

About this workshop

The UK has a thriving community in Additive Manufacturing (AM) and this event will provide an insight into current developments in research and their future impact.

For metal component fabrication, AM potentially offers large improvements in performance and reduced cost and material consumption, and the scope and breadth of applications is extremely wide. The AM concept for metal parts involves the deposition of material in incremental stages using one of a variety of techniques; many of which are based around laser technology.

This event addresses the route to mass adoption of AM and as such it will highlight the current technical barriers to successful commercialisation; restrictions relating to the form and composition of available materials; the energy sources (laser, electric arc, e-beam) used for melting the added material; design constraints and the properties/composition of the fabricated component.



Courtesy: Material Solutions

To do this we have brought specialists in materials together with commercial users and researchers in laser and non-laser AM technologies, and the day will include lots of opportunities for discussion and questioning. Delegates will be able to assess the different processes, latest developments in commercially available systems, the products and applications for which AM can be exploited and the potential benefits of AM technology to their organisation in addressing today's manufacturing challenges.

Rob Scudamore Workshop Chair

Rob Scudamore joined TWI in May 2000 and is the Technology Group Manager for the Lasers and Sheet Processes Group, and the Group Manager of TWI's Yorkshire facility. He has managed projects involving laser deposition, laser welding, hybrid laser/arc welding, and transmission welding of plastics. He is currently involved in laser deposition of various metals, including high temperature materials for repair and original build.

Who should attend?

One of the key features of the annual AILU AM 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 service.



Delegates to this workshop will include industry specialists, users and researchers in additive manufacturing and attendance will be valuable to anyone with an interest in material processing, especially:

Delegates at AILU's 2009 AM workshop at Airbus, Bristol



- **Engineers and managers** from manufacturing industry looking to enhance production capabilities or simply to keep abreast of the latest developments.
- **Job shop owners** looking for new technology pathways and new opportunities in small batch manufacturing runs for the engineering sector.
- **Researchers** in materials and in laser materials processing.

About this workshop**Venue**

The workshop will be held in the Lambourn Suite of the Hilton Newbury Centre Hotel Pinchington Lane Newbury Oxfordshire RG14 7HL

**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 any special dietary needs.

Exhibitors

The exhibition, refreshment and lunch breaks and the presentations will all take place in the Lambourn Suite

Access to the exhibition area is available from 07:30 on the day. The hotel reception desk will provide directions to temporary parking by the side fire exit adjacent to the Lambourn Suite for unloading large/heavy items. You can bring your own 'pop up' display (ceiling height 2.9 m) or backboard. A table (120 x 60 cm) will be provided on request. 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 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. For further information on membership go to www.ailu.org.uk and look for the link to 'about us'.

Clinic

As part of the mission of the Photonics and Plastic Electronics KTN, AILU Secretary Mike Green will be available throughout the day to arrange informal introductions with appropriate experts at the workshop, for discussions on any technical or business matters that delegates would like to raise.

Travel

The venue is close to Newbury town centre.

Air: Heathrow and Southampton airports are closest, about 45 miles away.

Rail: Newbury station is only a few minutes away by taxi or 25 minutes on foot.

Car: The site is close to the intersection of the M4 motorway (Jn 13) and the main A34 road. For full directions by road visit the event page on the AILU web site.

**Accommodation**

Accommodation has been held until **16 February** at the venue at a special rate of £95 B&B. Please Phone 01256 316975, ask for Fran or Dan and quote ref: AALUA. Otherwise, visit the events page on the AILU web site to find a link to nearby hotels and guest houses.

Aerospace parts. Courtesy of 3T RPD



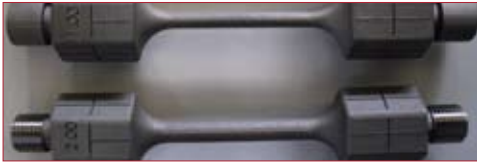
The route to mass adoption of Additive Manufacture in metal component fabrication

Presentations, exhibition & visit

Tuesday 16 March 2010
Hilton Newbury Centre Hotel

Supported by:

Programme



Automotive parts

Courtesy of Warwick University

08:30 - 09:20 Registration and refreshments

09:20 - 11:00 **Session 1**

Welcome

Rob Scudamore

Chair, TWI

Keynote presentation

Roadmap to mass adoption of additive manufacture in metal component fabrication

Rob Scudamore

TWI

Additive manufacture using arc + wire: status, benefits and limitations

Stewart Williams

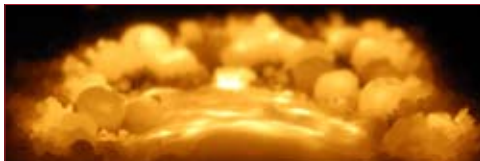
Cranfield University

Validating the use of laser melted titanium for automotive hydraulic systems

David Cooper

University of Warwick

11:00 - 11:30 Refreshment break and exhibition



Melt pool in AM

Courtesy of Laser Optical Engineering Ltd

11:30 - 12:45 **Session 2**

The role of novel beam shaping for improving metallurgical quality in additive manufacture

Matthew Gibson and

Laser Optical Engineering

John Tyrer

The future of DMLS as a manufacturing technology

Ian Halliday

3T RPD

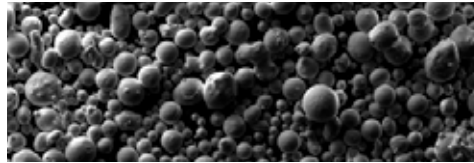
The selection and specification of powders for additive manufacturing

Richard Alexander

LPW Technology

12:45 - 13:45 Lunch & **EXHIBITION**

Programme



Spherical metal powder

Courtesy of Sandvik Osprey

13:45 - 15:20 **Session 3**

Keynote presentation

Gas atomised powders designed for rapid manufacturing

Keith Murray and

Sandvik Osprey

Martin Kearns

Low carbon additive manufacturing - results from the TSB ATKINS project

Richard Hague

Loughborough University

How collaborative funding helps you transform technology barriers into commercial success

Robin Wilson

Technology Strategy Board

Technology barrier brainstorming (open session)

15:20

Departures and travel to 3T RPD

- only 5 minutes drive from the hotel



Dental plate

Courtesy of 3T RPD

15:30 - 16:30 **Tour of facilities at 3T RPD**

3T RPD Ltd is a market leader in rapid product development providing rapid prototyping and rapid manufacturing services to a diverse range of industry sectors. They provide fast and accurate production of complex and functional prototypes, aesthetic models and low volume production components to clients in many industries, including Aerospace, Architecture, Automotive, Dental, Medical, Defence and Pharmaceutical.

3T RPD supply metal and plastic parts using Additive Manufacturing (SLS and DMLS) throughout the UK and Europe. Engineers, architects and designers are using these technologies to revolutionise the speed at which products can be brought to market.

Address:

Fulton Court, Wofford Way, New Greenham Park,
Newbury RG19 6HD



Delegate registration form

Additive Manufacture in metal component fabrication 16/3/2010

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/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:

GBP 142.00 (= £166.85 incl. VAT)

I am a member of AILU and/or one of the supporting organisations:

PPE KTN Materials KTN

GBP 65.00 incl. VAT

I am unemployed or retired.

GBP 40.00 incl. VAT

I am a full time student.

GBP 175.00 (= £205.63 incl. VAT)

I wish to register as an exhibitor. Please reserve me:

Space only A table

The applicable rate is:

GBP 135.00 (= £158.63 incl. VAT)

I am a member of AILU or one of 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 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.

Return completed form to:

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