



Inkjet Ink Characterisation Practical Course

17-20 April 2023

Meteor Inkjet Laboratory, Harston, near Cambridge, UK

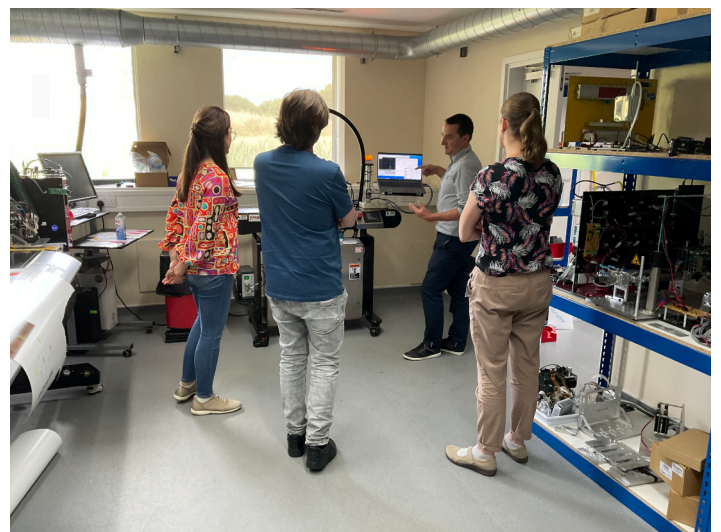
Viscosity, Dispersions, Jetting & Surfaces

Practical Course

Held at the Meteor Inkjet Laboratories in Harston, near Cambridge, the Inkjet Ink Characterisation Practical Course is the ideal way to get a hands-on introduction to key aspects of inkjet ink physical property measurement and analysis. This course covers rheology and surface tension measurements, particle and dispersion assessment as well as drop visualisation. The course is led by industry experts Meteor Inkjet, TriJet, KRÜSS, Malvern Panalytical and Netzsch, and includes extensive demonstration time on characterisation equipment covering the vital inkjet ink measurements. This practical course is limited to 16 places so make sure you register early to secure your seat.

Open Lab Session

There is an option to register for the open lab session on the Thursday morning in addition to the rest of the course. This session gives you the opportunity to bring your own samples and use the state of the art equipment available to assess them, while getting advice from the experts on hand in the lab. There are 10 spaces available at the Open Lab session and MSDS data must be supplied for any samples to be brought into the lab.



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Inkjet Ink Characterisation Practical

Viscosity, Dispersions, Jetting & Surfaces

Monday 17 – Thursday 20 April 2023

Development of high quality inks and fluids for inkjet applications requires state-of-the-art characterisation equipment and techniques. From fundamental ink properties such as viscosity and surface tension, which have a crucial impact on jetting performance, through analysis of particulates dispersed within the ink, understanding these properties is key to getting the best out of an ink development project. In addition, it is vital to understand how the developed ink actually behaves, both on ejection from the printhead and when landing onto the substrate of choice.

The Inkjet Ink Characterisation Practical course gives an excellent hands-on introduction to these essential areas of study, presented by industry experts from leading suppliers in the field. The course will give you the basic foundations as well as a more detailed understanding of the vital equipment and techniques, while allowing you to understand how the key characterisation equipment works and see it in action.

The course also allows you to bring your own ink samples and get the resident experts to help you with particular characterisation problems you may be having.

Monday 17 April 2023

08:00 - 09:00 Registration

09:00 Session begins

Ink characterisation in printhead channel & in-flight jetting conditions
TriJet

- Novel measurement of high shear viscosity properties

10:30 - 11:00 Coffee break

Drop visualisation, waveform optimisation - Theory
Meteor Inkjet

- Drop/jet analysis, waveform optimisation

12:30 - 13:30 Lunch

13:30 - Session begins

Ink characterisation in printhead channel & in-flight jetting conditions -
Practical
TriJet

- TriPAV - high frequency rheometer
- Trimaster - high speed filament stretching device

