

Droplets 2019 Programme

Monday 16 - Wednesday 18 September



6.00-8.00 **SUNDAY, 15 SEPTEMBER**
Welcome Reception and Registration (from 5:30)
Oriental Museum

MONDAY, 16 SEPTEMBER

8.00-5.00 Registration in Foyer of Calman Learning Centre

8.30-9.30 **Plenary PL1: Sigurdur Thoroddsen**
Arnold Wolfendale Lecture Theatre
DROP IMPACTS: HIGH-SPEED IMAGING OF SPLASHING AND AIR ENTRAPMENT

9.30-10.00 **Poster Pitches I**
Arnold Wolfendale Lecture Theatre

10.00-10.30 **Coffee/Tea** ES228-231 *Earth Science Building*

Textured, Patterned, Smart Surfaces I
Arnold Wolfendale Lecture Theatre

Emulsions and Multiphase Flow I
Ken Wade Lecture Theatre

Coalescence and Break-up I
Rosemary Cramp Lecture Theatre

10.30-11.00 **Keynote K1: Eric Dufresne**
Elastic ripening and inhibition of condensation of droplets in gels

Keynote K2: Vivek Ranade
Cavitation for emulsions

Keynote K3: Osman Basaran
High-accuracy simulation of free surface flows near finite-time singularities

11.00-11.20 O1: Halim Kusumaatmaja
Modelling Drop Dynamics on Liquid Infused Surfaces

O5: Yanshen Li
Controlled solvent exchange in a porous material: experiment & theory

O9: Michiel Hack
Self-similar coalescence of liquid lenses

11.20-11.40 O2: Elise Contraires
A study of lateral vibrational dumping induced by textured surfaces in sessile drops

O6: Ken Yamamoto
Droplet-actuated microchannel mixer

O10: Hosein Sadafi
Attraction of sessile drops of the same pure volatile liquid

11.40-12.00 O3: Gary Wells
Droplet control on macro-structured slips using the "cheerios effect"

O7: Dominique Legendre
The Basset-Boussinesq history force acting on a spherical drop

O11: Lisong Yang
Long-range interaction of two pl- sessile droplets on a solid

12.00-12.20 O4: Matheu Broom
Symmetry splitting of impacting droplets on partly wetting surfaces

O8: Mariano Galvagno
Hydrodynamic-colloidal interactions of an oil droplet and a membrane surface

O12: Sreehari Perumanath
Molecular events kick-off droplet coalescence

12.20-2.00 **Lunch and Poster Session I - ES228-231** *Earth Science Building*

Evaporation I
Arnold Wolfendale Lecture Theatre

Impact I
Ken Wade Lecture Theatre

Microfluidics and Acoustofluidics I
Rosemary Cramp Lecture Theatre

2.00-2.30 **Keynote K4: Khellil Sefiane**
Evaporation of nano-suspension drops on soft and structured substrates

Keynote K5: Doris Vollmer
Drop impact on superamphiphobic surfaces

Keynote K6: Stephen Evans
Lipid coated droplets: from bubbles to cells - therapy to diagnostics

2.30-2.50 O13: Daniel Bonn
Spreading dynamics and contact angle of completely wetting volatile drops

O16: Frieder Mugele
Drop impact-based energy harvesting using charged hydrophobic polymer surfaces

O19: Richard Fu
Thin Film Acoustofluidics: a new Platform for Lab-on-a-Chip

2.50-3.10

O14: Eduardo Ramos
3D particle tracking in sessile evaporating water droplets

O17: Timothée Mouterde
Two recipes for repelling hot water

O20: Steffan Hardt
Reciprocating motion of femtoliter droplets between two liquid interfaces

3.10-3.30

O15: Fouzia Ouali
Density-driven flows in evaporating binary liquid droplets

O18: Tristan Gilet
Liquid break-up upon drop impact near the edge of an inclined substrate

O21: Utsab Banerjee
Transport of aqueous droplet over oil-based ferrofluid spikes in presence of a magnetic field

3.30-4.00

Coffee/Tea - ES228-231 Earth Science Building

Evaporation II

Arnold Wolfendale Lecture Theatre

Aerosols I

Ken Wade Lecture Theatre

Wetting I

Rosemary Cramp Lecture Theatre

Special Session to mark the 50th Anniversary of Molecular Kinetic Theory

4.00-4.30

Keynote K7: Peter Kelly-Zion

Measured vapor distribution and the diffusive, convective, and velocity fields of an evaporating sessile methanol drop

Keynote K8: Toni Carruthers

Responding to humidity: Measuring the hygroscopicity of large molecule microdroplets

