

About this workshop

This workshop, held in conjunction with the polymer section of the Materials Knowledge Transfer Network, brings together the laser and the broader polymer communities.

Polymer-based materials are widely used in many forms – films, sheets, mouldings, extrusions, fibres, laminates, textiles, coatings, composites etc, with applications across a broad range of industries. Lasers are used for joining, cutting, machining and surface modification (including marking) of polymers; and the last few years have seen major developments in laser types and beam delivery. It offers a comprehensive review of recent developments in laser processing of polymers and, through many examples of new and improved applications, new opportunities in the context of 21st century manufacturing needs.



Courtesy of EOS

The laser community of manufacturing users, researchers, and product and service suppliers in the UK established the Association of Laser Users (AILU) in 1995 to help industry make the best use of laser technology. The highly successful AILU workshops epitomize this effort, providing every opportunity for workshop delegates to ask questions and engage in discussions with the presenters and with one another. The presentations, combined with generous lunch and refreshment breaks and a tabletop exhibition have been combined in a programme designed to give maximum opportunity for networking between the laser and the broader polymer communities

Ian Jones Workshop Chair



Ian Jones has been at TWI for 21 years working in the Laser Group and Polymer Group, where he introduced laser processing of polymers. He has worked on a wide range of laser processing applications. He invented and developed the Clearweld® process, which can be used to join plastic parts and fabrics without altering the colour or appearance of the product. He has also managed many collaborative projects for the advancement of laser processing in European industry.

Who should attend?

Delegates to this workshop will include industry and polymer specialists, and users and researchers in laser materials processing. The benefits of attending are particularly great for:

- Engineers and Managers from manufacturing industry looking to improve product and/or production capabilities, considering expansion into promising new manufacturing areas or simply wishing to keep abreast of the latest developments. Key industries include: Bio-technology, Chemical, Clothing and Footwear, Communications, Defence, Electrical equipment, Electronics, Food and drink, Healthcare, Medical, Pharmaceuticals, Polymer, Sensors, Transportation.
- Strategists in manufacturing wishing to be appraised of new opportunities for lasers in polymer-based manufacturing
- Researchers in materials and laser materials processing wishing to review the current status and new developments in polymer processing with lasers.



Courtesy of Engineer Live

Information for delegates

Venue

The workshop will be held in the theatre room, Institute of Materials, Minerals and Mining The Boilerhouse, Grantham NG31 7FZ



Delegates

On arrival you will receive a delegate pack containing a name badge and essential notes for the day, including a detailed programme and a delegate list. The pack will also include a name and password for downloading PDFs of the presentations, which will be made available on the AILU web site as soon as possible after the event.

A buffet lunch (including vegetarian options) will be provided together with refreshments throughout the day. Please advise us of special dietary needs.

Exhibitors

The exhibition, refreshment and lunch breaks will all take place in the Lower Gallery, which is at ground level and near the main entrance. It is adjacent to the theatre room, where the programme of presentations is being held.

Access to the exhibition area is available on the afternoon of the previous day and from 08:30 on the day. Exhibitors can park adjacent to the building. You can bring your own 'pop up' display (ceiling height 3 m) or backboard. Tables (approximately 6 ft by 2 ft) and a limited number of backboards are available, bookable (free) in advance. Limited 240V mains power will be available.

Registration

To register for the event AILU members need only give their name by phone or email (courses@ailu.org.uk). Non members should complete the registration form attached and post/fax it to the AILU office.

AILU members and members of supporting organisations for this event receive a discount. Delegates who pay the full price and who decide to join the Association within 10 weeks of the event will receive this discount on their first year's corporate membership subscription. For further information on membership go to www.ailu.org.uk and look for the link to 'about us'.

Travel

Grantham is an extremely accessible destination: whether via the A1, a 60-minute rail journey from London (GNER), or through flights into Nottingham East Midlands airport (35 miles).

Air: The Boilerhouse is about 1 hour's drive from East Midlands Airport.

Rail: Grantham mainline railway station is nearby, with its frequent links to London and connections along the main East Coast line. Taxis are available at the station.

Car: There are ample car parking facilities at the Boilerhouse and also at neighbouring Springfield House.

For SatNav use postcode NG31 7BG.

Accommodation

The Belton Woods Hotel Nr Grantham NG32 2LN (5 miles from venue, T: 01476 593200) offers a special rate of £79 B&B, To book phone central reservations 0844 9809950 and quote "IOM cubed".



