



ILAS 2011 Programme

The Centre, Birchwood Park, Warrington: 15 & 16 March 2011

Day 1: 15 March 2011

Time	Lecture theatre	Astley Room
08:30 – 09:30	Registration	
09:30 – 10:30	<p style="text-align: center;">Plenary (1)</p> <p><u>Chair:</u> Paul Hilton, TWI</p> <p>Innovation and invention with high brightness lasers <i>Eckhard Beyer, Fraunhofer Institut Werkstoff und Strahltechnik</i></p> <p>Innovation and invention: future challenges for wealth creation in a developed economy <i>Bill O'Neill, University of Cambridge</i></p>	
10:30 – 11:00	Refreshments and EXHIBITION	
11:00 – 13:20	<p style="text-align: center;">Sources and systems</p> <p><u>Chair:</u> Martyn Knowles, Oxford Lasers</p> <p><u>Keynote</u> Overview of current and future laser machine technology <i>Christian Föhl, Trumpf</i></p> <p>Materials processing versatility of ns pulsed fibre lasers <i>Jack Gabzdyl, SPI</i></p> <p>Fibre amplified microchip lasers, a new tool for micro-machining <i>Jean-Edouard Communal and Florent Thibault, Teem Photonics</i></p> <p>Recent advances in fibre lasers for laser applications <i>Mark Richmond, JK Lasers, GSI Group</i></p> <p>Applying industrial laser innovation to modern manufacturing <i>Andrew May, ES Technology</i></p> <p>Laser markers and their integration into production environments <i>Neal Croxford, Electrox</i></p>	<p style="text-align: center;">Beam modification</p> <p><u>Chair:</u> Paul Hilton, TWI</p> <p><u>Keynote:</u> Beam shaping – the spatial parameter <i>Martin Sharp, Liverpool John Moores University</i></p> <p>Diffractive shaping of a 3µm laser beam for skin drilling <i>Daniel Lloyd, Laser Optical Engineering</i></p> <p>Adaptive aberration correction for 3D laser material processing <i>Patrick Salter*, Alexander Jesacher+ and Martin Booth* Dept Engineering Science, University of Oxford, +Div Biomedical Physics, Innsbruck Medical University, Austria</i></p> <p>Diffractive Optical Element (DOE) beam shaping for high power industrial laser applications <i>Matthew Gibson, Laser Optical Engineering</i></p> <p>Benefits from laser beam analysis in the process zone for production and development <i>Otto Märten, H. Schwede, V. Brandl, S. Wolf, R. Kramer, PRIMES</i></p> <p>Ultrafast laser parallel processing of materials <i>Walter Perrie Stuart Edwardson, Dun Liu, Eamonn Fearon, Geoff Dearden, Ken Watkins, Colin Moorhouse, Matthew Philpott, Dimitris Karnakis and Andrew Kearsley, University of Liverpool, Coherent Scotland, Oxford Lasers</i></p>