Keynote K9: Terry Blake

50 Years in search of the dynamic contact angle

4.30-4.50

O22: Giorgio Volpe
Vapour point-source control and manipulation of evaporating droplets

O25: Bryan Bzdek
Surface tensions of picoliter droplets with sub-millisecond surface age

O28: Hans-Jürgen Butt
Adaptive wetting

4.50-5.10

O23: Benjamin Sobac
The underside of Leidenfrost drop on a bath

O26: Jun-ya Kohno
Temporal evolution of multi-order stimulated Raman scattering in droplet

O29: Alex Lukyanov
Crossover of dynamic wetting regimes: a molecular dynamics study

5.10-5.30

O24: Jack Goodall
Particle migration in drying droplets

O27: Avshalom Offner
Concentration-driven acoustic instability in aerosols

O30: Glen McHale
Controlling bubbles with electric fields

7.00

Conference Dinner Durham Castle



TUESDAY, 17 SEPTEMBER

8.30-9.30 **Plenary PL2: Ruth Signorell**
Photoemission from charged droplets

9.30-10.00 **Poster Pitches II**
Arnold Wolfendale Lecture Theatre

10.00-10.30 **Coffee/Tea - ES228-231** *Earth Science Building*

Liquid Crystals and Complex Fluids
Arnold Wolfendale Lecture Theatre

Aerosols II
Ken Wade Lecture Theatre

Inkjet Printing,
sponsored by the Institute of Physics Printing and Graphics Science Group

10.30-11.00 **Keynote K10: Linda Hirst**
Forming hollow nanoparticle microstructures via double nematic nucleation

Keynote K11: Kevin Wilson
Atmospheric droplets: the role of interfacial chemistry in cloud Droplet formation and hygroscopic growth of aerosols

Keynote K12: Philip Bentley
Why digital?

11.00-11.20 O31: Tapati Dutta
Role of pH and substrate on drying patterns of laponite droplet

O33: Adam Milsom
Acid-soap complexes in levitated atmospheric aerosol proxies: humidity and ozone response

O37: Christian Diddens
Numerical simulations of inkjet printing processes

11.20-11.40 O32: Ralf Stannarius
Embedding, rebound and tunneling of liquid droplets impacting onto freely Suspended fluid films

O34: Alexander Shchekin
The disjoining pressure in a droplet on a spherical solid particle: dft results

O38: Jun Fukai
Deforming free surface of solution dried on a substrate with circle patterned bank structure: numerical study

11.40-12.00 **Keynote K13: Christian Ligoure**
(11:40-12:10)
Biextensional viscosity and non stationary elastocapillarity effects in the impact of viscoelastic drops

O35: Michael Cotterell
Aerosol optical properties during the formation of brown carbon aerosol

O39: Ruben van Gaalen
The effect of a precursor film on evaporating inkjet droplets with surfactants

12.00-12.20

O36: Flo Gregson
Crystalline vs. Amorphous: predicting and controlling particle formation in rapidly evaporating aerosol microdroplets

O40: Evangelia Antonopoulou
Surfactants and jetting behaviour in inkjet printing

12.20-2.00 **Lunch and Poster Session II - ES228-231** *Earth Science Building*

Wetting II
Arnold Wolfendale Lecture Theatre

Impact II
Ken Wade Lecture Theatre

Coalescence and Break up II
Rosemary Cramp Lecture Theatre

2.00-2.30 **Keynote K14: Maja Vuckovac**
Scanning droplet adhesion microscopy for surface wetting characterisation

Keynote K15: Alidad Amirfazli
Drop impact onto a surface covered with a thin film

Keynote K16: Dag Hanstorp
Optical levitation of liquid droplets

2.30-2.50 O41: Rodrigo Ledesma-Aguilar
Droplet electrowetting in a wedge geometry

O44: Kirsten Harth
Wetting dynamics and the Leidenfrost transition of liquid drops impacting on a hot plate

O47: Karrar Al-Dirawi
The roles of droplet size and viscosity in binary droplet collisions