Globo welding Courtesy of Leister



Lasers in 21st Century Manufacturing: Working with Polymers

Techniques and applications for macro to micro-scale surfacing, volume processing and additive manufacture

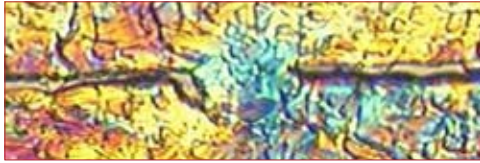
Thursday 9 December 2010

Institute of Materials, Minerals and Mining Conference Centre, Grantham

Supported by:



Programme



Micro weld

Courtesy of TWI

09:15 - 10:00 Registration and refreshments

10:00 - 11:10 Session 1: Applications of macro and fine processing of polymers

Welcome
Ian Jones Chair, TWI Cambridge

An introduction to polymers and lasers for processing
Sam Rostami Consultant

Manufacture with plastics: Who needs lasers?
Jim Methven Manchester University

Laser processing of carbon fibre reinforced composite
Paul French Liverpool John Moores University

Laser surface treatment of polymeric materials for enhanced cell response
David Waugh Lincoln University

11:10 - 11:40 Refreshments and EXHIBITION



Flexible Photovoltaic Solar cell

Courtesy of PhotoMachining Inc.

11:40 - 12:50 Session 2: Micromachining of polymers

Keynote presentation

Laser Micro-machining of Polymers: Current Medical Device, Aerospace/Defence and Renewable Energy Applications

Ronald Schaeffer PhotoMachining Inc, USA

An overview of lasers as used in some of the exciting and high growth fields of 21st Century manufacturing, exploiting the otherwise unattainable resolution, precision, quality and affordability.

Ronald is CEO of PhotoMachining, Inc. He has been involved in laser manufacture and materials processing for over 20 years



Programme

Excimer lasers for microprocessing of polymers
Ralph Delmdahl and Heiner Eckermann
Coherent GmbH, Germany

New tools and applications for polymer micromachining
Paul Apte Rideo systems

12:50 - 14:00 Lunch & EXHIBITION



Polymer stent

Courtesy of Blueacre Technology

14:00 - 15:15 Session 3: Joining and additive manufacturing

Laser micro-welding of polymers
Aurelie Tolton TWI Cambridge

Manufacture of polymer textiles
Stuart Jackson EOS Electro Optical Systems

Speaker to be confirmed

Closing remarks and open discussion
Ian Jones TWI Cambridge

15:15 Refreshments and departure



Plastic textiles

Courtesy of EOS and De Montfort University

Design for Laser Manufacture

For pictures, videos and technical information about laser processing of polymer components visit AILU's website at: www.designforlasermanufacture.com

Search for 'plastics' and scroll a long list of pictures, presentations and documents.



Delegate registration form

Working with Polymers, 9/12/2010

Name:
Title & initials First name Surname

Position:

Organisation:

Address:

Post Code:

Tel: Fax:

E-mail:

Payment options

Please invoice me

I wish to pay in advance by:
1. Bank cheque in £ Sterling, payable to AILU
2. Visa/Mastercard (billing in GBP):
Name on Card

Number _____ Exp ___/___
Please debit my account

Delegate/exhibitor options

I wish to register as a delegate. The applicable rate is:
 GBP 142.00 (= £166.85 incl. VAT)
Discounted rate for members of AILU or (please tick):
 Materials KTN IOM3³

GBP 75.00 incl. VAT I am unemployed or retired. GBP 50.00 incl. VAT I am a full time student.

GBP 175.00 (= £205.63 incl. VAT)

I wish to register as an exhibitor. Please reserve me:
 Space only A table A backboard
The applicable rate is:

GBP 135.00 (= £158.63 incl. VAT)
I am a member of AILU or one the supporting organisations ticked above.

GBP 175.00 (= £205.93 incl. VAT)

I wish to register as a delegate and exhibitor.
Please give me a **£50 (+ VAT) discount** on the total fee.

Earlybird registration
10% discount for applications received before 25 November

Signed: Date:

Cancellations will be accepted up to 1 week before the event; otherwise the full fee may be charged.

Return completed form to:
AILU Oxford House 100 Ock Street Abingdon OX14 5DH
T: +44 (0)1235 539595 F: +44 (0)1235 550499