

**The 5th International Seminar on
Advances in Resistance Welding
September 24th – 26th, 2008, in Toronto, Canada**

ANNOUNCEMENT

Organisers:

[SWANTEC Software and Engineering ApS](#), Denmark
[Huys Industries Ltd](#), Canada

Background:

New inventions and innovative developments in recent years have revitalized the technology of resistance welding and have enabled new possibilities for joining challenging materials such as aluminium, magnesium and advanced high strength steels. These advances have drawn greater attention from manufacturers towards new applications of resistance welding techniques. With extensive research and development by material suppliers, welding equipment manufacturers and industrial end users, it is obvious to see that resistance welding remains one of the most efficient and competitive joining technologies in automotive, aerospace, electrical, electronics, white goods and other metal processing industries.

There have been great demands from industry to follow through with the recent advances and update users with the technology available in the field of resistance welding. In order to meet the demands of industry, a series of international seminars on Advances in Resistance Welding have been initiated by SWANTEC since 2000 and now organized as a biennial activity of the Innovative Resistance Welding Network – [INNOWELD.NET](#). The first seminar was held in October 2000 in Copenhagen, Denmark, the second was held in November 2002 in Aachen, Germany, while the third was held in November 2004 in Berlin, Germany. The fourth seminar was held in 2006 in Wels, Austria. All lectures at the seminars were given by well-known experts specially invited from leading institutes and companies in the field of resistance welding with a full coverage of all important topics on materials, welding equipment, innovations and the latest industrial applications. The seminars are well attended, with over 70 participants in 2006, with more than 80% of them coming from industry.

The 5th seminar will be organized by SWANTEC and Huys Industries from September 24th-26th, 2008 in Toronto, Canada. Approximately 25 lectures will be given by invited experts in the field of resistance welding from leading institutes, universities and companies covering the latest inventions and developments in resistance welding with special emphasis on adaptive resistance welding controls and applications for materials which are difficult to weld *e.g.* aluminium and advanced high strength steels, etc.

Objectives:

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

Topics:

- Challenges to resistance welding for applications of new materials and complex joints.
- Innovations and advances in resistance welding machines/guns and control technologies.
- Applications and optimizations of resistance welding with the support of computer technology.

Proceedings:

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

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PROGRAMME

Wednesday, September 24th, 2008:

- 08:00 – 09:00 **Registration**
- 09:00 – 10:00 **Workshop on SORPAS® – Simulation and Optimization of Resistance Welding**
W. Zhang, *SWANTEC Software and Engineering, Denmark*
- 10:00 – 10:30 Coffee Break
- 10:30 – 11:00 Session 1: Resistance Welding Process
Significance of Material Property Characteristics on SORPAS Weld Simulation
J. Brooks, D. Maatz, T. Morrissett, *RoMan Engineering Services, USA*
- 11:00 – 11:30 **A Method to Improve Resistance Spot Weld Expulsion Prediction Based on Simulated Electrode Displacement**
D. Glander, *General Motors, USA*
- 11:30 – 12:00 **Influences of Material Yield Strength on Resistance Spot Welding Process**
S. Subramanian, *Ford Motor Company, USA*
- 12:00 – 13:00 Lunch, provided
- 13:00 – 13:30 Session 2: New Steels and How to Weld Them
Some Considerations in the Resistance Spot Welding of Dual Phase and TRIP Steels
M. Tumuluru, *US Steel Corporation, USA*
- 13:30 – 14:00 **Effect of Steel Processing Chemistry Variation on Resistance Spot Welding**
E. Biro, *ArcelorMittal, Canada*, T. Dupuy, *ArcelorMittal, France*
- 14:00 – 14:30 **Failure Modes of Resistance Spot Welded Advanced High Strength Steels**
N. den Uijl, S. Smith, C. Goos, E. van der Aa, T. Moolevliet and T. van der Veldt, *CORUS, Netherlands*
- 14:30 – 15:00 Coffee Break
- 15:00 – 15:30 **Development of New Resistance Spot Welding Process for Three Sheets Joint Using Electrode Force Control**
R. Ikeda, Y. Okita, M. Ono, *JFE Steel Corporation, Japan*
- 15:30 – 16:00 **Development of Starting Weld Schedules for AHSS**
E. Pakalnins, *Chrysler, USA*, M. L. Kuntz, *University of Waterloo, Canada*
- 16:00 – 16:30 **Significance of Conduction Angle on AHSS Weldability and SORPAS Simulations**
D. Maatz, J. Brooks, T. Morrissett, *RoMan Engineering Services, USA*
- 16:30 – 17:00 **Microstructure and Hardness Distribution of Resistance Welded Advanced High Strength Steels**
K.R. Pedersen¹, A. Harthoej¹, K.L. Friis¹, N. Bay¹, M.A.J. Somers¹, W. Zhang², ¹*Technical University of Denmark*, ²*SWANTEC Software and Engineering ApS, Denmark*
- 18:00 – 20:00 **Reception and buffet**

