

Ian Williams

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EMPLOYMENT

POSTDOCTORAL RESEARCH ASSOCIATE
 DEPARTMENT OF CHEMISTRY, UNIVERSITY COLLEGE
 LONDON
 October 2018 – Present

POSTDOCTORAL SCHOLAR
 DEPARTMENT OF CHEMICAL ENGINEERING,
 UNIVERSITY OF CALIFORNIA, SANTA BARBARA
 January 2015 – August 2018

POSTDOCTORAL RESEARCH ASSISTANT
 H. H. WILLS PHYSICS LABORATORY,
 UNIVERSITY OF BRISTOL
 July 2013 – December 2014

EDUCATION

PHD (CHEMISTRY)
 UNIVERSITY OF BRISTOL
 September 2009 – July 2013 (Awarded March 2014)
 Thesis: *Colloids in optically defined confinement*
 Supervisors: Dr. C. Patrick Royall & Prof. Paul Bartlett

MPHYS (PHYSICS)
 UNIVERSITY OF EDINBURGH
 September 2005 – June 2009
 First Class Honours

PUBLICATIONS

[9] **INTERFACIAL RHEOLOGY AND HETEROGENEITY OF AGING ASPHALTENE LAYERS AT THE WATER-OIL INTERFACE**
 C.-C. Chang, A. Nowbahar, V. Mansard, I. Williams, J. Mecca, A. Schmitt, T. Kalantar, T.-C. Kuo & T. M. Squires. *Langmuir*, **34**, 5409–5415 (2018)

[8] **EVOLUTION AND MECHANICS OF MIXED PHOSPHOLIPID FIBRINOGEN MONOLAYERS**
 I. Williams & T. M. Squires. *J. R. Soc. Interface*, **15**, 20170895 (2018)

[7] **EXPERIMENTAL DETERMINATION OF CONFIGURATIONAL ENTROPY IN A TWO-DIMENSIONAL LIQUID UNDER RANDOM PINNING**
 I. Williams, F. Turci, J. E. Hallett, P. Crowther, C. Cammarota, G. Biroli & C. P. Royall. *J. Phys.: Condens. Matter*, **30**, 094003 (2018)

[6] **SOLUTO-INERTIAL PHENOMENA: DESIGNING LONG RANGE, LONG-LASTING, SURFACE SPECIFIC INTERACTIONS IN SUSPENSIONS**
 A. Banerjee, I. Williams, R. Nery Azevedo, M. E. Helgeson, & T. M. Squires. *PNAS*, **113**, 31, 8612–8617 (2016)

[5] **TRANSMISSION OF TORQUE AT THE NANOSCALE**
 I. Williams, E. C. Oguz, T. Speck, P. Bartlett, H. Löwen, & C. P. Royall. *Nature Phys.*, **12**, 98–103 (2016)

[4] **FLEXIBLE CONFINEMENT LEADS TO MULTIPLE RELAXATION REGIMES IN GLASSY COLLOIDAL LIQUIDS**
 I. Williams, E. C. Oguz, P. Bartlett, H. Löwen, & C. P. Royall. *J. Chem. Phys.*, **142**, 024505 (2015)

[3] **STRUCTURAL CHARACTERISATION OF POLYCRYSTALLINE COLLOIDAL MONOLAYERS IN THE PRESENCE OF ASPHERICAL IMPURITIES**
 A. T. Gray, E. Mould, C. P. Royall & I. Williams. *J. Phys.: Condens. Matter* **27**, 194108 (2015)

[2] **THE EFFECT OF BOUNDARY ADAPTIVITY ON HEXAGONAL ORDERING AND BISTABILITY IN CIRCULARLY CONFINED QUASI HARD DISCS**
 I. Williams, E. C. Oguz, R. L. Jack, P. Bartlett, H. Löwen, & C. P. Royall. *J. Chem. Phys.*, **140**, 104907 (2014)

[1] **DIRECT MEASUREMENT OF OSMOTIC PRESSURE VIA ADAPTIVE CONFINEMENT OF QUASI HARD DISC COLLOIDS**
 I. Williams, E. C. Oguz, P. Bartlett, H. Löwen, & C. P. Royall. *Nature Commun.*, **4**, 2555 (2013)