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13:20 – 14:20 Lunch and EXHIBITION	
14:20 – 16:10	<p>Additive Manufacture (1) <u>Chair:</u> Lin Li, University of Manchester</p> <p><u>Keynote:</u> The potential use of powder bed direct laser deposition technologies for the manufacture of aero engine parts <i>Jeff Allen, Rolls-Royce</i></p> <p>Concept laser, the new M1Lab Additive Manufacturing solution <i>Colin Cater, ES Technology</i></p> <p>EOS' new micro laser sintering technology <i>Hannes Horst, Michael Blau, Anne Lenhart, Mario Schneck, Thomas Starke and Joachim Göbner EOS GmbH</i></p> <p>Development of compact lightweight structures in titanium 6-4 using SLM <i>Emma Ashcroft and <u>Robert Murcott</u>, TWI</i></p> <p>Study of the mechanical properties of Inconel 718 processed by Selective Laser Melting <i>Sozon Tsopanos, TWI</i></p>
	<p>Cutting and Drilling (1) <u>Chair:</u> John Powell, Laser Expertise</p> <p><u>Keynote:</u> Searching the way to innovation: 25 years of success and failure in developing laser processes as simple as cutting <i>Dirk Petring, Fraunhofer ILT</i></p> <p>Micromachining abrasive waterjets and lasers <i>Don Miller, Finecut UK</i></p> <p>Laser percussion drilling of aerospace materials with a high beam quality and high peak power lamp pumped pulsed Nd: YAG laser <i>Mohammed Naeem, JK Lasers, GSI Group</i></p> <p>Focus control for fibre laser material processing applications <i>Stephen Keen, JK Lasers, GSI Group</i></p> <p>The fibre laser: a new tool for processing carbon fibre reinforced plastic <i>Paul French, Liverpool John Moores University</i></p>
16:10 – 16:40 Refreshments	
16:40 – 18:00	<p>Additive Manufacture (2) <u>Chair:</u> Rob Scudamore (TWI)</p> <p>Additive manufacturing of metal components <i>David Wimpenny, Manufacturing Technology Centre</i></p> <p>Industrial applications of laser cladding <i>Paul Goodwin, Laser Cladding Technology Ltd</i></p> <p>Laser Deposition at The University of Nottingham <u>Adam Clare</u> and Janet Folkes, University of Nottingham</p>
	<p>Cutting and Drilling (2) <u>Chair:</u> John Powell, Laser Expertise</p> <p>Real time process control solutions: the new frontier of laser machining <i>Valter Manuello, Paolo Calefati, <u>Johannes Ulrich</u> Prima Industrie SpA/Finn-Power Oy</i></p> <p>The fibre laser as a tool for dismantling <u>Ali Khan</u> and Paul Hilton, TWI</p> <p>Burn, Slash, Scorch and Stick <i>Janet Stoyel, The Cloth Clinic</i></p> <p>Finishing & garment construction of recycled textiles using laser beams <u>Kate Goldsworthy</u>, Jo Lewis, Ian Jones, The University of Arts, London/TWI</p>
18:10 – 19:10	<p>Presentation of the AILU Award and the Young Laser Engineer's Prize</p> <p>AILU AGM</p>





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The Centre, Birchwood Park, Warrington: 15 & 16 March 2011

Day 2: 16 March 2011

Time	Lecture theatre	Astley Room
08:30 – 09:15	Registration	
09:15 – 10:00	<p style="text-align: center;">Plenary (2)</p> <p><u>Chair:</u> Paul Hilton, TWI</p> <p>A history of the laser <i>Malcolm Gower, Imperial College, London</i></p>	
10:00 – 10:30	Refreshments and EXHIBITION	
10:30 – 13:00	<p style="text-align: center;">Micro-Joining</p> <p><u>Chair:</u> Duncan Hand, Heriot-Watt University</p> <p><u>Keynote:</u> Laser micro-joining: an introduction to a variety of processes <i>Alexander Olowinsky, Fraunhofer ILT</i></p> <p>Laser welding methods for polymer microfluidic devices <i>Ian Jones, TWI</i></p> <p>Laser joining of dissimilar materials <i>Mohammed Naeem, JK Lasers, GSI Group</i></p> <p>Approaches to welding of thin copper with different wavelengths (Green and IR) <i>Paola De Bono, TWI</i></p> <p>Progress in pulsed laser welding of brittle and dissimilar metallic materials <i>Wolfgang Hemmer-Girod, C. Ruettimann, Dave MacLellan, LASAG/Rofin Baasel</i></p> <p>Hermetic packaging of micro-devices using selective laser bonding <i>Norbert Lorenz, Suzanne Millar, Marc Desmulliez and Duncan Hand, Heriot-Watt University</i></p> <p>Gaussian or flat top beam profile for laser spot welding applications <i>Mohammed Naeem, JK Lasers, GSI Group</i></p>	<p style="text-align: center;">Surface modification (1)</p> <p><u>Chair:</u> Malcolm Gower</p> <p><u>Keynote:</u> Laser opportunities within the solar industry: revenues on offer, technologies being pursued and how to access them <i>Finlay Colville, Solarbuzz</i></p> <p>Pico second laser ablation: A practical approach <i>Georg Dobler, Swiss Tec</i></p> <p>Online monitoring of industrial laser cleaning process by probe beam reflection and plume emission spectroscopy <i>Clive Grafton-Reed, Rolls-Royce</i></p> <p>Long-pulse CO2 laser interactions with weakly absorbing polymers <i>Abigail Marchant and Howard Snelling, University of Hull</i></p> <p>Ultrafast imaging of rewriteable lithographic plates <i>Martin Sharp, Ansari, IA, Potts, RD, Hutchinson, R, Clowes, J, Liu, D, Smith, PJ, Bennett, P, Adamson, JD, Perrie, W, Watkins, KG, Dearden, G Liverpool John Moores + 6 others</i></p> <p>Surface deformation monitoring during laser processing <i>Matija Jezeršek, Janez Možina, University of Ljubljana, Faculty of Mechanical Engineering</i></p> <p>High-power direct diode laser heat treatment for aerospace components <i>Keith Parker, Coherent Inc</i></p>

