



**IMI**  
EUROPE

# Inkjet Winter Workshop 2023

**23-27 January 2023**

**Valencia, Spain**



The IMI Europe Inkjet Winter Workshop is the ideal way to learn more about key aspects of inkjet technology, from the basics through to advanced courses on inks, printheads and applications.

## Inkjet Academy

Theory of inkjet technology

The Inkjet Academy is the ideal introduction to inkjet technology, giving your understanding of the industry an expert start. The course is presented by Dr Mark Bale of DoDxAct and Dr Tim Phillips of Catenary Solutions/IMI Europe.



## Inkjet Ink Characterisation

Viscosity, dispersions, jetting & surfaces

This course covers rheology and surface tension measurements, particle and dispersion assessment, as well as drop visualisation and print quality analysis. Course presenters include KRÜSS, ImageXpert, Netzsch and IESMAT.

## Inkjet Drying & Curing

Hardware & chemistry for fixing inkjet inks

This course provides all the information you need about fixing inkjet inks, covering near-IR drying, UV curing and electron beam curing hardware, as well as the required chemistry. The course includes contributions from Adphos, Phoseon, IGM Resins, Catenary Solutions, i4inkjet and Sherkin Technologies.

## Inkjet Inks: Materials & Applications

Inks & materials for digital applications

The course gives an overview of the different ink platform technologies in use today, with an emphasis on the practical aspect of materials selection and optimisation for the low viscosity requirement of inkjet printing. Key issues surrounding the integration of inkjet ink technology into industrial printing within a production environment will also be considered. The course is led by Dr Mark Bale of DoDxAct.

## Digital Textile Printing

Printheads, images & colour

This course gives an introduction to digital textile printing markets and technology. The main applications for digital textile printing are reviewed, along with the key ink chemistries and integration considerations. Course leaders include Dr Simon Daplyn of Sun Chemical and Dr Tim Phillips of Catenary Solutions.

For more information see [www.imieurope.com](http://www.imieurope.com)

# Inkjet Winter Workshop 2023

## Sponsors

### Bronze Sponsors

The logo for ImageXpert features the word "image" in a lowercase, italicized serif font, followed by "Xpert" in a bold, uppercase sans-serif font. The "X" is a large, red, stylized character that overlaps the "i" and "p". A registered trademark symbol (®) is located at the top right of the "t".

ImageXpert has been leading the inkjet R&D industry since 1989 with solutions for optimizing inkjet performance. ImageXpert products are used for printhead evaluation, ink formulation, application development, and process optimization by hundreds of companies from inkjet newcomers to industry leaders. The JetXpert Dropwatcher, our most well-known product, studies jetting with analysis of drop volume, velocity, formation, and more. The JetXpert Print Station moves seamlessly from dropwatching to producing production-grade sample prints. These tools are fully integrated with any printhead, driver, or ink supply and come with our legendary customer support, making ImageXpert your guide and resource for all things inkjet.

The logo for NETZSCH consists of the word "NETZSCH" in a bold, uppercase, sans-serif font. Below it, the tagline "Proven Excellence." is written in a smaller, lowercase, sans-serif font.

The NETZSCH Group is an owner-managed, international technology company with headquarters in Germany. The Business Units Analyzing & Testing, Grinding & Dispersing and Pumps & Systems represent customized solutions at the highest level. More than 4,000 employees in 36 countries and a worldwide sales and service network ensure customer proximity and competent service.

Our performance standards are high. We promise our customers Proven Excellence – exceptional performance in everything we do, proven time and again since 1873.

When it comes to Thermal Analysis, Calorimetry (adiabatic & reaction), the determination of Thermophysical Properties, Rheology and Fire Testing, NETZSCH has it covered. Our 60 years of applications experience, broad state-of-the-art product line and comprehensive service offerings ensure that our solutions will not only meet your every requirement but also exceed your every expectation.

### Reception Sponsor

The logo for Phoseon Technology features a stylized, circular graphic on the left composed of several curved lines in shades of blue and purple, resembling a lens or a light source. To the right of the graphic, the word "Phoseon" is written in a bold, blue, sans-serif font, with "TECHNOLOGY" in a smaller, blue, uppercase, sans-serif font below it.

