

Dear Colleague

It is a pleasure to invite you to participate in this annual event, which is being held for the first time at the University of Birmingham and is co-organised by the EcoLaserFact project (www.ecolaserfact.eu). It will bring together a wide range of industrial users, suppliers of laser-based equipment and researchers in laser technology and applications, to network and to review the latest innovations in micro and nano-scale laser processing and the opportunities that it is creating.

The UK has a strong background in micro-machining, both on an academic and laser source/system integration level, and interest in applications of laser micro processing continues to grow in the UK. For example, at the last Industrial Laser Applications Symposium (ILAS 2013), a full six out of the 16 technical sessions were devoted to micro and nano-scale processing and their applications! AILU's Micro & Nano Special Interest Group was set up to represent the interests of this section of the Laser Materials Processing community, and the annual laser micro and nano-processing workshop is its main activity.

Whether driven by the quest for higher efficiency or from the desire for greater functionality from the same thermal and/or physical footprint of device; the solution is almost invariably to shrink the feature sizes. Pulsed laser-processing - in particular using short and ultra-short pulse lasers - is increasingly becoming the tool of choice; a technology that provides an increasingly cost-effective route to achieving the necessary micro and nano-features, from profiled cooling holes to large area textured surfaces. Staying abreast of the developments in this enabling technology is key to maintaining a competitive edge.

This year's event in the School of Mechanical Engineering at the University of Birmingham also provides an opportunity to see some of the newly established laser micro-processing facilities and work in progress.

Jack Gabzdyl
Workshop Chair

Stefan Dimov
Host and co-organiser



Dr Jack Gabzdyl is Product Line Manager for ns pulsed lasers at SPI Lasers. He has over 25 years of laser materials processing experience.



Prof Stefan Dimov is Professor of Micro Manufacturing in the School of Mechanical Engineering at the University of Birmingham.

Is this event for me?

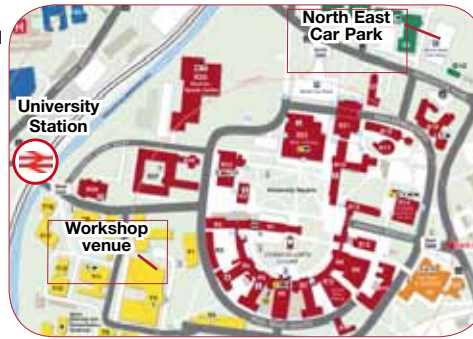
The organisers have assembled a formidable programme of speakers to present the current state of the art to delegates. The wide scope of speakers, from academic researcher to industrial user, guarantees something for everyone in the laser user and supplier community, from beginners to experts. You will gain an appreciation of current state of the art and product developments and the opportunities that laser-based micro-nano processing offers.

Networking Opportunities

One of the key features of an AILU workshop is the opportunity it provides for delegates to meet with the presenters and with one another: a comfortable environment, generous lunch and refreshment breaks, and a table top exhibition. This particular event provides an opportunity to keep up to date with the latest developments in laser micro-manufacturing and to visit research facilities. Whether an expert or novice, an engineer, research scientist or a manufacturing manager, it presents a valuable learning and networking opportunity and a chance to generate new ideas and valuable contacts.

Venue

The workshop will be held in lecture theatre G 34 and in the adjacent Shell Lounge of the Mechanical and Civil Engineering Building, Edgbaston Campus, University of Birmingham. (Building Y3 on the campus map: downloadable from the AILU event page). The closest entrance is E1: see map.



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 user name and password for downloading PDFs of the presentations, which will be made available on the AILU website 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 any special dietary needs.

Exhibitors

The exhibition, together with lunch and mid-morning refreshment breaks, will take place in the Shell Lounge. You can temporarily park outside the Mechanical and Civil Engineering Building to unload (Use entrance E1: see map). Access will be available from 07:30 on the day. The exhibition will start at the first refreshment break (10:10) and end at completion of the lunch break (13:00).

You can bring your own display stand and backboard; or you can opt to have a table. Mains power will be provided to all tables.

Registration (delegates and exhibitors)

To register for the event please complete the registration form on this flyer or, if you are a member of AILU or have attended workshops previously, simply phone or email your intention and we will register you and send an invoice later. Alternatively, you can register and pay online at www.regonline.co.uk/170914AILU.

AILU members and members of supporting organisations receive a registration discount for this event. 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

Rail is strongly recommended for this event

Most cross-country services to Birmingham arrive at New Street Station, from where up to six trains an hour depart for the University Station stop on the cross-city line (a ten minutes ride, final destination Longbridge or Redditch). The venue is only a short walk from University Station (see above).

Air: Birmingham airport, then taxi (30 min) or train (via. New Street station).

Car: Use visitors' car parking (North East car park is advised: access via Pritchatts Road, Sat Nav Postcode B15 2SA: a 10 min walk from the venue).

