



6th IEBW International Electron Beam Welding Conference

March 9 – 10, 2021

MEET US ONLINE!

PROGRAM

Co-Organizers:



INTERNATIONAL INSTITUTE OF WELDING
A world of joining experience



American Welding Society®

www.dvs-ev.de/iebw2021

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Program is subject to change without notice!

Organization

DVS – German Welding Society

Technological Exchange and Network

Conference Department

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www.dvs-ev.de/iebw2021

WELCOME TO THE 6th IEBW INTERNATIONAL ELECTRON BEAM WELDING CONFERENCE, March 9 – 10, 2021

The American Welding Society (AWS), the German Welding Society (DVS) and the International Institute of Welding (IIW) are organizing the 6th International Electron Beam Welding Conference.

Next year, due to the COVID-19 pandemic, we are moving the 6th International Electron Beam Welding Conference into the virtual world, combining pre-recorded video presentations with an exciting innovative and interactive digital conference format.

The IEBW conference will bring together scientists, engineers and technical personnel from around the globe involved in research, development and application of electron beam welding processes.

The year 2020 will go down in history as the year of many changes. Much has developed differently than planned; the good remains. The electron beam is certainly one of them. Hardly any technology has been in use so reliably and reproducibly for decades. Let's discover trends and developments in electron beam applications and advance them together.

The event is truly one that anyone involved in sophisticated joining challenges should plan to attend, even if it can only take place online next year. We look forward to meeting you in the virtual world.

W. Behr

Technical Chair of
Program Committee

E. Levert

IIW Commission IV

CONFERENCE

Tuesday, March 9, 2021

Hall 1

Opening

01:00 PM Welcome

U. Reisgen, Head of Welding and Joining Institute, RWTH Aachen University

R. Boecking, General Manager DVS

Education, Diagnostics and Control Technologies

Session Chair: W. Behr

01:15 PM Against the lack of knowledge in EB technique among engineers and others

K. Schulze*

01:35 PM Process monitoring in electron beam welding by optimizing the in-process sensor technology by means of backscattered electrons and optical emission

S. Gach*, S. Olschok, U. Reisgen

01:55 PM Electron beam probing and deep learning to improve weld quality

N. Sieczkiewicz*, A. Kennedy, Y. Tian, C. Ribton, D. Williams

02:15 PM Break

Innovations with Electron Beam

Session Chair: S. Olschok

- 02:30 PM** **Electron beam ion sources and a novel electron beam source for enhanced additive manufacturing**
M. Mücke*, D. Kovalchuk
-
- 02:50 PM** **Effect of beam oscillation parameters on the weld geometry and dilution in electron beam welding of duplex stainless steels with nickel-based filler wire**
T. Toth*, J. Hensel, K. Dilger
-
- 03:10 PM** **Pulsed electron beam spot welding of non-oriented electrical steel sheets**
T. Krichel*, S. Gach, T. Evers, A. Senger, S. Olschok, U. Reisgen
-
- 03:30 PM** **Break**

Surface Treatment

Session Chair: J. Jerzembeck

- 03:45 PM** **Improvement of the surface properties of light metals by electron beam additive technique**
S. Valkov*, P. Petrov
-
- 04:05 PM** **Influence of the electron beam parameters on the structure and properties of electron beam surface treated Ti6Al4V alloy**
P. Petrov*, M. Ormanova, S. Valkov

CONFERENCE

Wednesday, March 10, 2021

Hall 1

Applications

Session Chair: W. Behr

- | | |
|-----------------|--|
| 01:15 PM | Temporally and locally controlled temperature fields during material processing with electron beam
O. Engels*, U. Reisgen, S. Olschok, M. Jarwitz, M. Sawannia |
| 01:35 PM | Electron beam welding (EBW) of additively manufactured alloyed steels
P. Hollmann*, M. Michler, A. Buchwalder, R. Zenker |
| 01:55 PM | Electron beam welding for the manufacture of safety critical components from hot isostatic pressed low alloy steel
T. Pinto*, M. Nunn, D. Oliver, E. Warner, G. Jones, P. Wallace, S. Walter |
| 02:15 PM | Break |



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Special Materials

Session Chair: S. Olschok

02:30 PM Electron beam welding of the conventionally casted and directionally solidified superalloy Alloy-247 LC

A. Senger*, U. Reisgen, T. Jokisch, T. Evers, T. Krichel, S. Olschok

02:50 PM Analysis of temperature field during electron beam welding of hot crack sensitive nickel base alloy