Starting from 2002 in Portland Oregon USA, Phoseon Technology started the LED revolution for both Industrial Curing applications and Life Sciences solutions. Building from our strong background in solid-state semiconductor devices, we utilize native diodes and Semiconductor Light Matrix™ (SLM) technology to manufacture LED systems. With over 300 patents worldwide, Phoseon has earned the reputation for technological innovation, quality and reliability. As the market leader with the broadest portfolio of UV LED units offerings for our key markets, we welcome the opportunity to work jointly with you in developing further innovative solutions.

### Lunch Sponsor

The logo for KRÜSS features a stylized, blue, curved graphic above the word "KRÜSS" in a bold, blue, sans-serif font. Below the name, the tagline "Advancing your Surface Science" is written in a smaller, blue, sans-serif font.

Advancing your Surface Science. As specialists in interfacial chemistry and the world's leading supplier of measuring instruments for surface and interfacial tension, we not only provide high quality product solutions – our offer is a combination of technology and scientific consulting. These include seminars and technical service as well as our Applications & Science Center for trainings and professional measurement services. Our exclusive distribution network and our locations in Hamburg (Germany), the US, China, and many more countries allow us to provide fast, flexible support for R&D labs and in quality control throughout the world. Our expertise, precision, and passion have already convinced many prestigious companies in countless industries.

### Sponsors

The logo for TCM features the letters "TCM" in a large, bold, red, sans-serif font. A stylized, black, curved graphic resembling a globe or a technical diagram is positioned behind the letters. Below the letters, the text "TECHNICAL CONFERENCE MANAGEMENT" is written in a smaller, black, uppercase, sans-serif font.

Technical Conference Management is an independent enterprise founded with the aim of organising and hosting technical and scientific conferences. We are striving to offer our customers conferences of the highest technical and scientific level in selected fields of interest.

The logo for Catenary Solutions features a stylized, green, curved graphic above the word "CATENARY" in a bold, green, sans-serif font, with "SOLUTIONS" in a smaller, green, uppercase, sans-serif font below it. Below the name, the tagline "LINKING TECHNOLOGIES AND MARKETS" is written in a smaller, green, uppercase, sans-serif font.

Catenary Solutions specialises in connecting technologies and markets to give a successful and profitable outcome. Combining deep technical knowledge with sound strategic marketing perspective and passion, Catenary Solutions works with companies to deliver added value in technology product commercialisation.

# Inkjet Academy

## The Theory of Inkjet Technology

Monday 23 – Tuesday 24 January 2023

### COURSE FOCUS

Understanding the basics is essential to any industry's development. The Inkjet Academy one-and-a-half day course covers the theory behind the many types of inkjet technology used today and aims to give your understanding of the industry an expert start.

The course will show you how printheads work, the materials used in their fabrication and the theory of their operation. You will also learn how inks are formulated and used, as well as about ink supply and support systems.

The course examines how drops are formed, travel and behave on the substrate surface. Fundamental aspects of printer operation such as nozzle maintenance and print quality are also covered.

The course assumes a basic scientific knowledge and is designed to provide useful background information for anyone entering the inkjet industry, seeking an update on today's technology or looking for further fields of development.

### Monday 23 January 2023

12.30 – 13.30 Registration

13.30 Course Begins

#### Introduction to inkjet

- Course overview
- Types of inkjet technology
- Drop on demand technologies
- Thermal and piezo inkjet
- Ink technologies: aqueous, solvent oil, phase change and UV cure
- Materials and ink formulations
- Evolution of inkjet markets
- Desktop and Industrial markets
- Inkjet patents

#### Industrial inkjet printheads

- Continuous inkjet
- Summary of current piezo printheads
- Properties and key features
- Drop ejection frequency, crosstalk, reliability and life issues
- Choosing a printhead starting from the application performance
- Printhead trends such as Si-MEMS/TFH

#### Inkjet inks

- Inkjet ink design
- Understanding the inkjet printing process
- Reliability
- Drop formation
- Properties influencing piezo inkjet ink performance
- Testing an ink for reliability: methods & characterisation
- Materials and dispersion theory

