids on the Particle Scale', *Phys. Rev. Lett.*, **98**, 188304 (2007).

[12] **Royall CP**, Leunissen ME, Hyninen A-P, Dijkstra M and van Blaaderen A 'Re-entrant melting and freezing in a model system of charged colloids', *J. Chem. Phys.* **124**, 244706 (2006).

[11] Leunissen ME, Christova CG, Hyninen A-P, **Royall CP**, Campbell AI, Imhof A, Dijkstra M, van Roij R and van Blaaderen A, 'Ionic colloidal crystals of oppositely charged particles', *Nature* **437**, 235 (2005).

[10] **Royall CP**, Aarts DGAL, Tanaka H 'Fluid structure in colloid-polymer mixtures: the competition between electrostatics and depletion', *J. Phys. Cond. Matter.* **17**, S3401 (2005).

[9] **Royall CP**, van Roij RHJ, van Blaaderen A, 'Extended sedimentation profiles in charged colloids: the gravitational length, entropy and electrostatics', *J. Phys. Condens.:Matter.* **17**, 2315-2326 (2005).

**Publications (continued)**

[8] **Royall CP**, Leunissen ME, van Blaaderen A, 'A new colloidal model system to study long range interactions quantitatively in real space', *J. Phys Condens. Matter*, **15**, S3581-S3596 (2003).

[7] **Royall CP**, Donald AM, 'Surface properties and structural collapse of silica in matte water based lacquers' *Langmuir*, **18** (24) 9519-9526 (2002).

[6] **Royall CP**, Donald AM, 'Structure of silica in matt water-based lacquer' *Phys. Rev. E.* **66** 021406 (2002).

[5] **Royall CP**, Donald AM, 'Optimisation of environmental SEM for observation of drying in matt water based lacquers' *Scanning*, **24** (6): 301-313 (2002).

[4] **Royall CP**, Thiel BL, Donald AM, 'Radiation damage of water in environmental scanning electron microscopy' *J Microscopy-Oxford* **204**: 185-195 Part 3 (2001).

[3] **Royall CP**, 'The behaviour of silica in matt water-based lacquers', Phd thesis, University of Cambridge, 2000.

[2] Donald AM, He CB, **Royall CP**, *et al.*, 'Applications of environmental scanning electron microscopy to colloidal aggregation and film formation' *Colloid Surface A* **174** (1-2): 37-53 (2000).

[1] **Royall CP**, Donald AM 'Confocal laser scanning microscopy and environmental SEM applied to matting water-based lacquers' *Abstr Pap Am Chem S* **218**: 17-PMSE Part 2 (1999) and ACS symposium series, 790, Chapter 11, (2001)

## Talks

Total: 76 talks, of which 41 were international and 47 invited, including one public lecture [28], 32 invited and international.

### 2013

[76] “Towards a universal description of local structure in model glassforming liquids”, Talk, Faraday discussion 167, Mesostructure and Dynamics in Liquids and Solutions, Bristol, 18<sup>th</sup>-20<sup>th</sup> Sep 2013.

[75] “Structure in Liquids out of Equilibrium”, Invited Speaker, 6th International Discussion Meeting on Relaxation in Complex Systems, Barcelona, 21<sup>st</sup>-26<sup>th</sup> July 2013.

[74] “Large deviations and structure in glass-forming systems”, Invited Speaker, Large Deviations, Imperial Collage London, 10<sup>th</sup> July 2013.

[73] “Experimental developments in self-assembly : heat and light”, Invited speaker, Self-assembly: from fundamental principles to design rules for experiment, CECAM meeting, Lausanne, Switzerland, 4<sup>th</sup>-6<sup>th</sup> Mar 2013.

[72] “Driven colloidal dispersions”, Invited Speaker, Wetting and Capillarity in Complex Systems, Max-Planck Institute for the Physics of Complex Systems, Dresden, Germany, 19<sup>th</sup>-23<sup>rd</sup> Feb 2013.

[71] “Anisotropic colloids in Real Space”, Invited Speaker, Imerys, St Austell, Cornwall, UK. 28<sup>th</sup> Jan 2012.