T. Jokisch*, N. Doynov

03:10 PM Electron beam brazing of fusion reactor heat sinks

H. Kendziora*

03:30 PM Break**Electron Beam Additive Manufacturing**

Session Chair: M. Keinert

03:45 PM Wire electron beam additive manufacturing at pro-beam

B. Baufeld*, S. Schönfelder, T. Löwer

Special Lecture**04:05 PM Challenges and prospects of electron beam based manufacturing**

C. Körner*, Friedrich-Alexander-Universität Erlangen-Nürnberg

Outlook into the Future**04:35 PM Closing Remarks**

W. Behr, Forschungszentrum Jülich GmbH

GENERAL INFORMATION

Conference Format

Next year, contrary to our expectations, due to the COVID-19 pandemic, we are moving the IEBW conference into the virtual world, combining pre-recorded video presentations with an exciting innovative and interactive digital conference format. The conference will take place over 2 days. We always start at noon (CET) so that we can be reached across many continents without having problems with the time difference.

Registration

Registrations are only possible “online” at:
www.dvs-ev.de/iebw2021

After the receipt of your registration, we will send you a confirmation/invoice. The registration fee must be paid upon receipt of the invoice **before the start** of the event. Only attendees whose payment has been received by us (absolutely necessary) will get **their personal access code** to the online event.

Registration is only possible until **March 5, 2021!**

Registration Fees

Members (DVS, AWS, IIW) EUR 320
(All presentations, download of Conference Proceedings)

Non-Members..... EUR 470
(All presentations, download of Conference Proceedings)

Students (Student-ID needed)* EUR 40
(All presentations, download of Conference Proceedings)

Senior Citizens..... EUR 120
(All presentations, download of Conference Proceedings)

* Full Time Student (Bachelor/Master Studies, no doctoral Candidate)

Payment

By credit transfer:

DVS – German Welding Society

Deutsche Bank AG, Düsseldorf

IBAN: DE96 3007 0010 0155 6844 00

BIC-Code: DEUTDEDDXXX

Any banking charges which may be incurred will be borne by the registrants.

Keyword for credit transfer (please do not forget): IEBW 2021, no. of invoice, name of attendee

By credit card:

MasterCard, Visa, American Express (all are accepted)

Cancellations

Cancellations must be in writing to the DVS by February 15, 2021. Cancellations after February 15, 2021 cost EUR 100 for administrative fee. No refunds will be given for cancellations after February 26, 2021.

Notes for Presentations / Copyrights

The language of the IEBW is English. The names of the presenting authors are followed by an asterisk. The conference will be conducted as a webinar. It is possible to ask questions during the webinar in the chat. Presentation time is 15 minutes, 5 minutes discussion. The presentations are recorded and are available to registered attendees for a limited period of time after the event.

Conference Proceedings

The manuscripts with pictures and tables are published in the proceedings. Registered attendees will be able to download them from March 8, 2021 to March 23, 2021.

You can order printed proceedings (chargeable) at DVS Media GmbH: www.dvs-media.eu

Conference Time

CET (Central European Time)

The time in the program follows the English system (Am/Pm).

ACTING EXPERTS

Presenting Authors, Session Chairs

B

- Baufeld, B.** pro-beam additive GmbH, Gilching/
Germany
- Behr, W.** Forschungszentrum Jülich GmbH, Jülich/
Germany
- Boecking, R.** DVS – German Welding Society,
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- Engels, O.** RWTH Aachen University, Aachen/Germany

G

- Gach, S.** RWTH Aachen University, Aachen/Germany

H

- Hollmann, P.** Technische Universität Bergakademie
Freiberg, Freiberg/Germany

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- Jerzembeck, J.** DVS – German Welding Society,
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- Jokisch, T.** Siemens AG, Energy Sector, Berlin/
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K

- Keinert, M.** DVS – German Welding Society,
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- Kendziora, H.** PTR Strahltechnik GmbH, Langenselbold/
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- Körner, C.** Friedrich-Alexander-Universität Erlangen-
Nürnberg, Erlangen/Germany
- Krichel, T.** RWTH Aachen University, Aachen/Germany

M

- Mücke, M.** Consultant, Wöllstadt/Germany



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P

Pinto, T. TWI Limited, Cambridge/Great Britain
Petrov, P. Bulgarian Academy of Sciences, Sofia/
Bulgaria

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Reisgen, U. RWTH Aachen University, Aachen/Germany

S

Schulze, K. Schulze-Consulting, Neuberg/Germany
Senger, A. RWTH Aachen University, Aachen/Germany
Sieczkiewicz, N. Lancaster University, TWI Limited,
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Toth, T. Technische Universität Braunschweig,
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SPONSOR





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