17.30 Session ends

### Tuesday 24 January 2023

08.30 Session Begins

#### Creating a reliable industrial inkjet system

- Integration issues
- System design
- Ink supply
- Nozzle maintenance
- Drop break-off and placement accuracy
- Drop impact and spread
- Mist control
- Factors affecting print quality
- Printhead-ink-substrate
- Greyscale methods
- Drop detection
- Banding, single pass issues
- Drying effects
- Missing nozzle detection
- Missing nozzle compensation

12.30 – 13.30 Break

13.30 Session begins

#### Industrial inkjet markets

- The digital proposition and benefits
- Industrial inkjet business model
- Infrastructure barriers to entry
- The inkjet successes
- The numbers
- Future "stars"

#### Challenges to create a successful industrial inkjet solution

- Textiles
- Packaging and labelling
- 3D printing
- Decorative surfaces
- Coatings
- Life sciences
- Electronics
- "Additive" manufacturing processes

#### Emerging Technologies

- Kodak Stream
- Memjet
- HP PageWide technology
- Landa Nanography
- Lead-free piezo
- Speed & resolution trends

17.30 Course ends

### COURSE LEADERS

#### Dr Mark Bale,

Director, DoDxAct, UK

Dr Mark Bale is the founder of DoDxAct Ltd in Somerset, United Kingdom where he consults in all aspects of inkjet R&D from ink formulation and manufacture through jetting & process integration to final application optimisation. His experience takes in production inkjet, wide-format graphics, labels & packaging, decorative surfaces, electronics manufacturing, product coding and 3D printing.



#### Dr Tim Phillips, Founder & Director

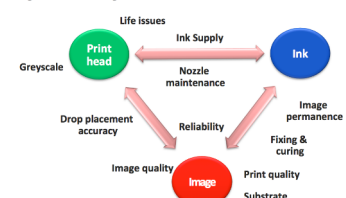
Catenary Solutions, UK

Tim Phillips has extensive experience in challenging inkjet integration projects, spending eight years working at Xennia Technology Ltd, the leading inkjet solutions company that was acquired by Sensient in 2015. This involved working with a wide range of companies developing technology for new applications including textiles, ceramics, packaging, décor and functional material deposition for printed electronics and biomedical uses. Tim founded Catenary Solutions in 2015 to bring this knowledge of digital solution development and marketing to a wider audience.



INK JET ACADEMY

### Ink jet is a system



Pretty much everything interacts with everything else



# Inkjet Ink Characterisation

## Viscosity, Dispersions, Jetting & Surfaces

Wednesday 25 – Thursday 26 January 2023

### COURSE FOCUS

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 course gives an excellent introduction to these essential areas of study, presented by industry experts from leading suppliers and institutions in the field. The course will give you the basic foundations as well as a more detailed understanding of the vital equipment and techniques.

### Wednesday 25 January 2023

08:00 - 09:00 Registration

09:00 Course begins

#### Jetting and print quality analysis

##### Kyle Pucci ImageXpert

- Introduction to drop analysis
- How is in-flight analysis used?
  - Drop formation
  - Reliability
  - Misting
  - Nozzle-to-nozzle consistency
  - Drop measurement
- Simple application examples
- Overview of techniques
- Fundamental measurements
- Practical demonstration
- Introduction to print quality analysis
- How is print quality analysis used?
  - Dot properties
  - Line properties
  - Solid area quality
  - Colour registration
  - Ink interaction
- Overview of techniques
- Practical examples

12:30 - 13:30 Lunch

13:30 Session begins

#### Basic property measurements - surface tension

##### Dr Thomas Willers, KRÜSS

- Surface tension - introduction
- Relevance to droplet formation and spreading in inkjet printing
- Interplay of surface tension and viscosity in drop formation
- Impacts on wetting
- How to optimise ink-substrate adhesion and spreading
- Interfacial rheology and its relevance to drying
- Theories and methods of measurement - compared and contrasted
- Application examples from inkjet industry

#### Optimising ink rheology for printing applications - Continued

##### Torsten Remmler, Netzsch

- Rheological test methods for inkjet inks and processes
- Practical examples

17:00 Session ends

### Thursday 26 January 2023

09:00 Session begins

#### Monitoring and controlling pigment particle size

##### Francisco J. López, IESMAT

- Understanding the links between particle size and ink performance
- Overview of light scattering techniques for measuring particle size
- Pros and cons of different measurement techniques and approaches
- Practical examples

