The 10th International Seminar & Conference on Advances in Resistance Welding and Mechanical Joining 12-14th September 2018, Esslingen, Germany

ANNOUNCEMENT

Organizers:

SWANTEC Software and Engineering ApS, Denmark
Hochschule Esslingen - University of Applied Sciences, Germany

Background:

Inventions and innovative developments have enabled new possibilities for joining challenging materials such as aluminum alloys, copper alloys and advanced high-strength steels by welding, joining technologies.

Resistance welding remains one of the most efficient and competitive joining technologies in automotive, aerospace, electrical, and other industries. While mechanical joining (SPR and clinching) also finds increasing applications especially for joining dissimilar materials.

In order to keep current with technologies available in the field of resistance welding and mechanical joining, a biennial series of international seminars and conferences have been conducted by SWANTEC since 2000 in collaborations with various co-organizing partners, and held alternatively in Europe, North America, and Asia.

The 10th international seminar and conference is organized by SWANTEC and Hochschule Esslingen - University of Applied Sciences on 12-14th September 2018 in Esslingen, Stuttgart, Germany.

Objectives:

- To bring up the latest innovations and developments on industrial applications of resistance welding and mechanical joining technologies.
- To provide an opportunity for industrialists and specialists in welding and joining to share their expertise and experiences at an international level.

Topics and subjects:

- State of the art in welding and joining, and a look into Industry 4.0
- Advances in mechanical joining, self-pierce riveting (SPR), and clinching
- Advanced high strength steels, dissimilar materials, and coating
- Copper alloys and electronic materials, complex joints
- Welding machine, tooling, monitoring, and controls
- Digital technologies and computer simulations

Proceedings:

Presentations will be presented in English during the event.

Proceedings of all lectures will be written in English and distributed to participants at the seminar.
**PROGRAM**

**Wednesday, 12th September 2018:**

11:00 – 12:00  Registration

12:00 – 13:00  Lunch

13:00 – 15:00  **Workshop on SORPAS® and User Group Meeting**  – Open to all seminar participants

Presentation and demonstrations of new releases of SORPAS®2D and 3D and case studies

by Wenqi Zhang, Swantec Software and Engineering ApS, Denmark

New developments of SORPAS®2D3D.link - from 2D welding/joining to 3D strength testing

by Wenqi Zhang, Swantec Software and Engineering ApS, Denmark

SORPAS®2D – Results  →  SORPAS®2D3D.link  →  SORPAS®3D.testing

15:00 – 15:30  Coffee break

15:30 – 17:00  **Demonstrations and Round Tour of the Labs**  – Open to all seminar participants

Round tour of the labs at Hochschule Esslingen

by Martin Greitmann, Hochschule Esslingen, Germany

18:00 – 20:00  Reception with refreshments

**Thursday, 13th September 2018:**

09:00 – 09:10  Welcome

09:10 – 10:00  **Keynote speech: State-of-the-art in welding and joining and a look into Industry 4.0**

by Martin Greitmann, Hochschule Esslingen, Germany

10:00 – 10:30  Coffee break

Session 1: Mechanical joining and hybrid joining

10:30 – 11:00  **Joining by Forming of Composite Sandwich Panels to Metallic Tubes**

by L.M. Alves, R.M. Afonso, C.M.A. Silva, Paulo Martins, IDMEC, Instituto Superior Técnico, Universidade de Lisboa, Portugal

11:00 – 11:30  **Experimental study as basis for the simulation of Joining by Forming**

by Uwe Füssel, Jan Kalich, Technische Universität Dresden, Germany

11:30 – 12:00  **FEM simulation for the development of data-based process models in mechanical joining technology**

by Tobias Falk, Thomas Kropp, Mathias Jäckel, Fraunhofer Institute for Machine Tools and Forming Technology IWU, Germany

12:00 – 12:30  **New Method to Estimate Fatigue Life of Multi-Material Connections Joined by Self-Piercing Rivets**

by Jan Presse, Opel Opel Automobile GmbH, Germany

12:30 – 13:30  Lunch
## PROGRAM

**Session 2: Resistance welding of advanced high strength steels & aluminium**

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<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
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<tbody>
<tr>
<td>13:30 – 14:00</td>
<td>Effects of Electrode Material on Projection Welding of Advanced High Strength Steel</td>
<td>R. Nivas, Z. Jiao, K. Chan, Nigel Scotchmer, Y. Zhou, Huys Industries, Canada</td>
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<td>14:00 – 14:30</td>
<td>A study on the effect of local fracture toughness on the cross-tension strength of advanced high strength steel resistance spot weld</td>
<td>Ali Chabok, University of Groningen, E. van der Aa, Tata Steel B.V, J.T.M. De Hosson &amp; Y.T. Pei1, University of Groningen, Netherlands</td>
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<td>14:30 – 15:00</td>
<td>Advances is resistance welding of aluminium for volume production applications</td>
<td>Sullivan Smith, TWI Ltd, UK</td>
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<td>15:00 – 15:30</td>
<td>A study on seam welding on steels for fuel tank</td>
<td>Yun Sang-Man, Posco, South Korea</td>
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<th>Time</th>
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**Session 3: Welding and joining copper alloys and electronic materials**