Accommodation

See the AILU web site event page for a list of nearby hotels and guest houses.

AILU reserves the right to alter the programme or cancel the meeting at short notice and accepts no responsibility for the views expressed by the speakers or delegates.

Courtesy of Fraunhofer ILT



Laser processing for micro and nano-scale manufacturing: technology and application advances

Presentations, exhibition & tour

Wednesday 17 September 2014
University of Birmingham

Supported by:



Programme



50 µm thick S/S mesh (struts 50 µm x 1.6 mm across flats) Courtesy: Laser Micromachining Ltd

08:15 - 09:00 Registration and refreshments

09:00 - 10:15 Session 1

Welcome

Stefan Dimov University of Birmingham

Introduction to the day

Jack Gabzdyl Chair, SPI Lasers

Invited presentation

High power ultrashort laser processing with innovative optical systems

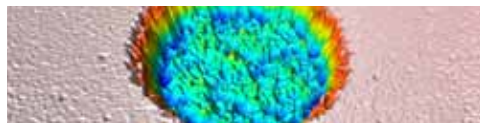
Arnold Gillner Fraunhofer Institute for Laser Technology, Germany

Laser manufacturing - shortening the time to market for micro-products

Nadeem Rizvi Laser Micromachining Ltd

Using lasers for a modern Assay Office

Will Evans Goldsmiths' Company Assay Office



Laser machined dimples to reduce friction Courtesy: National Physical Laboratory

10:15 - 10:45 Refreshment break & EXHIBITION

10:45 - 12:05 Session 2

Invited presentation

Multi-scale characterisation of laser textured surfaces

Richard Leach National Physical Laboratory

Nano-materials and micro-laser processes for the manufacture of large area and flexible electronics

Phil Rumsby M-Solv Ltd

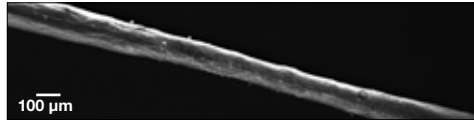
Laser micro processing for industrial applications: Some successful examples and on-going R&D projects

Jose Ramos Lasea, Belgium

Machining with ps-lasers and seeder burst - why ps-laser pulses add value

Dirk Mueller Coherent Kaiserslautern GmbH, Germany

12:05 - 13:05 Lunch & EXHIBITION



Carbon nanotube-based wire Courtesy: University of Cambridge

13:05 - 14:30 Session 3

Invited presentation

Laser modification of carbon nanotube-based wire for enhanced electrical properties

Bill O'Neill Cambridge University

Selective ablation of very thin coatings from substrates using short and ultra-short repetitively-pulsed laser sources

Gerard O'Connor National Centre Laser Applications, Ireland

New opportunities for nano and micro laser processes

Duncan Hand Heriot Watt University

Laser micro processing modules: component technology in high throughput manufacturing platforms

Pavel Penchev University of Birmingham

14:30 End of presentations



Picosecond machining of materials Courtesy: Coherent GmbH

14:30 - 14:45 Refreshment break

14:45 - 15:20 TOUR and departure

TOUR: Research in laser processing

The School of Mechanical Engineering's newly established research group in laser processing has state-of-the-art laser micro machining and characterisation equipment including a Lasea Multi-Axis Laser Micro Machining Centre and an Alicona G4 InfiniteFocus system.

The aim of the group is to carry out internationally leading research in advanced laser processing with a focus on surface structuring, texturing and polishing of complex 3D components in a wide range of metallic and non-metallic alloys and compounds. Current activities include the design, implementation and testing of reconfigurable laser micro processing platforms for structuring, texturing and polishing of 'large' surfaces.



Registration:

Lasers micro and nano processing

17 September 2014

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/Euro cheque in £ Sterling or EURO, 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:
- £160.00 (= £192.00 incl. VAT)
- I am a member of AILU or one the paying member-based supporting organisations:
- EcoLaserFact Birmingham University Institute of Physics Sepnet

- £65.00 (= £78.00 incl. VAT) £45.00 (= £54.00 incl. VAT)
- I am unemployed or retired. I am a full time student.

- £195.00 (= £234.00 incl. VAT)

- I wish to register as an exhibitor. Please reserve me:
- Space only A table A table and backboard

- The applicable rate is:
- GBP 155.00 (= £186.00 incl. VAT)
- I am a member of AILU or one the supporting organisations ticked above.
- GBP 195.00 (= £234.00 incl. VAT)

- I wish to register as a delegate and exhibitor.
Please give me a £50 plus VAT discount on the total fee.

Signed: Date:

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

Please return completed form to the AILU office by FAX (+44 (0)1235 550499) or mail to AILU, 100 Ock Street, Abingdon, Oxon OX14 5DH, UK