About this workshop

Laser technology is vitally important in the micro and emerging nano-engineering fields, providing high-resolution, accuracy, speed and flexibility; in particular, its utilisation in the engineering of micro features is key to the technical and commercial success of many mass-produced components ranging from photovoltaic cells and panels, inkjet print heads and flat panel displays, to MEMS components, circuit fabrication and micro-hole drilling.

In this annual workshop, industrial users of laser processing technology, suppliers of laser-based equipment and researchers in new laser technology come together to present their applications. This year's workshop is run in collaboration with NWLEC, a Northwest Science Fund project managed by the Universities of Liverpool and Manchester. A second day (5 June) meeting run by NWLEC and NWPA will concentrate more on research activities; both events benefiting by the proximity and enhancing the networking opportunities that each will provide.

Malcolm Gower Workshop Chair

Malcolm Gower has had a long career in applied laser research, first in the USA and then at the Universities of Oxford and Reading and the Rutherford Appleton Laboratory. From 1984 to 2006 he was Chairman and Technical Director of Exitech. In 2007 he founded Nanophoton Technologies where he provides expert consultancy services to the micro/nano community worldwide. He is a Fellow of the IEE, the IoP and in 1993 was awarded an MBE for his services to industrial laser development.

An Opportunity

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, a table top exhibition and a clinic - a quiet area for prearranged meetings for delegates who would like to meet one of the speakers to discuss particular issues with to ask questions that they prefer to raise in confidence.

Who should attend?

The wide scope of this event means that there is something for everyone in the laser user and supplier community, from beginners to experts. The workshop nature of the meeting provides many opportunities for delegates to discover the interests and concerns of others in the laser micro-processing community and to establish valuable links.

NWLEC

The North West Laser Engineering Consortium aims to position the North West as the leading region for laser engineering. NWLEC brings together Liverpool and Manchester universities to undertake research and develop laser capabilities in micro and nano applications for the benefit of UK industry.

The NWLEC consortium facilitates the pooling of talent and resources of the two university groups, thereby enabling them to continue to be the UK's largest academic players in laser processing research.

Venue

Daresbury Laboratory employs around 550 staff. Facilities include the STFC Synchrotron Radiation Source (SRS), the Medium Energy Ion Scattering Facility and the National Centre for Electron Spectroscopy and Surface Analysis. A tour of the SRS will take place after the presentations.

Delegates

Registration and presentations will take place in the Merrison lecture theatre on the ground floor of 'A' block. On the day the delegates will receive a name badge, essential notes for the day, together with a CD of key slides or presentation notes. A buffet lunch (including vegetarian options) will also 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 and afternoon refreshment breaks, will take place in the reception building ('B' block) atrium, a short walk from the Merrison Lecture Theatre. The Atrium is on the first floor and can be accessed by lift or stairs.

Table tops of 910 x 1820 mm will be provided and poster boards on request. Some single phase power will be available throughout the exhibition area. The area will be open from 08.00 for exhibitors wishing to set up their tables before registration. Earlier entry can be arranged on request.

Registration

Delegates and exhibitors who are AILU members need only phone or email their names; otherwise a registration form should be completed.

AILU members and members of supporting organisations for this event receive a registration 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. Further information on membership can be found at www.ailu.org.uk, taking the link to 'about us'.

Clinic

A selection of experts will be available for one-to-one technical and/or commercial discussions over most of the lunch period. Places can be reserved upon arrival or pre-booked at the AILU office.

Travel

Full address: Keckwick Lane, Daresbury, Warrington, WA4 4AD

Daresbury Laboratory is 5 miles south west of Warrington and 5 miles east of Runcorn, both of which are well served by train. It is located 1 mile down the A56 from junction 11 of the M56 motorway, which connects to the national motorway network via the M6 (6 miles east). Manchester International Airport is approximately 30 minutes away by car.

There is a link to directions and maps on the AILU web site events page.

Accommodation

There are a number of 4-star and budget hotels in the area, but all require transport to the laboratory. A list with web links is provided on the AILU web site events page.

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.