Drop/jet analysis, waveform optimisation - Practical
Meteor Inkjet

- DropWatcher
- DB400

17:00 Session ends

19.00-21.00 Course dinner

Join us for dinner in a local pub

Tuesday 18 April 2023

09:00 Course begins

Surface tension & contact angle - Theory
KRÜSS

- Surface tension, static and dynamic measurement
- Wetting, surface free energy, contact angle and measurement

10:45 - 11:15 Coffee break

Particle size, dispersion stability, polymer characterisation - Theory
Malvern Panalytical

- Monitoring and controlling pigment particle size

12:30 - 13:30 Lunch

13:30 Session begins

Surface tension & contact angle - Practical
KRÜSS

- Bubble Pressure Tensiometer (BPT Mobile)
- Ayrís

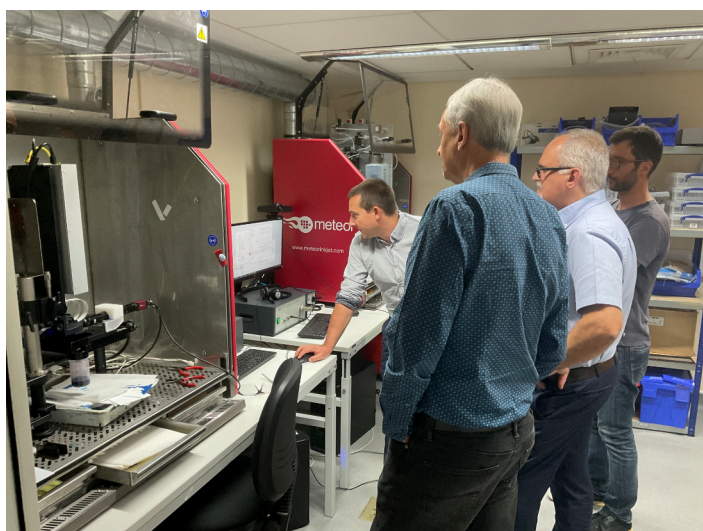
15:15 - 15:30 Coffee break

- Mobile Surface Analyzer (MSA)

Particle size, dispersion stability, polymer characterisation - Practical
Malvern Panalytical

- Mastersizer (measuring particle size and analysing data)

17:00 Session ends



Inkjet Ink Characterisation Practical

Viscosity, Dispersions, Jetting & Surfaces

Monday 17 – Thursday 20 April 2023

Wednesday 19 April 2023

08:00 - 09:00 Registration

09:00 Session begins

Particle size, dispersion stability, polymer characterisation - Theory
Malvern Panalytical

- Evaluating and improving dispersion stability

10:30 - 11:00 Coffee break

- Characterising the molecular weight, structure and intrinsic viscosity of polymers used in inkjet

Rheology - Theory
Netzsch

- Bulk rheology and rheological analysis

12:30 - 13:30 Lunch

13:30 Session begins

Particle size, dispersion stability, polymer characterisation - Practical
Malvern Panalytical

- Zetasizer (measuring size and zeta potential of ink dispersions)

15:30 - 16:00 Coffee break

Rheology - Practical
Netzsch

- Kinexus Prime (rheology)

17:00 Session ends

Thursday 20 April 2023

09:00 Course begins

Optional Open Lab Session

10:30 - 11:00 Coffee break

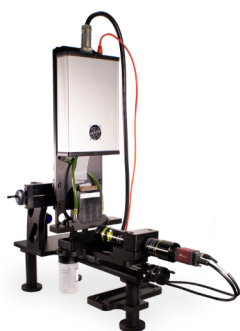
Optional Open Lab Session Continued

12:30 - 13:30 Lunch

13:30 Open lab session ends



Inkjet Ink Characterisation Practical Equipment



DropWatcher - printhead data measurement to characterise and optimise a material's jetting performance



DB400 - valuation of jetting fluids, DOD Piezo printheads, and process development. Integrated with the DropWatcher above, DB400 conveyor enables fast and accurate assessments for optimisation and process development of jetting fluids and inks, in piezo inkjet printheads.



Kinexus Prime - rheological testing for dispersions and other complex fluids and soft solids



Ayrís - QC checks of wettability. The 3D Contact Angle of water is measured and auto-validated with a simple passed/failed message using preset quality limits.