#### Evaluating and improving dispersion stability

##### Francisco J. López, IESMAT

- Understanding stability mechanisms for ink dispersions
- Factors controlling stability – particle size, steric effects, zeta potential and viscosity
- How to make stable dispersions – selecting the right approach for your ink
- Practical examples

#### Assessing the impact of polymer structure on ink performance

##### Francisco J. López, IESMAT

- Understanding the role of polymers for inkjet applications
- Correlating polymer properties with polymer solution behaviour including viscosity
- Measuring molecular weight, molecular structure and intrinsic viscosity
- Practical examples

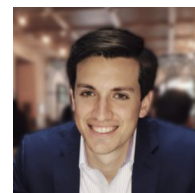
12:30 Course ends

### COURSE LEADERS

#### Kyle Pucci, Applications Engineering Manager

ImageXpert, USA

Kyle is Applications Engineering Manager at ImageXpert Inc. and lives in Nashua, NH USA. He graduated in 2014 from Villanova University with a BS in Mechanical Engineering. He specialises in integrating controllers and hardware with the JetXpert dropwatcher and offering support, installation, and training.



#### Dr Thomas Willers, Head of Applications & Science

KRÜSS, Germany

Dr Thomas Willers studied physics in Cologne and Barcelona. He received his PhD degree in experimental physics at the University of Cologne. In 2012 he joined KRÜSS GmbH at its headquarters in Hamburg where he is now head of the department for Applications & Science. He is responsible for the KRÜSS Application Labs as well as teaching activities and now has more than five years' experience in teaching surface science.



#### Torsten Remmler, Application & Sales - Rheometry

Netzsch, Spain

Torsten Remmler is an application and sales specialist for the rheometry product line at NETZSCH. He studied physics at the University Of Leipzig, Germany and has been working with rheology and supporting customers for over 25 years. Torsten specialises in a vast range of application areas, including inks, paints and coatings, foods and pharmaceuticals in addition to adhesives, asphalts and battery slurries.



#### Francisco J. López, Product Manager

IESMAT, Spain

Francisco is the product manager of ex-Malvern products in Spain. He has worked at IESMAT since 2014, where he started as an application specialist for particle size and separations techniques. He is an environmental scientist and his PhD was focused in developing and using green self-assembled supramolecular systems in analytical chemistry.



# Inkjet Drying & Curing

## Hardware & Chemistry For Fixing Inkjet Inks

Wednesday 25 - Thursday 26 January 2023

### COURSE FOCUS

The Inkjet Drying & Curing course is intended to cover all of the necessary hardware and ink chemistry for fixing inkjet inks. The course will cover drying of aqueous and solvent inks, comparing different possible methods and including near-infrared (NIR) drying, ultra violet light (UV) curing and electron beam (EB) curing. The course covers both hardware and chemistry in detail. The drying section will review the ink drying process, including adhesion, penetration into the substrate, rub resistance and print quality. The differences in behaviour on porous and non-porous media will be discussed.

Wavelength, absorption characteristics of inks, typical substrates and coatings will also be covered. The advantages and disadvantages of potential ink drying techniques will be reviewed.

The course gives an in-depth introduction to the UV curing process and its relevance to digital inkjet printing. The course introduces the fundamental chemistry and hardware required, assessing the pros and cons of each type available on the market. Finally the emerging technique of EB curing will be introduced, and its potential advantages reviewed.

