

HALIFAX 2019

# CANWELD CONFERENCE 2019

METAL FABRICATING - WELDING - FINISHING



*Current Waves*



DATE: OCT 9-10TH, 2019  
HALIFAX CONVENTION CENTRE



| cwbgroup

## CWB GROUP'S MISSION

Serve the Canadian public and welding sector by providing innovative and globally relevant certification, knowledge, and technical expertise.

## CWB GROUP'S VISION

To enhance public safety by being the trusted global leader of welding knowledge by driving a strong and diverse sector in Canada.

## CWB GROUP'S VALUES

### INTEGRITY

We practice honesty and build trusting relationships with all those that we interact with. Behaving with the highest level of integrity is the foundation on which we built our business.

### COMMITMENT

We are committed to working with others throughout the organization to solve problems to get the job done. We hold ourselves accountable, not only for our own work and actions but also for the success of the organization as a whole.

### CLIENT FOCUS

We are committed to anticipating the needs of our clients, developing and delivering high quality programs and services that support our clients in being successful.

### HEALTH AND SAFETY

We are committed to leading by example through our own workplace safety practices.

### INNOVATION

We will develop products, services and processes that lead the industry and add value to enhance the client experience



Check out our LIVE coverage of **#CANWELDCONFERENCE** on our Social Media pages! We will be posting pictures and videos of the entire conference event on our Facebook and Twitter pages for you to enjoy. Feel free to share your own pictures as well by tagging us and using our hashtag **#CanWeldConference** You can also let us know which speaker you are most interested in listening to and your thoughts on the topics being discussed. We look forward to sharing this journey with you - **LOOK OUT HALIFAX WE'VE GOT SOME SOCIAL MEDIA FUN COMING YOUR WAY!**





## CWB ASSOCIATION MISSION

Support the sustained success of the Canadian welding and joining industry through innovative programs

- ✓ FACILITATE
- ✓ EDUCATE
- ✓ ADVOCATE



## KEY PRIORITIES

1. Provide the welding community with networking opportunities, share best practices, innovations and advancements which support industry success in online and forums
2. Enhance the current apprenticeship programs to support and accelerate excellence in workplace training (EWAT 2.0)



The CWB Association and its volunteer members work hard on behalf of the welding industry at local, regional and national levels to ensure the prosperity and sustainability of the Canadian welding industry. For nearly a decade the association has worked diligently with college and high school teachers to harmonize welding education and make improvements to the existing welding education model. The CWB investments have led to development of a national Rubric standard for weld sample evaluations and Acorn, an online training model now in use by most colleges and high schools. We promote welding careers through our engagement with school boards, our participation at trade fairs, social media, guest speaking engagements, plant tours, mentorships, electronic and print publications, etc. Members receive a selection of free online courses on: inspection, welding symbols, health and safety, etc. We initiate and participate in government dialogues, policy development and legislation to promote the success of the Canadian welding industry. We encourage government to make investments in apprenticeships to ensure that the Canadian industry has adequate supply of skilled labour for its current and future needs. We work closely with industry suppliers and academia to provide Canadian employers with timely access to innovative welding technologies and advanced research information. We encourage industry to make investments in welding automation improve welding processes that will lead to improved welding productivity and competitiveness of the welding and metal fabrication industry. We design apprenticeship programs to support companies with hiring practices, mentorship roles and responsibilities to ensure the successful development of welding and metal fabrication apprentices. Our regional Chapters organize educational and general interest events for members. On a broader scale the association organizes annual CanWeld and Welding Educator conferences that provide learning and networking opportunities for welding educators and industry professionals.

**Your investment in membership will help us develop programs that ensure the success, prosperity and sustainability of the Canadian welding industry**



**A MEMBER, you can grow and develop new skills to ensure your future success by:**

- Learning new skills through online courses
- Attend chapter events and national conferences
- Participate on the chapter executive committees
- Access technical conference papers and publications
- Volunteer your time to provide mentorship at a local school
- Network with industry colleagues to grow your business

**CANWELD**  
CONFERENCE 2019

METAL FABRICATING - WELDING - FINISHING

# CWB WELDING FOUNDATION IMPACT REPORT



**cwbwelding  
foundation**  
building the future of welding in Canada

Dear Friends in Welding Education;

In just five years, the CWB Welding Foundation has spearheaded significant change across Canada. Since its establishment in 2013, the CWB Welding Foundation has made tremendous efforts to positively impact the welding industry and individuals as it works to ensure that the next generation of Canadians understands the opportunities that exist related to welding.