Bubble Pressure Tensiometer (BPT Mobile) - checks the cleaner or wetting agent content in a bath.



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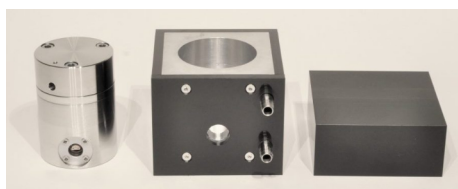
Mastersizer - laser diffraction particle size analyzer delivering rapid, accurate particle size distributions for both wet and dry dispersions.



Zetasizer - measure particle and molecular size from less than a nanometer to several microns using dynamic light scattering; zeta potential and electrophoretic mobility using electrophoretic light scattering; and molecular weight using static light scattering.



Trimaster - high speed filament stretching device which can be used for both extensional viscosity and filament break-up behaviour for low viscosity fluid.



TriPAV - high frequency rheometer TriPAV is a squeeze-flow rheometer where a small quantity of fluid is held between two flat plates and one of the plates is oscillated by a piezo actuator.

Inkjet Ink Characterisation Practical

Presenters



Matthew Pullen, Product Manager – Drop Watching Solutions

Meteor Inkjet, UK

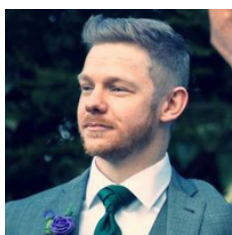
Matt is a veteran of the inkjet industry with more than 15 years' experience in a wide array of digital print applications including optoelectronics, additive manufacturing, ceramics, labels and packaging. His work has included formulation and process development for inks and coatings, process scale-up and printhead waveform development. In 2017, Matt joined Meteor to work on pre-sales technical engagement and customer support. He now manages Meteor's DropWatcher and Waveform Development efforts with a keen interest in accelerating OEM time from lab to fab. Prior to Meteor Inkjet, Matt worked for Xaar, Solar Press, Cambridge Display Technology, Plasmon and Huntsman in a variety of technical and customer-facing roles. He is a chemist by training and holds a Six Sigma Green Belt.



Dr Tri Tuladhar

TriJet, UK

Tri Tuladhar studied Chemical Engineering from RMIT, Australia and received a PhD in Chemical Engineering from the University of Cambridge, UK. He has over 20 years' experience in R&D in academia and industry in several scientific fields. Since 2005, he has focussed on complex rheology of inkjet printing ink and developed novel techniques to link fluid rheology to jetting behaviour. He heads Trijet Limited, a consulting firm specialising in all aspects of inkjet printing, speciality paints and enamels for glass processing, and providing bespoke solutions in formulations, optimisations of inkjet inks and paints, complex rheological characterisations, jetting optimisation and developing customised rheological and visualisation tools for such applications.



Kyle Aldridge, Technical Sales Representative UK & Ireland

KRÜSS, Germany

Kyle Aldridge has a previous background in X-ray Crystallography and Raman Spectroscopy and now supports KRÜSS customers in the UK in regards to their surface science needs. Kyle joined KRÜSS in 2021 as a Technical Sales Representative and is the first point of contact in the UK for anyone wishing to discuss KRÜSS products or applications.



Dr Serena Agostini, Product Technical Specialist – Separations

Malvern Panalytical, UK

Dr Serena Agostini is a Product Technical Specialist for separation, GPC/SEC for polymers, at Malvern Panalytical. She studied Industrial Chemistry in Italy at the University of Pisa and continued her studies in UK, where she obtained her PhD in polymer chemistry at Durham University. During her studies she developed an interest in polymer synthesis and characterisation. She exploited several polymerisation techniques, such as living anionic polymerisations, and she characterised the polymers she synthesised by using, among several characterisation techniques, SEC and TGIC. After spending most of her time in academic research, she is now finding new interests in customer support and product development.



