



Physical Aspects of Polymer Science 2019

11–13 September 2019

University of Lincoln, Lincoln, UK

Programme

Wednesday 11 September

12:00 Registration
Isaac Newton Building Atrium

12:30 Lunch
Isaac Newton Building Atrium

13:55 **Welcome and introduction**
Isaac Newton Building Lecture Theatre, INB0114

Session 1: Surfaces and films

14:00 (Invited) **Lignin-based multiphase materials for 3D printing**
Marie-Pierre Laborie, University of Freiburg, Germany

14:45 **Characterization of films from plant cell wall materials**
Anke Husmann, University of Cambridge, UK

15:05 **Thermodynamics of polymer-fullerene thin films**
Anthony Higgins, Swansea University, UK

15:25 Refreshment break

Session 2: Surfaces and films – flash presentations

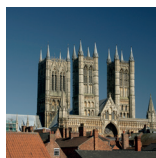
16:00 **Physical properties of vacuum-deposited polymer coatings on polymer substrates**
Hazel Assender, University of Oxford, UK

16:20 **Flash presentations**

17:00 **Poster reception**
Isaac Newton Building Atrium

17:30 **Polymer physics group AGM**
INB3305





Thursday 12 September

Session 3: Blends, composites and hybrid materials

- 08:30 Registration
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- 09:00 (Invited) **Materials design of π -conjugated organic–inorganic polymer hybrids for optical device technologies**
Rachel Evans, University of Cambridge, UK
-
- 09:45 **Spinodal nanostructures in polymer blends: on the validity of the Cahn-Hilliard lengthscale prediction**
Julia Higgins, Imperial College London, UK
-
- 10:05 **Controlled structure evolution of graphene networks in polymer composites**
Stephen Boothroyd, Durham University, UK
-
- 10:25 **Coupling phase behaviour and photochemistry of polymer-fullerene blends and the impact of organic solar cells**
Sebastian Pont, Imperial College London, UK
-
- 10:45 **Effective interaction between fillers immersed in polymer melts and blends and their effect on the static and dynamical stability of these systems**
Alexander Chervanyov, WWU University Münster, Germany
-
- 11:05 Refreshment break

Session 4: Suspensions, colloids and solutions

- 11:30 (Invited) **Liquid crystals – from simple self-assembled constructs, to autonomous materials**
Juan de Pablo, University of Chicago, USA
-
- 12:15 **Effect of co-solvent (ethanol) and PAA concentration on the structure and dynamics of sodium-polyacrylate (Na⁺-PAA) in solutions investigated by MD simulations**
Abhishek Gupta, Pandit Deendayal Petroleum University, India
-
- 12:35 **Polymer diffusion in dilute solution: a tale of time scales**
Oliver Dyer, University of Warwick, UK
-
- 12:55 **Controlling and measuring the extent of stratification in bimodal mixtures of colloidal polymer particles**
Malin Schulz, University of Surrey, UK
-
- 13:15 Lunch



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Session 5: Theory and simulation

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- 14:15 **Simulations of block copolymer nanocomposites**
Javier Diaz, University of Lincoln, UK
-
- 14:35 **Fast Monte Carlo simulations of polymers**
Qiang Wang, Colorado State University, USA
-
- 14:55 **Silk: a natural example of a sticky entangled polymer**
Charley Schaefer, University of York, UK
-
- 15:15 **Fluidisation of semiflexible filament networks**
Fanlong Meng, Max Planck Institute for Dynamics and Self-Organisation, Germany
-
- 15:35 Refreshment break

Session 6: Prize lectures

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- 16:15 **Ian Macmillan Ward Prize Lecture (Best Student Paper)**
-
- 16:35 **Founders' Prize Lecture**
Variational Principle in Soft Matter Dynamics
(Invited) Masao Doi, Beihang University, China
-
- 17:30 **Group photo**
-
- 19:00 **Coach departs from university to conference dinner at Washingborough Hall**
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- 19:30 **Conference dinner at Washingborough Hall**
Presentation of the Alexei Likhtman Poster Prizes
-
- 22:00 **Coach departs Washingborough Hall to return to the university**