Thursday, September 25th, 2008:

- 08:30 – 09:00 Session 3: Keynote Presentation and Round Table Discussions
Keynote Speech: Current Comments on the Global Automotive Industry
R. Cooper, *J.D. Power, USA*
- 09:00 – 10:00 **Round Table Discussion on the Future and Direction of Resistance Welding**
R. Hirsch, *Unitrol Electronics Inc. USA*; C. Orsette, *Fusion Welding, USA*; T. Coon, *Ford Motor Company, USA*; T. North, *University of Toronto, Canada*; S. Singh, *Audi-rtd, Germany*

- 10:00 – 10:30 Coffee Break
- 10:30 – 11:00 Session 4: Resistance Welding of Challenging Materials
Resistance Spot Welding of AHSS; A Comparative Study of Joint Efficiency
 J. Bohr, *Auto/Steel Partnership Joining Technology Committee, USA*; C. (Cindy) Jiang, *AET Integration, USA*
- 11:00 – 11:30 **Resistance Welding in Fabrication of Passenger Railcars**
 W. Jaxa-Rozen, *Bombardier Transportation, Canada*
- 11:30 – 12:00 **Resistance Spot Welding of Aluminum to Steel**
 A. Bećirović, A. Eder, W. Stieglbauer, *Fronius International, Austria*
- 12:00 – 12:30 **Electrode Lifetime Testing on Spot Welding of Aluminum Alloys**
 M. Casteels, *De Nayer Institute, Belgium*
- 12:30 – 13:30 Lunch, provided
- 13:30 – 14:00 Session 5: Advanced Welding Equipment and Control Techniques
Capturing Monitoring Data during Resistance Welding
 K. Matsuyama, *Smart Welding Technologies, USA*
- 14:00 – 14:30 **Genius MFI IQR - A New Inverter Power Supply with Adaptive Regulation System to Assure the Quality for Resistance Spot Welding**
 R. Bothfeld, *Harms&Wende, Germany*
- 14:30 – 15:00 **Real Time Zero Defect Projection Welding**
 D. Cical, *CIW -Computer Integrated Welding, USA*
- 15:00 – 15:30 Coffee Break
- 15:30 – 16:00 **Characterization of Dynamic Mechanical Behaviour of RSW Machines**
 P. van Rymenant, *Cranfield University, UK*
- 16:00 – 16:30 **Merging the Real-Time Ultrasonic Measurements With Numeric Model of Resistance Spot Welds**
 A.M. Chertov, W.G. Arthur, R.Gr. Maev, *University of Windsor, Canada*
- 16:30 – 17:00 **A New Process Monitoring System in Resistance Micro Welding**
 W. Tan, Y. Zhou, *University of Waterloo, Canada*
- 17:30 – 19:00 **Poster Competition Results and Vendor Table Displays**
- 19:00 – 21:00 **Dinner, provided**

Friday, September 26th, 2008:

- 08:30 – 09:00 Session 6: Process Optimizations and Quality Assurance
A Multi-Disciplinary Approach to Optimizing the Resistance Welding Process
 N. Scotchmer, K. R. Chan, *Huys Welding Strategies Ltd., Canada*
- 09:00 – 09:30 **Improved Electro-Spark Deposition (ESD) Coating to Extend Electrode Life in RSW**
 S.K. Tang, Y. Zhou, *University of Waterloo, Canada*
- 09:30 – 10:00 **Process Optimization and Electrode Life Modeling in Continuous / Repetitive Spot Welding Process**
 W. Zhang, *SWANTEC Software and Engineering, Denmark*
- 10:00 – 10:30 Coffee Break
- 10:30 – 11:00 **Integrated Process-Microstructure-Performance Modeling for AHSS Spot Welded Structures - Approaches and Challenges**
 S. Babu, *Ohio State University, USA*
- 11:00 – 11:30 **Effect of TiB₂ Coating in Electrode Tip Surface on Electrode Degradation during Resistance Spot Welding of Zinc Coated Steels**
 S. Dong, *Hubei University of Automobile Technology, China*
- 11:30 – 12:00 **Comparison: Resistance Spot Welding and Friction Stir Spot Welding of DP 600 Steel**
 M. I. Khan¹, M. L. Kuntz¹, P. Su¹, T. North², A. Gerlich³ and Y. Zhou¹, ¹University of Waterloo, ²University of Toronto, ³University of Alberta, Canada
- 12:00 – 13:30 Closing remarks and lunch, provided
 AWS C1 and SCC SC/6 Meetings to Follow Lunch