### Wednesday 25 January 2023

08:00 - 09:00 Registration

09:00 Course begins

#### Drying aqueous and solvent inks

James Burbidge, Adphos Innovative Technologies

- Introduction
  - What is dry, and how dry is dry?
  - Ink makeup
  - Differences in inkjet heads and resulting chemistry
- The principles of:
  - Wetting & Setting
  - Absorption in Porous & non-porous Media
- Paper and ink characteristics
  - Spectral absorption of inks
  - Spectral absorption of paper
- Defining durability, liquid removal and measuring it
  - What are we measuring
  - Test procedures
- Comparison of systems
  - Drying processes
  - Dryer designs
  - Homogeneity due to focusing and airflow management
- Application examples
  - Machine layout and its influence

12:30 - 13:30 Break

13:30 Session begins

#### UV curing fundamentals

Rob Karsten, Phoseon Technology

- Introduction to UV curing
  - The UV curing process
- Characterising UV sources
  - Wavelength
  - Peak irradiance
  - Energy density
  - Air-cooled systems
  - Water-cooled systems
- Application areas
  - Full cure
  - Pinning
  - Low migration
- Benefits of UV curing
- Latest advances in UV technology

17:00 Session ends

### Thursday 26 January 2023

09:00 Session begins

#### UV cure chemistry

Dr Stuart Palmer, IGM Resins

- UV cure mechanisms
  - Free radical
  - Cationic
- Photoinitiator chemistry
- Monomer chemistry
- Oligomers and additives
- Curing issues
  - Oxygen inhibition
  - Other issues
- Print quality effects with UV inks

#### UV curing considerations

Dr Tim Phillips, Catenary Solutions

- Physics of UV curing
- UV source comparison
- Safety considerations
- Integration challenges
  - Heat management
  - Stray UV
- Oxygen inhibition
- Single pass/multipass systems

#### Electron beam curing

Donal O'Sullivan & Adam Strevens, Sherkin Technologies & i4inkjet

- Introduction to electron beam (EB) curing
  - The EB curing process
  - Chemistry and physics
  - EB Sources
    - Lamps
    - Systems
- Characterising EB Sources
  - Beam current
  - Dose
  - Voltage
  - Power
- Application areas
  - Conventional printing
  - Inkjet printing
  - Coating and varnishes
  - Migration results
- Benefits of EB curing
- Comparison with UV technology
- Future perspectives

12:30 Course ends

### COURSE LEADERS

**James Burbidge, Technical Director Europe - Print Technology**

Adphos Innovative Technologies, Germany



James has had much experience in his many years in the digital printing field. He now enhances the performance & productivity of production lines by integrating Adphos technology into the process.

**Rob Karsten, Regional Director EMEA**

Phoseon Technology, USA



Rob Karsten is the Regional Director EMEA for Phoseon Technology, the world leader in UV LED technology. He has been with Phoseon from the beginning and has been responsible for building their business in Europe.

**Dr Tim Phillips, Founder & Director Catenary Solutions**



Tim has extensive experience in challenging inkjet integration projects, developing technology for new applications including textiles, ceramics, packaging, décor and functional material deposition for printed electronics and biomedical uses.

**Dr Stuart Palmer, Sales Manager**

IGM Resins, UK



Stuart worked in UV-curing technology at Autotype and Fujifilm SIS. He then spent 10 years working in chemical distribution. He joined IGM Resins, a company dedicated to producing raw materials for UV curing, in 2008.

**Donal O'Sullivan, Managing Director**

Sherkin Technologies, UK



Donal has extensive experience in the implementation and support of electron beam-based processes. He has been steering electrons to deliver industrial solutions in food packaging, flexible electronics, medical devices, and semiconductors, for over 25 years.

**Adam Strevens, Director**

i4inkjet, UK



Adam has previously worked at Cambridge Display Technology Ltd. and Xaar Plc. He is now Director of i4inkjet Ltd. which provides the inkjet industry patent review service 'Directions' and offers inkjet consultancy under 'Pivotal inkjet resources'.

# Inkjet Inks: Materials & Applications

## Inks and Materials for Digital Applications

Thursday 26 – Friday 27 January 2023

### COURSE FOCUS

Building on the back of the success of wide format graphics applications, industrial inkjet printing has penetrated many market areas by utilising a wide range of different ink chemistry approaches.

This course gives an overview of the different ink platform technologies in use today, with an emphasis on practical aspects of materials selection and optimisation for the low viscosity requirement of inkjet printing. Looking from the application viewpoint the potential ink solutions are compared and contrasted. Key issues surrounding the integration of inkjet ink technology into industrial printing within a production environment are also considered.

The course is aimed at developers wishing to adopt inkjet technology in their industrial production processes, or those who are already skilled in one area and are looking to understand the wider potential of inkjet chemistries available.