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14:00 – 15:20	<p style="text-align: center;">Macro welding (1)</p> <p><u>Chair I:</u> Alan Thompson, Tata Steel</p> <p><u>Keynote:</u> The industrial benefits of using fundamental material interaction parameters for laser welding processes <i>Stewart Williams, Cranfield University</i></p> <p>Increasing the application of laser welding using conduction mode <i>Eurico Assuncao, Cranfield University</i></p> <p>Self optimising and pre-emptive scanning system reduces processing times for welding applications <i>Simon Caiger, JK Lasers, GSI Group</i></p> <p>The output of gap control trials to guide clamping methodology on sheet metal with remote laser welding <i>Nic Blundell and Paul Meeson, University of Warwick/Stadco</i></p>	<p style="text-align: center;">Surface modification (2)</p> <p><u>Chair:</u> Jack Gabzdyl, SPI Lasers UK</p> <p>Development of a 5-axis laser engraving machine for producing functional textures on 3D surfaces <i>Rahul Kuchimanchi and Richard Hadley, Gravutex Eschmann International Ltd</i></p> <p>Generation of surface features using single mode lasers <i>Jonathan Blackburn and Paul Hilton, TWI</i></p> <p>The use of high power lasers in two applications related to Nuclear Decommissioning <i>Paul Hilton and Ali Khan, TWI</i></p> <p>High speed laser structuring with short and ultra-short pulses <i>Michael Lang and Christian Föhl, Trumpf</i></p>
15:20 – 15:50	Refreshments	
15:50 – 17:30	<p style="text-align: center;">Macro welding (2)</p> <p><u>Chair:</u> Alan Thompson, Tata Steel</p> <p>The evaluation of remote fibre laser welding to replace automated MIG welding on automotive sub-frame assemblies <i>Richard Hewitt and Roger O'Brien, University of Warwick/ ThyssenKrupp Tallent Ltd</i></p> <p>Hybrid laser-arc welding of ship building steel <i>Esa Lappalainen, Tuomas Purtonen, Stefan Grünenwald, Sami Eronen, Antti Salminen LUT, BIAS</i></p> <p>Application of hybrid laser-arc welding in line pipe steel <i>Supriyo Ganguly, David Yapp, Ibrahim Nuruddin, Wojciech Suder and Stewart Williams, Cranfield University</i></p> <p>Optimisation of parameters in laser and laser hybrid welding in order to control residual stresses <i>Wojciech Suder, Stewart Williams and Supriyo Ganguly, Cranfield University</i></p> <p>Adaptively controlled high brightness laser-arc hybrid welding <i>CM Allen, G Shi and P Hilton, TWI</i></p> <p>Seam tracking for deep narrow groove welding <i>Wolfgang Kölbl, Meta Vision Systems</i></p>	<p style="text-align: center;">Surface modification (3)</p> <p><u>Chair:</u> Julian Burt, Bangor University and Laser Micromachining Ltd</p> <p>Fabrication of coronary stent by picosecond laser cutting of platinum <i>Noorhafiza Muhammad, University of Manchester</i></p> <p>YAGboss – laser micro-sculpting of metal surfaces for the manufacture of high precision optical encoder scale <i>Stephanie Giet et al, Heriot-Watt University</i></p> <p>Laser machining of hard coatings from WC micro-tools and in-process monitoring <i>Marimuthu Sundar, A M Kamara, D Whitehead, P T Mativenga and L Li University of Manchester</i></p> <p>Laser-textured sub-nanometre elliptical bumps arrays on NiP/Al data storage disks <i>Ana Pena-Alvarez, ZB Wang, Z. Jinzhao, W. Nai En and L Li University of Manchester/ Precision Laser Solutions Pte Ltd</i></p> <p>Repeatable use of CPLA for optical micro/nanopatterning <i>Ashfaq Khan, Zengbo Wang, Mohammad A Sheikh, David J Whitehead, and Lin Li University of Manchester</i></p>
17:30 END of Symposium		

