

## 8th INTERNATIONAL CONFERENCE ON BEAM TECHNOLOGY-2010

The 8th International Conference and Exhibition on Beam Technology STRAHLTECHNIK 2010 took place on 13–15 April 2010 at the Schweisstechnische Lehr- und Versuchsanstalt (SLV) Halle GmbH, Germany. The Conference was organised by the German Welding Society (DVS), SLV Halle GmbH and GSI. The sponsor support in holding the Conference was rendered by the known German companies manufacturing welding equipment: PRO-BEAM, FOCUS and CLOOS.

Approximately 100 participants came from 10 different countries, i.e. Germany, Bulgaria, China, Finland, France, Great Britain, Austria, Slovakia, Ukraine and the USA.

Schweisstechnische Lehr- und Versuchsanstalt (SLV) Halle GmbH celebrates its 80th anniversary in the year 2010. No doubt, the successful highlight of the anniversary was the International Conference on Beam Technology STRAHLTECHNIK 2010 held in Halle from 14 to 15 April 2010, which has been conducted by SLV Halle GmbH since 1996, and meanwhile established as an international forum of new developments in the field of the laser and electron beam technology. The event taking place on a three years basis united professionals from all over the world, who exchanged their experience about the latest developments in the field of beam methods and technology in industrial application. In lectures and poster presentations new ideas, paths of development and results in the field of the laser and electron beam technologies were presented and discussed, as well as impulses for the use of the processes were given.

The guests of honour were Prof. Dr.-Ing. Ulrich Dilthey, President of the International Institute of Welding (IIW), and Mr. John Bruskotter, President of the American Welding Society (AWS).



Section meeting

Most of the papers were dedicated to the issues of practical application of laser and electron beam welding. 15 lectures covered peculiarities of utilisation of laser and hybrid welding technologies. Among them were the lectures on orbital hybrid welding of pipes, application of hybrid welding in ship building, laser welding of BMW car doors, laser welding of dissimilar metals etc. The most complete and precise idea of the Conference can be obtained from the below list of the lectures and poster presentations.

### Part 1: Solutions for the Field of Beam Technology

- Ing. *H.-J. Seilkopf*, Burg, Germany «EB and laser beam technologies for turbine construction: Experience and expectations»;
- *C. Punshon*, Cambridge, UK «Application of local vacuum EB welding and new steel development for fabrication of large offshore structures».

### Part 2: Beam Welding in Industrial Application I

- Prof. Dr.-Ing. *P. Hoffmann*, Erlangen, Germany «Highly productive laser units for complex welded assemblies»;
- Dipl.-Ing. *A. Backhaus*, Aachen, Germany «Electron beam welding of titanium aluminides with a high portion of niobium»;
- Prof. Dr.-Ing. *S. Keitel*, Halle, Germany «Laser based girth welding technologies for pipelines – GMAW gets support».

### Part 3: Basic and Further Development of Laser Beam Processes and Techniques

- Dr. *H. Staufer*, Wels, Austria «Increased welding speed and efficiency using the laser hybrid tandem welding process»;
- Dr. *O. Marten*, Pfungstadt, Germany «Qualification of focusing and imaging systems for industrial laser processing with brilliant beam sources in the multi-kilowatt range»;
- *I. Semyonov*, Kiev, Ukraine «Modelling of metal evaporation and plasma formation at pulsed laser processing»;
- *C. Thomy*, Bremen, Germany «Gap tolerant laser GMA hybrid welding of thin plates using the single mode fiber laser»;
- *I. Tomashchuk*, Le Creusot, France «Numerical modelling of dissimilar laser welding of copper to stainless steel».

### Part 4: Beam Welding in Industrial Application II

- Dr.-Ing. *A. Gumenyuk*, Berlin, Germany «Orbital welding in pipeline construction – New possibilities by the application of high power lasers»;
- *A. Scherz*, Munich, Germany «Laser beam welding of aluminum doors in the large scale production on the new car generation of the BMW Group»;



Acquaintance with «CLOOS» exposition



Visit to «Josch Strahlschweisstechnik GmbH»

- Prof. Dr.-Ing. habil. *P. Seyffarth*, Rostock, Germany «Laser hybrid welding in ship building using high performance fiber lasers»;

- Dr. *P.I. Petrov*, Sofia, Bulgaria «Parameters used for electron beam welding — A comparative study»;

- *C. Paul*, Haiger, Germany «Laser beam GMA hybrid welding of large plate thicknesses at industrial application».

**Part 5: Basic and Further Development of Electron Beam Processes and Technique**

- Prof. Dr.-Ing. habil. *R. Zenker*, Freiberg, Germany «Multi spot technique and multi process technologies for welding and surface treatment using electron beam — State of the Art»;

- *Xichang Wang*, Beijing, China «Application of electron beam surf-sculpt technology during composites materials joining»

- Dipl.-Wirt.-Ing. (FH) *M. Streiber*, Dresden, Germany «Electron beam unit for thermal and non-thermal processes»;

- *B. Dance*, Cambridge, UK «Electron beam characterisation: «beam probing». A study of practical beam analysis at high and low powers for EB welding process control».

#### Poster presentations

- *B. Dance*, Cambridge, UK «Surface structuring using power beams; a review of recent laser and EB process developments»;

- Dipl.-Ing. *R. Weber*, Buseck, Germany «Wire feeding systems for laser beam applications»

- Dipl.-Phys. *F.-H. Rogner*, Dresden, Germany «Cold cathode electron beam sources a new possibility of cost efficient welding tools»;

- Dipl.-Ing. *M. Mavany*, Aachen, Germany «Enhancement of application of the laser-GMA hybrid welding by HyDRA-welding»;

- Dipl.-Ing. *T. Waschfeld*, Halle, Germany «Laser beam welding for the automotive industry — Nissan R35 GT-R»;

- Dipl.-Ing. *C. Schwalenberg*, Halle, Germany «Welding of titanium by using laser beam technology».

In keeping with tradition, the Conference was accompanied by a technical exhibition, where renowned suppliers and developers of beam technological equipment and processes demonstrated their achievements. The Conference participants visited expositions of a number of companies, such as Josch Strahlschweisstechnik GmbH in Teicha and PRO-BEAM Technologies GmbH in Halle, as well as took part in the festive reception at the State Museum of Prehistory with a visit to the Sky Disk of Nebra exposition.

Eruption of Eyjafjallajökull volcano in Iceland delayed departure of the Conference participants, but could not affect the general positive imperative of the event.

The Conference proceedings (papers in English and German) are available at the library of the E.O. Paton Electric Welding Institute.

*Ing. I.L. Semyonov*