### Thursday 26 January 2023

12:30 - 13:30 Registration

13:30 Course begins

#### Introduction & context

- How inkjet ink has evolved
  - Sustainability & the drive back to water
- The modern process
  - Ink as the enabling technology
- Market considerations
  - OEM versus aftermarket supply
- Basic ink chemistry comparison
  - What's inside
  - The influence of the printhead
- Making sure it's right
  - Checking the basic properties

17:00 Session ends

12:30 - 13:30 Lunch

13:30 Session begins

#### Application examples – ink selection

- Practical examples of ink selection by application area, e.g.
  - Wide format graphics
  - Production print
  - Textiles
  - Ceramics
  - Decor
  - Corrugated board & paper packaging
  - Flexible (plastic) Packaging
  - Electronics
  - 3D printing
  - Electronic Materials

17:00 Course ends

### COURSE LEADER

**Dr Mark Bale, Director**  
DoDxAct, UK

Mark Bale is the director of DoDxAct, an inkjet technology consultancy specialising in process engineering, head-fluid optimisation and laboratory prototyping of inkjet processes for a range of industrial applications. He received his MPhys in physics (1997) and his PhD in Nanoscale Physics (2001) both from the University of Birmingham. Having worked in Sun Chemical's UK Inkjet R&D Labs for 10 years he brings ink expertise and process knowhow to the application of ImageXpert laboratory equipment to solve real life inkjet printing challenges.

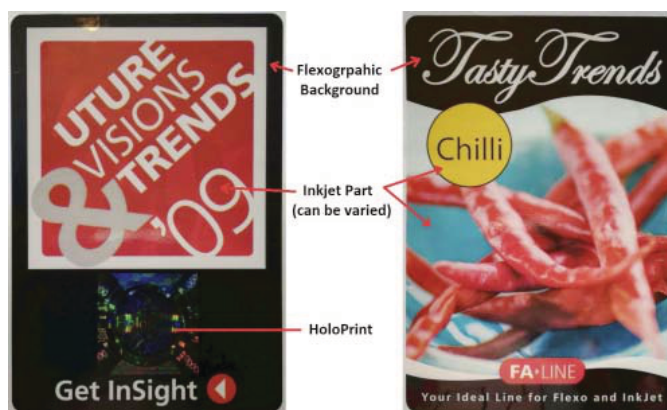


### Friday 27 January 2023

09:00 Session begins

#### Ink types & materials choices

- Radiation-curable
  - The ubiquitous all-rounder
  - Focus on free radical UV
- Aqueous
  - Function takes over from simple colours
- Solvent
  - From hard CIJ inks to 'Eco' graphics
- Oil
  - A good option for absorbing substrates
- Hot-melt
  - A great route to process resilience
- Hybrids
  - Clever chemistry as the best of both worlds





# Digital Textile Printing

## Applications, Ink Chemistry & Integration

Thursday 26 – Friday 27 January 2023

### COURSE FOCUS

Over the last decade, digital textile printing using inkjet technology has been introduced and is growing rapidly, especially for apparel printing. Many of the technical and material challenges have been overcome and the increasing emphasis on cost saving, manufacturing flexibility and following market trends is generating a surge of interest.

This course will give an overview of the industry - the markets, applications and technology. The overall market dynamics and technology requirements for each digital textile application will be described. The required ink chemistries will be reviewed and their use in inkjet printheads and pre- and post-processing requirements detailed. Integration of inkjet technology within a production environment will also be considered, as well as the challenges of inkjet system design to make the process production-compatible.

