



# American Welding Society Alberta Section



## Seminar Announcement

### September 24, 2010



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### Advanced Ultrasonic Examination Methods for Weld Inspection

Closely associated with the implementation of modern manufacturing and welding fabrication methods is the development of advanced non-destructive testing (NDT) techniques. NDT techniques are critical to ensuring the quality and fitness-for-service of production welds. Historically, the industry has relied on traditional NDT techniques such as radiographic testing and manual ultrasonic testing. The former presents significant health hazards and requires production outages, while the latter is labour intensive and typically does not provide a permanent record of the inspection. However, with the advent of modern computer software interfaces, an entire new spectrum of non destructive testing techniques has been developed, such as phased array and time of flight diffraction ultrasonic testing. These techniques improve the quality, speed and accuracy of the ultrasonic inspection process.

The AWS Alberta Section is hosting a one-day education seminar that will showcase significant quality assurance tools for Alberta's energy and fabrication industries. The event will include UT equipment demonstrations and will be of value for anyone involved in welding, including: shop foremen, superintendents, quality control personnel, professional engineers, welding inspectors, welders, and students of metals-related disciplines.

**WHEN:** Friday, Sept 24, 2010 @ 7:30 am

**WHERE:** Alberta Innovates – Technology Futures, Edmonton South (formerly Alberta Research Council) 250 Karl Clark Road, Edmonton, AB

<b>TIMES:</b>	7:30 am	Breakfast & Registration
	8:45 am	Morning Presentations
	12:30 pm	Buffet Lunch
	1:00 pm	Keynote Speaker (Dr. H. Bhadeshia, University of Cambridge)
	1:30 pm	Afternoon Presentations
	3:30 pm	Equipment Demonstrations and Networking
	4:30 pm	Seminar Adjourns

#### COST:

<b>Before Sept 17:</b>	\$250	for AWS, CWA, ASM, NACE, SME and other EATS Members
	\$300	for Non-Members
	\$55	for Student Members

<b>On or after Sept 17:</b>	\$300	for AWS, CWA, ASM, NACE, SME and other EATS Members
	\$350	for Non-Members or Walk-Ups
	\$55	for Student Members

**Register Early! Limited Space!**

### Our Presenters



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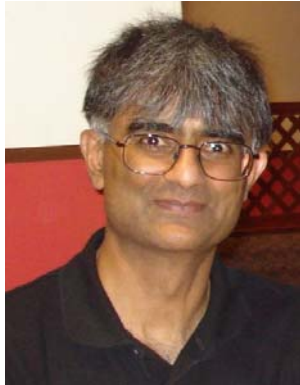


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## Keynote Speaker

### ***Design of Welding Consumables for the Mitigation of Residual Stress***

H. K. D. H. Bhadeshia, University of Cambridge

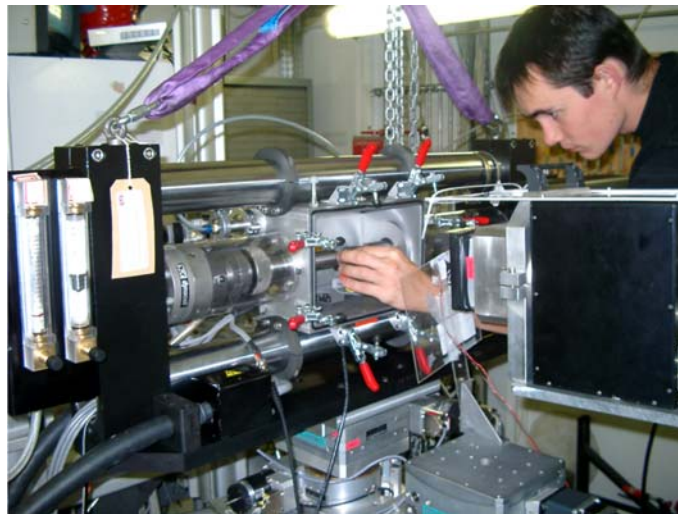


*The matter of our everyday world is made up of atoms and it is the behaviour of collections of these entities which governs the properties of macroscopic samples. The choreography of atomic motions during transformation is particularly important when dealing with martensite or bainite. These phases evolve by the synchronised movement of atoms, leading to visible displacements which can in principle be exploited to do work, a phenomenon intrinsic to the mechanical behaviour of TRIP--assisted steels.*

*The subject of this lecture is somewhat different, i.e. the control of the transformation strains to compensate for the contraction when a constrained welded component cools. The talk will begin with a rigorous description of the deformation caused by the change of austenite into martensite or bainite. I will then go on to demonstrate how, following some leads from the early work of Alberry and Jones, welding alloys can be designed and implemented to leave the cooled welded assembly in a state which is free from pernicious residual stresses. The work covers both low-alloy and stainless steels.*

#### ***Speaker Biography:***

Harry Bhadeshia is the Tata Steel Professor of Metallurgy at the University of Cambridge, U.K., and Professor of Computational Metallurgy at POSTECH, South Korea. Much of his energy is devoted to the development of solid-state phase transformation theory, and its experimental validation, in the hope of inventing new steels and processes.



Synchrotron experiments to help design welding alloys

*Advanced Ultrasonic Examination Methods  
for Weld Inspection*  
Seminar Registration Form & Invoice

**PLEASE USE ONE FORM PER REGISTRANT - PLEASE MAKE COPIES AS REQUIRED**

Name \_\_\_\_\_

Affiliation Membership \_\_\_\_\_ Membership No. \_\_\_\_\_

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Cost (before September 17):

***\$250 for AWS CWA, ASM, NACE, SME, and other EATS members***

***\$300 for Non-Members***

***\$55 for student members***

Cost (on or after September 17):

***\$300 for AWS CWA, ASM, NACE, SME, and other EATS members***

***\$350 for Non-Members or Walk-ups***

***\$55 for Student Members***

Fill out the above registration to confirm your attendance

***Register Early! Limited Space!***

Payment Options: Cash, Check or Credit Card

***\$50 service charge for cancelations***

AMOUNT ENCLOSED / INVOICE AMOUNT: \$ \_\_\_\_\_

Credit Card Type: \_\_\_\_\_ Number: \_\_\_\_\_

Expiry Date: \_\_\_\_\_ Signature: \_\_\_\_\_

Payments payable to: "Alberta Innovates - Technology Futures"

Return completed registration form by fax, mail or e-mail to:

AWS Alberta Section

c/o: Megan Axley

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