While more than 100,000 Canadians are currently employed as certified welders across more than approximately 7,000 CWB certified organizations, the Canadian welding industry is experiencing a shortage of welding professionals, in large part due to an ageing Canadian population, a lack of young people being attracted to the skilled trades, and the reduced focus on skilled-trades training in secondary and post-secondary institutions.

Through this period of change, the CWB Welding Foundation has responded and adapted our nation's concerns through enhanced welding education, and promoting welding as an exciting, safe and rewarding career. We've worked with hundreds of primary, secondary and post-secondary schools across Canada and sponsored CWB Association chapter as well as national member and educator events. We've hosted camps, workshops and information sessions that inspired informed and encouraged young Canadians to give welding a try. Most important, we've focused on welcoming underrepresented groups into the welding trade - primarily Indigenous people, women and new Canadians, thereby broadening our talent pool and more closely reflecting our demographic profile.

To ensure our mission is sustainable, we also forged more than 30 industry and government partnerships, which extend our reach and leverage investments in tomorrow's welding workforce.

Thanks to your support and the generous support of our partner organizations, we are proud to continue enhancing and expanding our programs and initiatives. We continue to build funding partnerships with external sources to meet the demands of the industry and rely on the help of national, provincial, and local community organizations to continue breaking down barriers for those wishing to enter in the welding industry in Canada.

We've come a long way, and our first-ever Impact Report is our commitment to growing and diversifying in the next five years. When our students, teachers, educators, and welders succeed, it creates a powerful ripple that is felt in families, schools, and our communities.

We invite you all to see for yourself and read our results at [CWBWeldingFoundation.org/Impact](http://CWBWeldingFoundation.org/Impact).

**Susan Crowley**  
Executive Director, CWB Welding Foundation



Current Waves

# THE HIGHLY ANTICIPATED CWB WELDING FOUNDATION 5 YEAR IMPACT REPORT

Now available online at [cwbweldingfoundation.org/impact](http://cwbweldingfoundation.org/impact)

We share both hard and soft  
impact data, from dollar values,  
to individual testimonials



**cwbwelding  
foundation**  
building the future of welding in Canada



**cwbwelding  
foundation**  
building the future of welding in Canada

Join us in building

# FUTURE PARTNERSHIPS AND COLLABORATIVE EFFORTS

In just five years, CWB Welding Foundation has spearheaded significant change across Canada. We've responded and adapted to meet one of our nation's key challenges to address the skills shortage and skills mismatch in welders, through enhanced welding education, and promoting welding as an exciting, stable, safe and rewarding career.

Join us in celebrating our hard and soft impact data, from dollar values, to individual testimonials!

The highly anticipated CWB Welding Foundation 5 Year Impact Report is now available online at [cwbweldingfoundation.org/impact](http://cwbweldingfoundation.org/impact)

To find out how you can become involved contact us today! [info@cwbweldingfoundation.org](mailto:info@cwbweldingfoundation.org)



## WELCOME TO CANWELD 2019

Welcome to the phenomenal city of Halifax, Nova Scotia and the tenth annual CanWeld Conference! This year, you'll find yourself in a lively, and bustling city nestled in the middle of a scenic landscape giving you the best of both worlds.

We are fortunate enough this year to be hosting some of the most renowned names in the industry. Taking past conference survey results into consideration, the team has worked tirelessly to ensure that we bring the topics that interest and affect you the most, which is very reflective in all the guest speakers and presentations.

Also, taking advantage of the vast shipbuilding industry in the area, the shipping sector will be a focal point of some meaningful conversations that will happen at the conference, and we guarantee that this will be an event to be remembered! The guest speakers, the team at the CWB Group and you, the attendees, showcase the example of the relationships that we have built each year since our conception and is the reason why we're lucky enough to implement this industry event annually so I'd like to take a moment to show my gratitude to all of you.

We, at the CWB Group, would like to thank you for taking the time to attend and we look forward to connecting with each and every one of you!

**Doug Luciani**  
President & CEO  
CWB Group





## WELCOME TO CANWELD 2019

We're so excited to welcome you to the tenth annual CanWeld conference in Halifax the capital city of Nova Scotia steeped in a rich history that is widely unknown. A city that is the perfect size with a big city flare served with a side of small-town charm; it's easy to navigate and enjoy all that it has to offer. You may enjoy a leisurely walk along the scenic boardwalk or enjoy a short ferry ride to Dartmouth. Discovered in 1749 by Edward Cornwallis of Cornwall, Halifax has the largest population east of Quebec City and is surrounded by the ocean. The natural landscapes such as the public gardens, parks and lakes make Halifax, a beautiful city to visit any time of the year.