### 2012

[70] “Colloidal and metallic liquids in and out of equilibrium”, Invited Seminar University of Luxembourg, 4<sup>th</sup> Dec 2012.

[69] “Liquids in and out of equilibrium”, Invited Seminar, ESPCI Paris 29<sup>th</sup> Nov 2012.

[68] “Fun with Charged Colloids”, Invited Seminar, University of Kyoto Department of Physics 14<sup>th</sup> Nov 2012.

[67] “Colloidal and metallic liquids out of equilibrium”, Invited Seminar, University of Kyoto Department of Chemical Engineering 13<sup>th</sup> Nov 2012.

[66] ‘First Steps in Self-Assembly’, Invited Speaker, International Soft Matter Workshop, Helford, UK 22nd-24th September 2012.

[65] ‘Local structure in liquids out of equilibrium’, Invited Seminar, University of Illinois Urbana-Champaign, IL, 27<sup>th</sup> Aug 2012.

[64] ‘Clusters in bulk materials - a local measure of the energy landscape’, Invited Seminar, University of Pennsylvania, PA, 24<sup>th</sup> Aug 2012.

[63] ‘Gelation and vitrification : the nature of ergodic-non-ergodic transitions in sticky spheres’, American Chemical Society, Philadelphia PA 19<sup>th</sup>-23<sup>rd</sup> Aug 2012.

[62] ‘Clusters in the bulk - the topological cluster classification’, Invited Speaker, University of Cambridge, 30<sup>th</sup> Jul 2012.

### **Talks (continued)**

[61] 'Structure and metastability in crystallisation in two and three dimensions', Invited Seminar, Max Planck Institute for Intelligent Systems, Stuttgart, Deutschland, 11<sup>th</sup> Jul 2012.

[60] 'Liquids out of equilibrium : the structural story', Invited Speaker, University of Michigan, USA, 19<sup>th</sup> Jun 2012.

[59] 'Structure and sticky spheres near and far from equilibrium', Invited Speaker, Duke University, North Carolina, USA, 15<sup>th</sup> Jun 2012.

[58] 'Particle-resolved studies of colloids under gravity', Invited Speaker, Colloidal dispersions in external fields III, Bonn, Germany, 20<sup>th</sup>-23<sup>rd</sup> Mar 2012.

[57] 'The glass transition is continuous but gelation is discontinuous in sticky spheres', Invited Speaker, German Physical Society Meeting, Berlin, Germany, 26<sup>th</sup>-30<sup>th</sup> Mar 2012.

[56] 'The nature of dynamically arrested states near and far from equilibrium', Invited Seminar, Ecole Polytechnique Federale Lausanne 7<sup>th</sup> Feb 2012.

### **2011**

[55] 'Sticky spheres have a continuous glass transition and a discontinuous gel transition', Talk, Unifying concepts in glass physics V, Paris, Dec 12<sup>th</sup>-16<sup>th</sup> 2011.

[54] 'The nature of the glass and gel transitions: structural and dynamic insights from colloids', Invited Speaker, Non-equilibrium processes: the last 40 years and the future, Obergurgl, Austria, 29th Aug-2nd Sept 2011.

[53] 'Geometry and Frustration', Invited Seminar, Friedrich-Alexander Universitat Erlangen Nurnberg, 8th Jun 2011.

[52] 'Faceted polyhedral colloidal 'rocks'' low dimensional networks', Invited Speaker, Royal Society of Chemistry Prize Symposium for Daan Frenkel, Bristol, 31st May 2011.

[51] 'Glasses and gels' what, where and why', Invited Speaker, International Soft Matter Workshop, Helford, UK 18th-20th May 2011.

[50] 'Faceted polyhedral colloidal 'rocks'', Dynamics in Viscous Liquids III, Roma, Talk, 1st Apr 2011.

[49] 'In praise of the sphere: insights into the states of matter', Invited Colloquium, Department of Physics, University of Bristol 21st Mar 2011.

[48] 'Clusters: a local picture of the energy landscape in simple materials', Invited Seminar, Eberhard-Karls Universitat Tuebingen, Deutschland, 25th Jan 2011.

