About this workshop

It is my great pleasure to invite you to attend this workshop on recent progress in laser materials processing technology innovations and industrial applications, particularly for high valued added products. The UK has a wealth of laser processing scientific knowledge, new materials processing technologies and a strong industry base to explore them; and this workshop provides an opportunity for the scientists, researchers and industrial engineers to share their latest laser processing technologies and applications.

Key areas addressed in this workshop include major developments in fibre and diode laser sources for materials processing and recent breakthroughs in high average power ps lasers for ultra-high speed cold machining, engraving and large area micro-texturing.

Laser welding has been applied by industry for over 40 years and continues to open up new applications in joining materials with low distortion and high efficiency. Presentations at the workshop will address the development and applications of laser welding and hybrid laser/arc welding in major industrial sectors. New industrial applications of laser cladding will also be described, including surface modification, protection and repair. At the other end of the scale, applications of laser in the context of high performance wire assemblies will be presented.

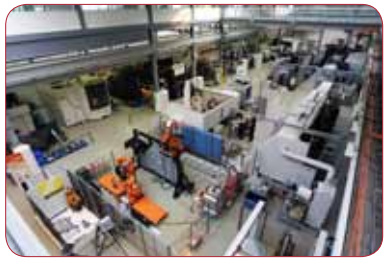
A common feature throughout all the workshop presentations is the wide range of key industrial sectors that laser processes address, making this an event of potential importance to almost all of UK manufacturing.

Lin Li Workshop Chair

Lin Li is Professor of Laser Engineering, Director of Research and Deputy Head of School at The University of Manchester and is Chair of the Product and Process Innovation (PPI) Special Interest Group within AILU.

Tour

The Advanced Manufacturing Research Centre (AMRC) Factory of the Future, located directly across from the workshop venue, incorporates activities in a number of research areas including:



- High-performance machining, using dynamic analysis to improve machine tool efficiency;
- Assembly of low-volume, high-value and difficult-to-handle components; including vision and inspection systems; smart tooling; and automated part recognition;

Who should attend?

Apart from the strong technical programme, a table top exhibition and the chance to visit a world-class state-of-the-art manufacturing research facility, a key feature of this workshop is the opportunity for delegates to meet speakers and others sharing an interest in keeping up to date with the latest developments in industrial laser sources and leading edge industrial applications. The venue itself provides a comfortable environment and the programme includes generous lunch and refreshment breaks.

Whether an expert or novice, an engineer, research scientist or a manufacturing manager, this workshop presents a valuable learning and networking opportunity and a chance to generate new ideas and valuable contacts.

Workshop presenters

Keming Du
Founder of EdgeWave GmbH, offering innovative solutions of short and ultra short pulse lasers

Lin Li
Professor of Laser Engineering, Director of Research and Deputy Head of School at The University of Manchester

Stan Wilford
Sales engineer for IPG photonics, with wide prior experience running his own laser machine business in South Africa

Jörg Neukum
Sales and marketing director of DILAS Diodenlaser GmbH since 2004, also responsible for the DILAS business unit "Industrial Laser Systems"

Peter Dickinson
Founder, chairman and CEO of Spectrum Technologies, currently with board level responsibilities for R&D and new business development

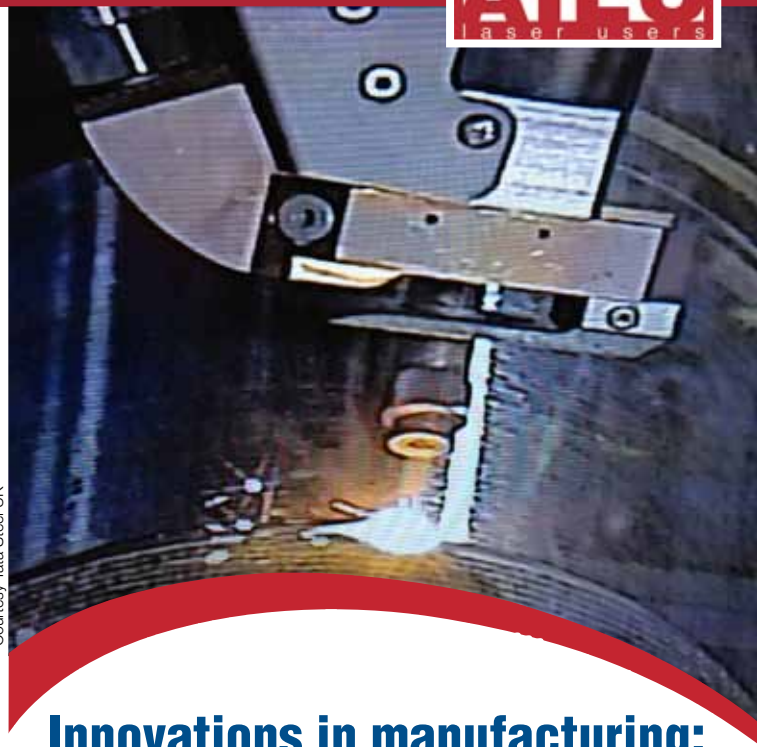
Paul Goodwin
R&D Metallurgist at Laser Cladding Technology, where he is responsible for all R&D programmes and new market development within the company

Stewart Williams
Chair in Welding Science and Engineering, Head of the Welding Engineering and Laser Processing Centre at the School of Applied Sciences, Cranfield University.