Dr Nelli Chourmouziadi-Laleni, Application Specialist

Malvern Panalytical, UK

Dr Nelli Laleni is an Application Specialist based in Malvern Panalytical's headquarters in the UK. She completed her PhD from Birmingham University, UK in 2022. During her doctorate, she investigated the use of multifaceted role of propolis particles in aqueous dispersions and oil-in-water emulsions. Nelli joined Malvern Panalytical in 2022. Her specialty is in the characterisation of nanoparticles, providing technical support to customers, application advice, method transfers and other areas of expertise.



Dr Ben Lynch, Application Specialist

Malvern Panalytical, UK

Dr Benjamin Lynch is an application specialist for laser diffraction and dynamic light scattering at Malvern Panalytical. He studied chemistry in the UK at Cardiff University before continuing his studies in France, undertaking a PhD where he investigated oxide nucleation and growth mechanisms of stainless steels, with the aim of improving resistance to corrosion. In Paris, Ben developed his analytical skills within the fields of chemistry and material science and is now using his expertise in a customer support role.



Dr Shona Marsh, Application & Product Marketing Manager Rheology

Netzsch, UK



How to register

Please register on-line via our website:
www.imieurope.com

The registration fee for the Inkjet Ink Characterisation Practical Course includes lunches on each day of the course, an evening dinner on the first evening and refreshments during breaks.

There are 16 places available for the practical course and 10 places available for the Thursday Open Lab session.

We will email your registration confirmation together with an invoice with payment details.

Venue

The IMI Europe Inkjet Ink Characterisation Practical Course is being held at the Meteor Inkjet Laboratory in Harston, Cambridge, UK.

Harston Mill
Royston Road
Cambridge
CB22 7GG
United Kingdom



Tickets

Inkjet Ink Characterisation Practical (17-19 April 2023)

- Standard fee €1,895
- Early registration fee €1,495 (prior to 28 February 2023)

Optional Open Lab Session (20 April 2023)

- Standard fee €495
- Early registration fee €295 (prior to 28 February 2023)

Please note: the open lab session can only be attended by those attending the rest of the course. The deadline for registrations for the open lab session is 1 April 2023.

Accommodation

The Inkjet Ink Characterisation Practical is a non-residential course, so accommodation is the responsibility of individual delegates.

We will be providing a minibus shuttle service from the nearby Travelodge Cambridge Central hotel. There will be one shuttle to the course venue and back to the hotel on each day.

You are welcome to stay in alternative accommodation, however please note that you will need to find your own transport to the Meteor Inkjet laboratory.



Discounts

If you would like a quotation please email enquiries@imieurope.com with your requirement. Where multiple discounts apply we will allocate the two largest discounts to the total.

Booking policy

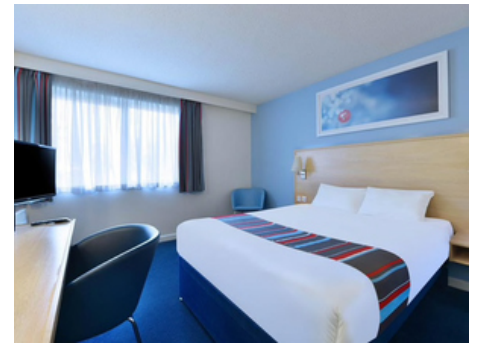
Cancellations will receive a 50% refund if made more than two weeks prior to the start of the event (i.e. 3 April 2023). After this time, no refunds can be made, but your registration may be transferred to another IMI Europe or IMI Inc event at no charge. Name changes for a registration may be made at any time, free of charge, but please let us know before the event so we can update our records.

Travelodge Cambridge Central

Approximately £84 per night. Please book your accommodation directly with the hotel.

Hotel website: <https://www.travelodge.co.uk/hotels/255/Cambridge-Central-hotel>

Hotel Address: Cambridge Leisure Park, Clifton Way, Cambridge, CB1 7DY, UK



Timetable

	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00
Monday 17 April	Registration	Theory	Break	Theory	Lunch	Practical	Break	Practical			Dinner	
Tuesday 18 April		Theory	Break	Theory	Lunch	Practical	Break	Practical				
Wednesday 19 April		Theory	Break	Theory	Lunch	Practical	Break	Practical				
Thursday 20 April		Open Lab	Break	Open Lab	Lunch							

* approximate timings for breaks