### **2010**

[47] 'Local structure in nucleation of 'hard spheres' in experiments and simulation', Invited Speaker, Nucleation and Aggregation, JNCASR, Bangalore, India, 26th-30th July, 2010.



**Talks (continued)**

2010 (continued)

[46] 'Local structure in liquids and its relation to arrest', Talk, Liquids out of Equilibrium, Sydney, 12-16th July 2010.

[45] 'When hydrodynamics do and don't matter', Invited Speaker, CECAM Workshop 'Mesoscale methods for colloidal hydrodynamics', Lausanne, Switzerland 19th-21st July, 2010.

[44] 'Towards a local energy landscape: clusters in the bulk and hard sphere nucleation', Invited Speaker, Computational Molecular Science, Royal Agricultural College, UK, 27th-30th June 2010.

[43] 'The role of weak charging and local structure in 'hard' sphere crystallisation', Invited Seminar, Johannes-Gutenberg University, Mainz, Deutschland, 17th June 2010.

[42] 'Colloidal dispersions: complexity from simplicity', Invited Speaker, Institute of Physics: Complexity and Nonlinear Phenomena in Biological Systems, Bath, UK, 20th May 2010.

[41] 'Locally Preferred Structures and Dynamic Arrest', Invited Speaker, American Physical Society, Portland, Oregon, 18th March 2010.

[40] 'The Consequences of Criticality, Charging, Clustering and Crumpling in Colloids', Invited Speaker, Ringberg Castle Max Planck Institute Meeting, Deutschland, 28th February-3rd March 2010.

[39] 'Three's a crowd: colloid, colloid and polymer', Invited Speaker, Bristol-Bath-Bayreuth International Soft Matter Workshop, Cotswolds, UK, 26th Feb 2010.

[38] 'Whatever happened to the attractive glass?', Invited Seminar, Bristol and Bath Soft Matter Seminar, 29th January 2010.

[37] 'Locally Favoured Structures in Colloidal Glasses and Gels', Invited Seminar University of Montpellier, France, 1st February 2010.

[36] 'Complexity from simplicity: the dynamics of spheres', Invited Seminar, Centre for Computational Chemistry, Bristol, UK, 25th Jan 2010.

**2009**

[35] 'Direct Observation of Colloids in External Fields: Equilibrium, steady-state and Instability', Talk, Institute of Physics Liquids and Complex Fluids Group, 'The Influence of External Fields in Soft Matter', London, 2nd October 2009.

[34] 'A structural mechanism for dynamical arrest in colloids', Invited Speaker, 6th International Discussion Meeting on Relaxation in Complex Systems, Roma, 31st August-6th September 2009.

[34] 'The one-component description of model colloidal dispersions: successes and challenges', Invited Speaker, CECAM Workshop 'New Trends in Simulating Colloids: from Models to Applications', Lausanne, Switzerland, 16th-18th July 2009.

[33] 'Colloids: a close look at states of matter in and out of equilibrium', Invited Seminar, University of Surrey, UK, 18th May 2009.

## Talks (continued)

2010 (continued)

[32] 'Colloidal States of matter: seeing the wood and the trees', Invited Seminar, University of Leeds, UK, 1st May 2009.

[31] 'The strange and wonderful world of charging in non-aqueous media', Invited Speaker, Bristol Bath and Bayreuth International Soft Matter Workshop, Helford, UK, 7th-9th March 2009.

## 2008

[30] 'The importance of local structure as a mechanism for dynamical arrest in colloidal systems', Talk, Japan-France Meeting, Kyoto, 19th-24th November 2008.

[29] 'Colloidal matter: new states and new perspectives', Invited Departmental Seminar, University of Bayreuth, Deutschland, 4th November 2008.

[28] 'A close look at states of matter: from the familiar to the novel' Invited public lecture to Cambridge Chemical Society, 16th October 2008.

[27] 'States of matter: seeing the wood and the trees', Invited Departmental Seminar, University of Bristol, UK, 9th October 2008.

[26] 'A new perspective of colloidal gels and glasses', Talk, M4 colloids day, Bath, UK, 10th July 2008.