Title page picture courtesy of Laser Micromachining Ltd

www.ailu.org.uk

the association of AILU laser users

Industrial and research opportunities in laser micro and nano processing

Presentations, exhibition & clinic

Wednesday 4 June 2008

Daresbury Laboratory, Warrington

Supported by:

nwlec · Photonics Knowledge Transfer Network · UK Displays & Lighting Knowledge Transfer Network · Welsh Opto-Electronics Forum / Fforwm Opto-Electronig Cymru · NW Photonics Association · IOP Institute of Physics

Programme

08:30 - 09:15 Registration and refreshments

Courtesy Laser Micromachining

09:15 - 10:45 **Session 1**

Welcome and introduction
Malcolm Gower Nanophoton Technologies

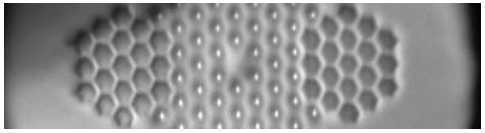
Invited speaker:
Large scale laser micro-structuring of gravure print rollers
Guido Hennig MDC Max Daetwyler AG (Switzerland)

Forming, production of micro and nano-scale components
Bill O'Neill Cambridge University

Laser-assisted manufacturing for emerging micro-technology sectors
Nadeem Rizvi Laser Micromachining

High throughput parallel micro-machining using a femto-second laser
Walter Perrie NWLEC

10:45 - 11:15 Refreshment break



Courtesy OpTek Systems

11:15 - 12:50 **Session 2**

Fibre laser with complete parametric control for micro-machining applications
Richard Murison Pyrophotonics, Canada

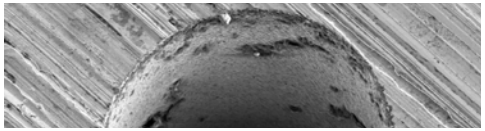
Midaz micro-slab DPSS lasers: higher power and pulse rates for higher speed micro-machining
Mike Damzen Midaz Laser

Near field imaging for sub-wavelength processing
Zengbo Wang NWLEC

Micro-machining of glass and other transparent materials with nano, pico and femtosecond lasers
Martyn Knowles Oxford Lasers

Laser processing of micro-optics
Mike Osborne OpTek Systems

12:50 - 13:50 Lunch & EXHIBITION



Courtesy Trumpf

13:10 - 13:40 Clinic

13:50 - 15:25 **Session 3**

Brief insight into Rolls-Royce laser manufacturing technologies
Clive Grafton-Reed Rolls-Royce

Industrial micro-machining with high average power picosecond lasers
Sascha Weller Trumpf

Applications of laser direct-write freeform refractive micro-optics
Roy McBride PowerPhotonic

Laser applications in photovoltaics
Heather Booth Oerlikon

CW fibre laser production of nano-particles
Amin Abdolvand NWLEC

15:25 Refreshments and **TOUR**

TOUR: Synchrotron Radiation Source

The Daresbury Synchrotron Radiation Source (SRS) is a world class facility dedicated to the exploitation of Synchrotron Radiation for fundamental and applied research. It offers a large mix of experimental facilities which deliver radiation extending from the infrared to hard X-rays.

For 25 years the SRS has been a leading worldwide installation used internationally for research. It forms part of a centre for engineering excellence in instrumentation, high vacuum engineering and super-clean technologies. There will be the opportunity during the tour to develop collaborations with those working at the facility and to see the Accelerators and Lasers In Combined Experiments (ALICE) project. The free electron laser source is used in many areas such as biology, biomedicine, physics, materials science, chemistry and environmental science.

www.ailu.org.uk

Registration Form
Opportunities in laser micro and nano processing
4 June 2008

Delegate information

Title 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

❏ I wish to register as a delegate. The applicable rate is:
❏ GBP 142.00 (= £166.85 incl. VAT)
I am a member of AILU and/or one of the supporting organisations:
❏ Photonics KTN ❏ Display and lighting KTN ❏ Institute of Physics
❏ NWLEC ❏ WOF ❏ NWPA

❏ GBP 65.00 incl. VAT
I am unemployed or retired.

❏ GBP 40.00 incl. VAT
I am a full time student.

❏ GBP 175.00 (= £205.62 incl. VAT)

❏ I wish to register as an exhibitor. Please reserve me a table.
The applicable rate is:
❏ GBP 135.00 (= £158.62 incl. VAT)
I am a member of AILU or one the supporting organisations ticked above.

❏ GBP 175.00 (= £205.62 incl. VAT)

❏ I wish to register as a delegate and exhibitor.
Please give me a GBP 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.

Complete the form and return by fax or post.
AILU, 100 Ock St, Abingdon, Oxon OX14 5DH UK.
Fax: +44 (0)1235 550499