



CWA Seminar and Workshop - October 2, 2014

COMPUTATIONAL WELD MECHANICS



Faster, cheaper computers and more powerful user friendly software are rapidly making computer simulation and optimization of welds and welded structures feasible for routine engineering for the design and planning of welds and to manage their business. The CanWeld 2014 insight speaker series is pleased to announce an internationally recognized seminar featuring Dr. John Goldak and Dr. Mahyar Asadi who will present a workshop and seminar in which you will learn the recent advances of computational welding mechanics both in theory and analysis of welds and welded structures in interactive projects on virtual machines.



The highlighted topics include:

- Weld Pools and Thermal Models.
- Transient Thermal Analysis of Welds and Welded Structures.
- Micro-Macro Microstructure in the Fusion Zone & HAZ.
- Coupled Thermal Stress Analysis of Welds and Welded Structures.
- Design Driven Optimization of Welds and Welded Structures.
- Practical Solutions to Optimize Weld Sequences and Fixtures.

Computational Weld Mechanics Agenda

- 08:00 - 08:20 • Registration and breakfast session
08:20 - 09:00 • Virtual machine set-up and workshop preparation
09:00 - 10:15 • Session 1 10:15 - 10:30 Coffee break
10:30 - 12:00 • Session 2 12:00 - 12:45 Lunch
12:45 - 14:30 • Session 3 14:30 - 14:45 Coffee break
14:45 - 16:00 • Session 4 16:00 - 16:30 Project review, Q&A

Sign up now:

The registration costs are \$425 for CWA members and \$525* for non-members, and \$150 for students and educators. Applicable taxes are extra. The fees include course materials, continental breakfast, lunch and breaks. *Includes one year CWA Premium membership fee.

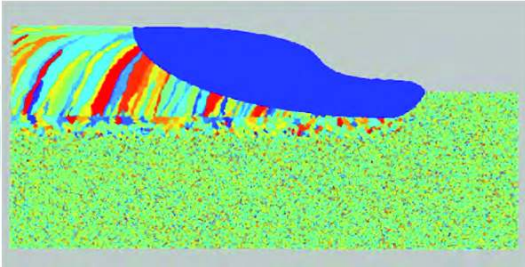
To register, please visit: cwaevents.org

SEMINAR INFORMATION

WHERE: Westin Bayshore Hotel
1601 Bayshore Dr,
Vancouver, BC
Canada V6G 2V4

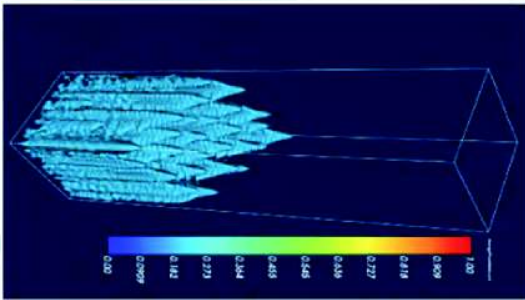
WHEN: October 2nd, 2014
TIME: 8:00 AM - 4:00 PM

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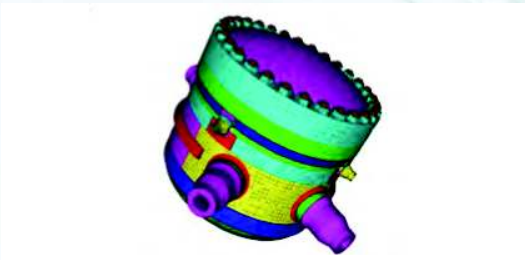
09:00-10:15 Session 1: Weld Pool Models and Transient Thermal Analysis

- Introduction to CWM.
- Physics of the weld pool and associated models.
- Predicting penetration, reinforcement, and weld pool shape and size.
- Dilution, mixing and porosity in the weld pool.
- Practical transient thermal analysis of welds.



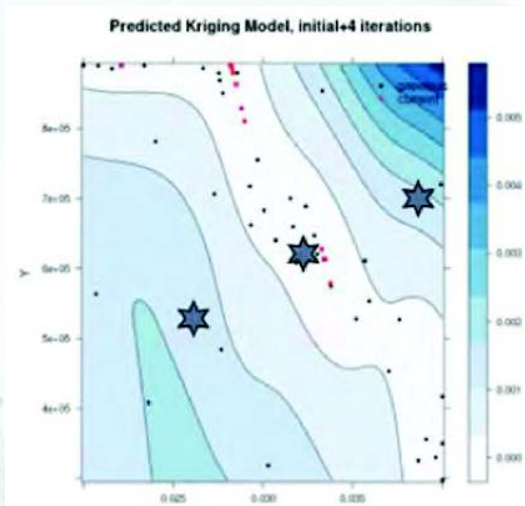
10:30-12:00 Session 2: Evolution of Microstructure in the Fusion Zone & HAZ

- Fusion Zone Microstructure, solidification, segregation and diffusion.
- HAZ microstructure evolution in low-alloy steels. Jominy test.
- Computing local stress-strain curve with transient temperature and microstructure.
- Multi-pass welds and additive metal deposition.



12:45-14:30 Session 3: Coupled thermal stress analysis of complex structures

- Rigid Body Modes and fixturing.
- Minimal (/zero) distortion and residual stress.
- Multi-pass welds, overlay welds, Optimal Weld Sequences and Optimal Fixtures.



14:45-16:00 Session 4: DOE, optimization of welds and welded structures.

- Weld Procedure Data Sheets.
- Automated Optimization of Design of welds and welded structures.
- Relating Design of computational experiment to Welding practice.