[25] 'A walk through states of matter', Invited Seminar, Johannes-Gutenberg University, Mainz, Deutschland, 17th April, 2008

[24] 'Colloidal gels and glasses : a real space analysis', Invited Seminar, University of Oxford, 4th March, 2008.

[23] 'A structural mechanism for dynamical arrest', talk, DPG (German Physical Society) meeting, Berlin, 25th-29th February 2008.

[22] 'A structural route for dynamical arrest: locally favoured structures in colloidal gels and glasses', Invited Seminar, University of Edinburgh, 28th January 2008.

[21] 'Treating complex fluids as simple fluids', Invited Seminar, School of Mathematics, University of Bristol, UK, 24th January 2008.

[20] 'Charged colloids: from DLVO to visualisation', Invited Speaker, Bristol International Soft Matter Meeting, Helford, UK, 9th February 2008.

## 2007

[19] 'Observation of low-energy clusters in a colloidal gels and glasses', Invited Seminar, Duesseldorf, Germany, 21st November, 2007.

[18] 'Direct observation of low-energy clusters in a colloidal gel', Talk, 5th workshop on complex systems, Sendai, Japan, 25th-28th September 2007

## Talks (continued)

2007 (continued)

[17] 'Life at the single particle level: colloids, model atoms and beyond', Invited Seminar, Nagoya City University, Japan, 22nd August, 2007.

## 2006

[16] 'Critical behaviour of colloidal fluids and interfaces: connecting micro- and mesoscopic lengthscales', Talk, Julich Soft Matter Days, Bonn, Deutschland, 14th-17th November 2006.

[15] 'Direct observation of critical and interfacial behaviour in a model colloid-polymer mixture', Talk, 12th International Conference on Surface and Colloid Science, Beijing, China, 15th -20th October 2006.

[14] 'Five-fold symmetry in colloidal liquids?', Talk, Physical Society of Japan, Chiba, Japan, September 23rd-26th 2006.

[13] 'Interactions and fluctuations in colloidal dispersions', Invited Seminar, University of Cambridge, 9th June 2006.

[12] 'Falling and fluctuations in colloidal dispersions', Invited Seminar, Heinrich Heine University, Duesseldorf, Germany, 8th June 2006.

[11] 'Colloids, polymers and temperature: new answers to old questions', Physical Society of Japan, Matsuyama, Japan, 27th-30th March 2006.

[10] 'Bridging lengthscales in colloidal liquid-vapour interfaces: from critical divergence to single particles', Invited Seminar, University of Bristol, UK, 8th February 2006.

## 2005 and before

[9] 'Quenching by heating: colloidal liquid gas critical phenomena at the single-particle level', Talk, International workshop: Soft matter as structured materials, Kyoto, Japan, 1st-3rd August 2005.

[8] 'Quenching by heating: colloidal liquid gas critical phenomena at the single-particle level', Liquid Matter Conference, Utrecht, the Netherlands, 4th July 2005.

[7] 'Sedimentation of Colloidal Dispersions in Confined Geometry', Talk, Physical Society of Japan, Tokyo, Japan, 27th March 2005.

[6] 'Unusual Phase Behaviour in Charged Colloids: re-entrant melting and freezing', Invited Seminar, Graz University, Austria, 9th July 2004.

[5] 'Unusual Phase Behaviour in Charged Colloids', European Colloid and Interface Society Meeting, Almeria, Spain, 19th-24th September 2004.

[4] 'Unusual Phase Behaviour in Charged Colloids: re-entrant melting and freezing', FOM Statistical Physics Meeting, Netherlands, 16th-18th February 2004.

[3] 'Confocal laser scanning microscopy and environmental SEM applied to matting water-based lacquers', Talk, American Chemical Society Fall Meeting, New Orleans, Louisiana, 22nd-26th August 1999.

**Talks (continued)**

[2] 'Film formation in matt water based lacquers', Talk, Royal Mineralogical Society, Bath University, England, September 1998.

[1] 'Optimisation of Environmental SEM for Film formation in matt water based lacquers', Talk, Micro 98, Royal Microscopy Society, London, 7th July, 1998.