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<tr>
<td>16:00 – 16:30</td>
<td>Batteries need strong connections – what is the best suited joining technology?</td>
<td>Jörg Kundrat and Marcin Alexy, Amada Miyachi, Germany</td>
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<td>16:30 – 17:00</td>
<td>Aluminium/Copper-compounds, &quot;the missing link&quot; between lightweight and power</td>
<td>Arno Marto, Inovarn GmbH &amp; Co. KG, Germany</td>
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<td>17:00 – 17:30</td>
<td>Experimental study on the role of the electrical contact resistance in resistance projection welding</td>
<td>Michael Wehle, Robert Bosch GmbH, G. Schmitz University of Stuttgart, and Martin Greitmann, Hochschule Esslingen, Germany</td>
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**Friday, 14th September 2018:**

**Session 4: Advances in welding equipment and control technologies**

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<tr>
<td>09:00 – 09:30</td>
<td>Material mixes in modern automotive body-in-white production and consequences on energy consumption in production facilities</td>
<td>Jörg Eggers, Ralf Bothfeld, Harms-Wende, Germany</td>
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<td>09:30 – 10:00</td>
<td>Development of resistance spot welding technology applying 2-stage adaptive control for narrow pitch spot welding</td>
<td>Chikaumi Sawanishi, JFE Steel Corporation, Japan</td>
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<td>10:00 – 10:30</td>
<td>Projection Welding of nuts with Electromechanical Electrode Force System</td>
<td>Zygmunt Mikno, Szymon Kowieski, Adam Pilarczyk, Instytut Spawalnictwa (Institute of Welding), Poland</td>
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<td>10:30 – 11:00</td>
<td>Influence of cone angles on behavior of Truncated electrodes, a practical and FEA study</td>
<td>Arnout Dejans, Hendrik Roels, Patrick Van Rymenant, Katholieke Universiteit Leuven, Belgium</td>
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**Session 5: Digital and computer technologies**

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<td>11:30 – 12:00</td>
<td>Visualization by high speed camera and observation of welding phenomena</td>
<td>Kiyoyuki Fukui, Nac Image Technology Inc., Japan</td>
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<td>12:00 – 12:30</td>
<td>Omicron - an Adaptive Smart Sensor with Optical Monitoring of Electrode Quality in Spot Welding Production</td>
<td>Eugenio Tedeschi, Marco Paleari, Giuseppe Palopoli, Sinterleghe S.r.l., Italy</td>
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<td>12:30 – 13:00</td>
<td>Imaging spot weld inspection using Phased Array technology</td>
<td>Carsten Köhler, VOGT Ultrasonics GmbH, Germany</td>
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<td>13:00 – 13:30</td>
<td>Evolution of computer simulation and optimization with potential for machine learning and artificial intelligence</td>
<td>Wenqi Zhang, Swantec Software and Engineering ApS, Denmark</td>
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<th>Time</th>
<th>Closing remarks and discussions</th>
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VENUE INFORMATION

Venue for Reception, Workshop, User Group Meeting, and Seminar:

Altes Rathaus
Rathausplatz 1
73728 Esslingen am Neckar
Germany
Phone: +49 (0) 711 41111 700
www.esslingenlive.de/das-alte-rathaus

Hotel suggestions:

Best Western Premier Hotel Park Consul
Stuttgart/ Esslingen am Neckar
Grabbrunnenstraße 19
73728 Esslingen am Neckar
Phone: +49 (0) 711 4111 10
www.pcesslingen.consul-hotels.com
SPECIAL RATES AVAILABLE
More information after registration.

ECOINN das Umwelthotel am Campus
Kanalstraße 14-16
73728 Esslingen am Neckar
Phone: +49 (0) 711 3105 890
www.ecoinn.de
SPECIAL RATES AVAILABLE
More information after registration.

Transportation:

The former free imperial city of Esslingen is located at the Neckar Valley and surrounded by vineyards.

You will find good transport connections by train and bus from Stuttgart city and from Stuttgart Airport.

Only 30 minutes driving by car from Stuttgart Airport.
REGISTRATION

Participant:

Name: ____________________________________________
☐ Ms. ☐ Mr. ☐ Dr. ☐ Prof.
Organization: ______________________________________
Address: _________________________________________
Postal or Zip: _______________________ City: ____________
Country: _________________________________
Phone: _________________________________
Fax: _________________________________
E-mail: ______________________________________

Participation: ☐ Seminar

Registration fee

€425 (Euro)

Price include the conference, dinner, and materials, though exclusive of hotel and any applicable taxes and/or fees.

Payment:

☐ Bank transfer to SWANTEC Software and Engineering ApS
Danske Bank, Erhverv Direkte, Holmens Kanal 2-12, 1092 Copenhagen,
Account 3409-4260599852. IBAN: DK6530004260599852. SWIFT: DABADKKK
Note: Your name in the transfer is necessary for identification.

☐ Send invoice to me

☐ Online Credit Card payment

VAT registration number for EU countries: ________________

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