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PROGRAMME

Reception, Workshop, Seminar and User Group Meetings, Sept. 24th - 26th:



Bayview Golf and Country Club

A private club, the Bayview Golf and Country is renowned for its world class golf course, its meeting facilities, its food and its curling. The meetings, receptions, vendor display and posters display will be held in the Ballroom and Executive Meeting Room, with its fine view and balcony.



Directions:

From Pearson International Airport, take Highway 401 East to Highway 404 North. Exit at Woodbine and take Steeles Ave. west; Bayview Golf and Country Club is north at Fairway Heights Drive.

Link:

<http://maps.google.ca/maps?f=q&hl=en&geocode=&q=25+fairway+heights+drive,+thornhill&sll=49.166>

Hotels:

There are many hotels surrounding the intersection of Highways 407 and 404. We have arranged special rates at two good, nearby hotels; \$119 per night at the **Holiday Inn Hotel & Suites**, at Woodbine and Steeles, one block east of Highway 404 at the Woodbine/Steeles exit (a shuttle bus is available); and \$134 per night at the **Courtyard by Marriott Markham**, one block north of the 407 at the Leslie exit on the 407. Please ask for the “Huys Industries Group Special Rate” and book early.

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- 1. Bayview Golf and Country Club**
25 Fairway Heights Drive
Thornhill, Ontario L3T 3X1
Telephone (905) 889-4833
Fax (905) 889-1791
- 2. Holiday Inn Hotel & Suites Toronto Markham**
7095 Woodbine Avenue,
Markham, Ontario, L3R 1A3
Telephone (905) 307-3043
Fax (905) 474-0312
Email ldurance@markham.holiday-inn.com
- 3. Courtyard by Marriott Markham**
65 Minthom Boulevard
Markham, Ontario, L3T 7N5
Telephone (905) 707-6533
Fax (905) 707-6955
Email jfraser@concordhotels.com

Student Poster Competition

Students attending a post secondary institution are welcome to submit a poster. A \$500 prize for the best poster illustrating an aspect of resistance welding they are studying, or have studied, will be awarded during the conference. In addition, a student completing the process to submit a poster prior to August 24th, 2008, will obtain free admission to the Seminar. Please contact kchan@huysindustries.com for complete details.

Vendor Tabletop Exhibits

Vendors will have the opportunity to reach the world's leading researchers and experts in the industry in a specific, targeted manner. Exhibitors will have a skirted table available for the entire conference placed in the reception and dining room next to the poster displays. Listing in the programme and proceedings is possible depending upon deadlines. One free admission to the entire conference is included with the exhibit. Please contact sfernandez@huysindustries.com for full details.

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REGISTRATION

Participant:

Name: _____ Ms. Mr. Dr. Prof.

Organization: _____

Address: _____

Postal or Zip: _____ City: _____

Country: _____

Phone: _____

Fax: _____

E-mail: _____

Participation:

| | Registration before August 29 th , 2008 | Registration after August 29 th , 2008 |
|--|---|--|
|--|---|--|

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|----------------------------------|--------------|--------------|
| <input type="checkbox"/> Seminar | \$595 / €395 | \$645 / €425 |
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All prices are exclusive of any applicable taxes and/or fees.

Payment:

Check/cheque enclosed. Please make payable to **Huys Industries Limited**

Payment by VISA or American Express

Name on Credit Card: _____

Credit Card Number: _____

Expiry Date: _____

Signature: _____

Bank transfer to **SWANTEC Software and Engineering ApS** at:

Danske Bank, DTU-Branch, 2800 Lyngby, Denmark.

SWIFT: DABA DK KK. IBAN: DK3630004263877810

Notice: Your name in the transfer is important for identification.

Please return to:

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