TUESDAY, 17 SEPTEMBER

2.50-3.10	O42: Nikos Savva Droplet dynamics on rough surfaces	O45: TBC	O48: Stefan Kooij Sprays from droplets impacting a mesh
3.10-3.30	O43: Binyu Zhao Morphology and mechanical properties of liquid-air interfaces confined by nonwetting nanopores	O46: Matthew Moore Using wagner theory to predict early-time jet properties in liquid-liquid impact problems	O49: Yoshiyuki Tagawa Levitating droplet over a moving wall: mechanism and position control
3.30-4.00	Coffee/Tea - ES228-231 Earth Science Building		
	Textured, Patterned, Smart Surfaces II <i>Arnold Wolfendale Lecture Theatre</i>	Modelling across Time and Length Scales I <i>Ken Wade Lecture Theatre</i>	Evaporation III <i>Rosemary Cramp Lecture Theatre</i>
4.00-4.30	Keynote K17: David Quéré TBC	Keynote K18: Rama Govindarajan Droplet growth and collisions due to turbulence and gravity	Keynote K19: Tatiana Gambarayan-Roisman Evaporation of colloidal drops and formation of coffee rings on porous substrates
4.30-4.50	O50: Patricia Weisensee Capillary induced droplet mobility during condensation on thin lubricant films	O53: Radu Cimpeanu Filling the gap in bouncing dynamics	O56: Alvaro Marin Interfacial particle accumulation in the drying-teardrop effect
4.50-5.10	O51: Ehud Yariv Longitudinal pressure-driven flows between super-hydrophobic grooved surfaces: the shallow-channel limit	O54: Martin Brinkmann Dewetting of polymer microdroplets with strong slip	O57: Qui-Sheng Liu Evaporation processes of sessile droplet and liquid film: research from the ground to space
5.10-5.30	O52: John McCarthy Droplet dynamics on conical substrates	O55: Elfego Ruiz-Gutiérrez A Lattice-Boltzmann model of electrocapillarity	O58: Stephen Wilson Competitive evaporation of multiple droplets
6.00-8.00	Durham Tour		

WEDNESDAY, 18 SEPTEMBER

8.45-9.00 *Announcement of Droplets 2021*

9.00-10.00 **Plenary PL3: Omar Matar**
Arnold Wolfendale Lecture Theatre
Droplet generation via bursting, impacting, and jetting, with surfactants

10.00-10.30 **Coffee/Tea - ES228-231 Earth Science Building**

Modelling across Time and Length Scales II
(Special session in memory of Jason Reese)
Arnold Wolfendale Lecture Theatre

Emulsions and Multiphase Flow II
Ken Wade Lecture Theatre

Microfluidics and Acoustofluidics II
Rosemary Cramp Lecture Theatre

10.30-11.00 **Keynote K20: Matthew Borg**
Multiscale flow engineering: re-imagining fluid dynamics modelling

Keynote K21: Panagiota Angeli
Drop coalescence with liquid-liquid interface in the presence of surfactants

Keynote K22: Jon Cooper
Manipulating droplets with shaped electric fields

11.00-11.20 O59: Chengxi Zhao
Interface dynamics of nano-filaments

O62: Yutaku Kita
Thermocapillary-driven flows in pure water drops on a local hot-spot

O65: Jennifer Doodoo
Controlled shaping of sessile magnetic droplets

11.20-11.40 O60: Edward Smith
A decomposition of droplet simulation using molecular dynamics

O63: Linzi Dodd
Droplet propulsion and direction control on a planar surface using a selective leidenfrost effect

O66: Jamal Yagoobi
Separation of vapour from liquid in electrically driven liquid film flow boiling

11.40-12.00 O61: Stefan Zitz
A new Lattice-Boltzmann approach to thin film hydrodynamics

O64: Kai Luo
Quantized effective viscosity of dense monodisperse emulsions in microchannels

O67: Kyle Baldwin
Self-propelling Droplet Shells Stabilized by Liquid Crystal Topology

12.00-1.00 **Lunch - ES228-231 Earth Science Building**

1.00-2.00 **Plenary PL4: Detlef Lohse**
Arnold Wolfendale Lecture Theatre
Segregation in multicomponent droplet evaporation

Evaporation IV
Arnold Wolfendale Lecture Theatre

Impact III
Ken Wade Lecture Theatre

Wetting III
Rosemary Cramp Lecture Theatre

2.00-2.20 O68: Teresa Colosimo
Evaporation of a single droplet in a circular well

O71: Fei Duan
Crown-to-splash transition of impinging high-frequency ethanol droplet train on heated surface

O74: David Seveno
Wetting dynamics and adhesion of thermoplastic polymers on glass

2.20-2.40 O69: Mohsin Qazi
Self-amplifying crystallization in thin liquid films

O72: Loic Tadrist
Where 'unpredictability' shades off: the tunnelling of bouncing droplets

O75: Alex Bradley
Wettability-independent droplet transport by bendotaxis

2.40-3.00 O70: Dieter Baumgartner
Spreading and contracting three-component droplets

O73: Kenneth Langley
Air entrapment during the impact of viscous drops onto thin viscous films

O76: Matthew Kitching
An Autonomous Liquid on Solid Droplet Reactor System for Chemical Synthesis

Close of Conference