Friday 13 September

Session 7: Dynamics, response and rheology

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- 08:30 Registration
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- 09:00 (Invited) **Dynamic contact imaging of polymers and soft solids**
James Sharp, University of Nottingham, UK
-
- 09:45 **i-Rheo GT: Transforming from time to frequency domain without artefacts**
Manlio Tassieri, University of Glasgow, UK
-
- 10:05 **Modelling fluctuating viscoelastic fluid flow**
Laura Cooper, University of Warwick, UK
-
- 10:25 **Synthesis of pyrrolidone-based stimulus-responsive diblock copolymers via RAFT aqueous solution polymerization of 2-(N-acryloyloxy)ethylpyrrolidone**
Oliver Deane, University of Sheffield, UK
-
- 10:45 Refreshment break



Session 8: APS/DPOLY exchange lecture; additives

11:10	(Invited) (APS/DPOLY exchange lecture) Visualizing and controlling self-assembly through <i>in situ</i> imaging and synthesis Muzhou Wang, Northwestern University, USA
11:55	Functional polymer scaffolds – from viscosity control to magnetic resonance imaging Helen Willcock, University of Loughborough, UK
12:15	Elucidating the impact of Perterlin approximation on drag reduction via a new class of multi-scale models for polymer solutions Shiwani Singh, University of Warwick, UK
12:35	Disentangling the role of chain conformation on the mechanics of polymer grafted nanoparticle materials Jiarul Midya, Johannes Gutenberg University of Mainz, Germany
12:55	Molecular migration in poly(vinyl alcohol) mixtures Katarzyna Majerczak, University of Birmingham, UK
13:15	Closing remarks
13:30	Lunch

Poster programme

P1	Systematic construction of dynamic density functional theories for inhomogeneous polymer systems Sriteja Mantha, Johannes Gutenberg Universität-Mainz, Germany
P2	Phase behaviour and solution structure of sodium carboxymethyl cellulose in the presence of multivalent salts William Sharratt, Imperial College London, UK
P3	Design of bio-inspired surface topographies via wrinkling superposition Luca Pellegrino, Imperial College London, UK
P4	SANS study of the thermodynamics and demixing of highly interacting PaMSAN/dPMMA blends Yutaka Aoki, Imperial College London, UK
P5	The viscosity of hydroxypropyl methylcellulose (HPMC)/propylene glycol (PG) blends correlated with electrospinnability Jasmine Ahad, University of Lincoln, UK
P6	Nano carbon composite simulator SOBA (Soft Blends Analyzer) Takashi Honda, Research Association of High-Throughput Design and Development for Advanced Functional Materials, Japan
P7	Diblock copolymer melt at experimental molecular weights: fluctuation effects, domain spacing, renormalization and thermodynamic integration Bart Vorselaars, University of Lincoln, UK



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- P8** **Spontaneous surface wrinkling for tuneable gratings and photonics application**
Annabelle Tan, Imperial College London, UK
-
- P9** **Factors Affecting Surfactant Distribution in Pressure-Sensitive Adhesives during Film Formation**
Toby Palmer, University of Surrey, UK
-
- P10** **Prediction of molecular topologies in free radical polymerisation**
Mark Jenei, University of Cambridge, UK
-
- P11** **Influence of filler size and concentration on structure and mechanical properties of polymer composite coatings**
Joe Hall, University of Surrey, UK
-
- P12** **Insights into the structure and self-assembly of inorganic nanocrystals with small organic semiconductors via in situ grazing incidence X-ray scattering**
Daniel Toolan, The University of Sheffield, UK
-
- P13** **Theoretical calculation and machine learning study for the microphase-separated structure and elastic property of block copolymers**
Takeshi Aoyagi, AIST, Japan
-
- P14** **Mixtures of anisotropic nanoparticles and block copolymer melts**
Javier Diaz, University of Lincoln, UK
-
- P15** **Designing nanostructured porous polymeric gas sensors: from solution thermodynamics to phase inversion**
Roisin O'Connell, Imperial College London, UK

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