### Wednesday 25 January 2023

12:30 - 13:30 Registration

13:30 Course begins

#### Digital textile printing market and applications

**Dr Tim Phillips, Catenary Solutions**

- Segmentation of the market - home textiles, apparel, industrial applications & soft signage
- Growth of digital textile printing in the different segments
- Applications and key players
- Market developments under the influence of digital inkjet printing technology
- Business drivers
- Sustainability
- Future directions

17:00 Session ends

### Thursday 26 January 2023

09:00 Session begins

#### Digital textile inks

**Dr Simon Daplyn, Sun Chemical**

- Materials selection
- Dyes vs pigments
- Designing ink for industrial printheads
- QC and performance
- Application requirements
- Inkjet printing process
- Designing for digital
- Ink and fabric selection
- Processing requirements
  - Fabric preparation
  - Fixing
  - Washing
- Colour characteristics (ink and print)
- Ink maintenance and support requirements

12:30 - 13:30 Lunch

13:30 Session begins

#### Integration for digital textile printing

**Dr Tim Phillips, Catenary Solutions**

- Hardware integration
- Printhead technologies
- Printhead choices
  - Suppliers
  - Performance
  - Life issues
- System design
  - Ink supply systems
  - Nozzle maintenance
  - Designing for reliability
- Architecture options
- Printhead motion systems
- Web handling and textile transport
- Testing
- Print quality

17:00 Course ends

### COURSE LEADERS

**Dr Simon Daplyn**

Product Marketing Manager, Sun Chemical, UK

Dr Simon Daplyn joined Sun Chemical in July 2020 as part of the acquisition of Sensient Imaging Technologies and is responsible for management of product and marketing output.

Having worked in digital print for over 15 years, Simon has been responsible for development, commercialization, sales and marketing of a wide range of digital textile inks. Simon has been involved in digital textiles in some capacity for 20 years.



**Dr Tim Phillips, Founder & Director**

Catenary Solutions, UK

Tim Phillips has extensive experience in challenging inkjet integration projects, spending eight years working at Xenia Technology Ltd, acquired by Sensient in 2015. This involved working with a wide range of companies developing technology for new applications including textiles, ceramics, packaging, décor and functional material deposition for printed electronics and biomedical uses. Tim founded Catenary Solutions in 2015 to bring this knowledge of digital solution development and marketing to a wider audience.





## How to register

Please register on-line via our website:  
[www.imieurope.com](http://www.imieurope.com)

Registration for **the IMI Europe Inkjet Winter Workshop is priced per person, per course**, with discounts available if more than one ticket is booked at the same time.

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

Number of Tickets	Price Per Ticket
1	€ 895
2	€ 795
3	€ 735
4	€ 685
5	€ 650
6	€ 620
7	€ 595
8	€ 575
9	€ 560
10	€ 545

## Discounts

If you would like a quotation please email [enquiries@imieurope.com](mailto: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. on or before 3 January 2022). 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.

## Venue

The IMI Europe Inkjet Winter Workshop 2023 will be held at the Hotel Primus Valencia in Valencia, Spain. The Hotel Primus Valencia is located in a privileged enclave next to the City of Arts and Sciences and the Turia Gardens, in the most modern commercial area of Valencia and very close to the beaches and Marina Real and just 3 km from the centre of the city of Valencia.

The IMI Europe Inkjet Winter Workshop is a non-residential course, so accommodation is the responsibility of individual delegates. We have reserved a block of rooms at the Hotel Primus Valencia at a preferential rate for event delegates of €110 per night. Rates include breakfast and WiFi.

To book your accommodation at the hotel with the special rate please see the [venue page](#) on our website for instructions.

## Hotel Primus Valencia

Carrer de Menorca, 22  
46023 València  
Valencia  
Spain  
Tel: +34 963 31 84 74  
Email: [reservas@hotelpriusvalencia.com](mailto:reservas@hotelpriusvalencia.com)



## 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
<b>Monday 23 January</b>						Registration	Inkjet Academy				Reception	
							Inkjet Colour Management					
<b>Tuesday 24 January</b>		Inkjet Academy				Lunch	Inkjet Academy					
		Inkjet Colour Management					Inkjet Colour Management					
<b>Wednesday 25 January</b>	Registration	Inkjet Ink Characterisation				Lunch	Inkjet Ink Characterisation				Reception	
		Inkjet Drying & Curing					Inkjet Drying & Curing					
<b>Thursday 26 January</b>		Inkjet Ink Characterisation				Registration	Inkjet Inks: Materials & Applications				Reception	
		Inkjet Drying & Curing					Digital Packaging Printing					
<b>Friday 27 January</b>		Inkjet Inks: Materials & Applications				Lunch	Inkjet Inks: Materials & Applications					
		Digital Textile Printing					Digital Textile Printing					