Ali Khan
Senior Project Leader at TWI where he is responsible for research and development in all aspects of laser material processing

Sam Lester (left)
Graduate in Materials Science and Engineering, working for 4 years at Tata Steel Strip Products, Port Talbot in collaboration with Swansea University

Nick Longfield
Lead Engineer and Manager of the Joining and Laser Hardfacing Group at Tata Steel Strip Products, Port Talbot



Courtesy Tata Steel UK

Innovations in manufacturing:

Leading-edge laser materials processing applications

> **Presentations**

> **Exhibition**

> **Tour of the AMRC Factory of the Future**

Wednesday 16 May 2012
Knowledge Transfer Centre
The Advanced Manufacturing Park, Rotherham

Supported by: Knowledge Transfer Network (Electronics, Sensors, Photonics) MTA

PROGRAMME

09:00 - 09:30 Registration and refreshments

09:30 - 10:25 Presentations 1

Keynote

Leading edge industrial applications using short pulse and pico-second laser sources
Keming Du EdgeWave GmbH

Recent developments in fibre laser technology for applications in manufacturing
Stan Wilford IPG Photonics (UK) Ltd

10:25 - 10:55 Refreshment break and EXHIBITION

10:55 - 12:15 Presentations 2

Innovative Laser Materials Processing: Fundamental research leading to practical industrial applications
Lin Li University of Manchester

Process control in diode laser welding of plastics
Jörg Neukum Dilas GmbH

Lasers in specialist applications for processing high performance wire and cable assemblies
Peter Dickinson Spectrum Technologies UK plc

12:15 - 13:15 Lunch and EXHIBITION

13:15 - 13:40 Presentations 3

Laser Cladding: Current applications and future developments
Paul Goodwin Laser Cladding Technology Ltd

13:40 - 13:55 Short refreshment break

13:55 – 15:15 Presentations 3 (continued)

The current and future use of high power lasers at Tata Steel Europe
Nick Longfield and Sam Lester Tata Steel UK

Developments in laser and hybrid laser welding for pipeline applications
Stewart Williams and Wojciech Suder Cranfield University

Achieving weld quality criteria in aerospace alloy 718
Ali Khan TWI

15:15 End of formal meeting

Immediately after the workshop proper, delegates will be invited to take a tour (lasting 45 minutes) of the adjacent AMRC Factory of the Future
(see notes overleaf)

Press cylinder background photo courtesy of EdgeWave GmbH

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.

Venue
The workshop will be held in the new Knowledge Transfer Centre on The Advanced Manufacturing Park, Brunel Way, Rotherham. See map and Park layout below.

Delegates
Delegates and exhibitors should enter the Knowledge Transfer Centre by the main entrance, where they must first sign in (building fire safety) and register. The meeting is taking place in the first floor conference room, which is served by stairs and two large lifts.

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

At the registration desk delegates will receive a 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.

Exhibitors
The table top exhibition area is adjacent to the conference room on the first floor. Only tables (office desk size) will be provided. If mains power is required this must be notified in advance as only site-provided extension leads can be used. Access to the exhibition area for set-up is available from 08:00 on the day through the main entrance. As the programme shows, the first exhibition session begins at 10:30; the second (last) ends at 13:15. If you wish to bring unusually large or heavy items please check feasibility in advance.

Registration (delegates and exhibitors)
To register for the event please complete the registration form opposite or register online at *www.regonline.co.uk/16May12AILU.* Alternatively, members of AILU and/or the PPI Special Interest Group need only give their name by phone or email (T: 01235 539595; E: courses@ailu.org.uk).

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.

Travel
Full address:
Knowledge Transfer Centre, Brunel Way, Catcliffe, Rotherham, S60 5WG

Air: Sheffield has an airport but the closest international airport is Manchester.

Rail: Sheffield mainline station is 5 miles away.

Car: The closest motorway junction is Jn 33 of the M1, which is only 1 mile from the venue . For full directions by road see the event page on the AILU web site. There is ample free parking at the Knowledge Transfer Centre.

Accommodation
Details of accommodation with links to sites with full descriptions can be found on the AILU web site page for this event. Hotels include: the Aston Hotel Catcliffe (closest); and the Holiday Inn (standard and Express) that are adjacent to one another in Sheffield Centre, about 10 minutes drive away. We suggest you ask for the 'AMRC rate'

Delegate registration

Innovations in manufacturing 16 May 2012

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, 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 160.00 (= £192.00 incl. VAT)
I am a member of AILU and/or one of the supporting organisations:
❑ ESP KTN ❑ Manufacturing Technologies Association

❑ GBP 70.00 incl. VAT
I am unemployed or retired.

❑ GBP 45.00 incl. VAT
I am a full time student.

❑ GBP 200.00 (= £240:00 incl. VAT)

❑ I wish to register as an exhibitor. Please reserve me:
❑ Space only ❑ A table ❑ 240 V power

The applicable rate is:

❑ GBP 155.00 (= £186.00 incl. VAT)
I am a member of AILU or the supporting organisation ticked above.

❑ GBP 195.00 (= £234:00 incl. VAT)

❑ I have registered above as both a delegate and an 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

Compact polymer diode laser welding background photo courtesy of Dilas GmbH