AWARDS & ACCOLADES

2017	University of California Santa Barbara Art of Science Honourable Mention
2009–12	University of Bristol Centenary Postgraduate Research Scholarship
2008–09	University of Edinburgh Integrated Masters Physics Class Medal
2007–08	University of Edinburgh Senior Honours Physics Class Medal
2007–08	University of Edinburgh Brodie Memorial Prize
2006–07	University of Edinburgh Junior Honours Physics Class Medal
2006–07	University of Edinburgh Donald Fraser Bursary

RESEARCH PRESENTATION

INVITED PRESENTATIONS

- Oct 2018 **Structural and rheological consequences of phospholipid monolayer penetration by blood protein**, University of Bristol, UK
- Feb 2017 **Bloody rheology! Measuring interfacial viscoelasticity in mixed monolayers of lung surfactant and serum protein**, *8th International Soft Matter Workshop*, Helford, UK.
- May 2014 **Two relaxation regimes in quasi-hard-discs under adaptive circular confinement**, *6th International Soft Matter Workshop*, Helford, UK.
- Mar 2014 **Hard discs in circular confinement**, ESPCI, Paris, France.
- Feb 2014 **Hard discs in circular confinement**, University of Amsterdam, Amsterdam, The Netherlands.
- Sep 2012 **Non-circular confinement of quasi hard discs**, *5th International Soft Matter Workshop*, Helford, UK.
- Jun 2012 **The colloidal corral**, Heinrich-Heine-Universität, Düsseldorf, Germany.
- May 2011 **The colloidal corral**, *4th International Soft Matter Workshop*, Helford, UK.
- Feb 2010 **Optical trapping: manipulating the energy landscape**, *3rd International Soft Matter Workshop*, The Cotswolds, UK.

CONTRIBUTED PRESENTATIONS

- Mar 2018 **Fibrinogen Adsorption Onto Phospholipid Monolayers: Aging & Stiffening**, *APS March Meeting*, Los Angeles, USA.
- Nov 2017 **Lung Surfactant & Serum Protein: Monolayer Rheology & Morphology**, *Soft Matter Interfaces: From Biology to Engineering Applications*, Ascona, Switzerland.
- Nov 2017 **Fibrinogen adsorption onto phospholipid monolayers: aging & stiffening**, *2017 AlchE Annual Meeting*, Minneapolis, USA.
- Jul 2017 **Rheology and morphology of mixed monolayers of lung surfactant and serum protein**, *91st ACS Colloid and Surface Science Symposium*, New York, USA.
- Jun 2015 **Interfacial colloidal polycrystals and gels under oscillatory shear**, *89th ACS Colloid and Surface Science Symposium*, Pittsburgh, USA.
- Jul 2014 **Structure in circularly confined quasi-hard-discs: the role of boundary adaptivity**, *9th Liquid Matter Conference*, Lisbon, Portugal.
- Apr 2014 **Circularly confined quasi-hard-discs: the role of boundary adaptivity**, *The Physics of Soft and Biological Matter*, Cambridge, UK.
- Mar 2014 **Structural bistability in quasi-hard-discs under adaptive circular confinement**, *APS March Meeting*, Denver, USA.
- May 2013 **Static & rotating adaptive confinement of quasi hard disc colloids**, *Workshop on Crystallisation at Interfaces*, CECAM, Lausanne, Switzerland.
- Jul 2012 **Static & dynamic confinement: colloidal corrals & washing machines**, *M4 Colloids Symposium*, Bristol, UK.

PROFESSIONAL EXPERIENCE

TEACHING

- Mar 2014 **Masterclass in Soft Matter Chemistry** – exam preparation problem solving class for senior undergraduates.
- Mar 2014 **Optical Techniques in Nanophysics** – lecture describing microscopy and manipulation techniques applied to nanophysics research for senior undergraduates.
- Jan 2014 **Optical Micromanipulation** – graduate level course on the theory and practise of optical trapping for Masters students in the Bristol Centre for Functional Nanomaterials Centre for Doctoral Training.
- Jan 2014 **Nanophysics** – Teaching assistant leading tutorial classes.

LEADERSHIP & MENTORING

Organization of *6th International Soft Matter Workshop*, Helford, Cornwall, May 2014.

Mentoring of graduate students resulting in publications in *PNAS* and *Langmuir*

Supervision of 4 undergraduate research projects resulting in publication in *The Journal of Physics: Condensed Matter*.

Elementary school outreach food science demonstrations.

Edinburgh University Physics Society President, academic year 2007 – 2008.

PEER REVIEW

Physical Review Letters • The Journal of Rheology • The Journal of Chemical Physics • Soft Matter