This year's theme is Current Waves which is extremely fitting due to the host city's proximity to the ocean and the merging power of the welding current. Plus, one of the most dominant industries in the Atlantic region is shipbuilding with a vast service industry in the area providing support for the construction and servicing the shipping industry including providing welding repairs for many of its different components. This year, our goal is to host a knowledge-based conference with presentations on practical applications of diverse welding technologies, inspection, standards and safety accompanied by welding research presentations. This year will feature many practical application presentations and provide our audience with many networking opportunities from an extensive range of industry participants such as educators, decision makers, influencers, suppliers and consultants. Presentations from industry experts will cover topics such as welding technologies, inspection, plus safety and standards pertinent to the industry today.

Attendees can look forward to the conference's strong focus on the manufacturing and energy sector and a platform to connect with industry professionals and leaders both nationally and internationally. Plus, you will have the opportunity to explore the beautiful city of Halifax and participate in a tour of the historic Alexander Keith's brewery with other industry professionals. Come see all that the conference has to offer and network with key players in the welding industry!

### Dan Tadic

Executive Director  
CWB Association



Current Waves

# CANWELD 2019 TENTH ANNIVERSARY:

DATE: OCT 9-10TH, 2019  
HALIFAX CONVENTION  
CENTRE

## VENUE ADDRESS

Halifax Convention Centre 1650 Argyle St  
Halifax, NS B3J 0E6

<https://www.halifaxconventioncentre.com>

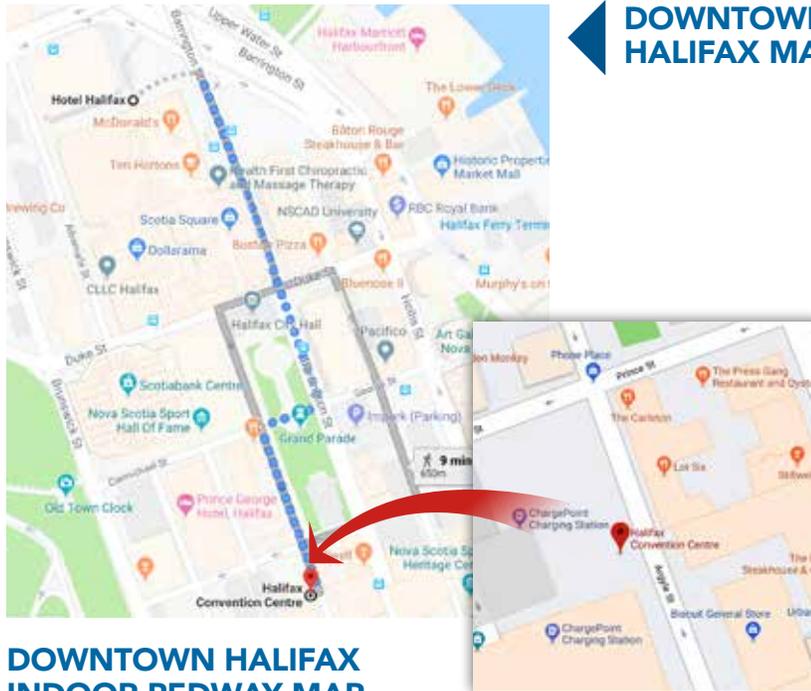
All conference sessions will be held at HCC on both Oct 9/10

## ACCOMODATIONS

Hotel Halifax 1990 Barrington Street  
Halifax, NS B3J 1P2

<https://www.hotelhalifax.ca>

## ▶ DOWNTOWN HALIFAX MAP



## ▶ DOWNTOWN HALIFAX INDOOR PEDWAY MAP





# CANWELD 2019 TENTH ANNIVERSARY:

DATE: OCT 9-10TH, 2019  
HALIFAX CONVENTION  
CENTRE



Current Waves

### CONFERENCE SESSIONS

October 9th & October 10th  
Location: Halifax Convention Centre (Rooms 201/202)  
Time: 9:00am to 4:00pm

### NETWORKING EVENTS

October 8th  
Pre-Conference Reception & Registration  
Location: Hotel Halifax (Bluenose Room)  
Time: 5:00pm to 6:30pm  
Event: Registration, networking, cash bar, refreshments and light snacks provided

### SOCIAL EVENT

October 9th  
Offsite Social Event  
Location: Alexander Keith's Brewery  
Self guided tour with live music.  
Time: 7:00pm to 10:30pm  
Event: Networking, drinks and food provided

**CONFERENCE ATTIRE:**  
Business casual

## ABOUT THE CONFERENCE

The theme for this year's conference is **CURRENT WAVES**. It will increase visibility of Canada's Atlantic region and highlight the manufacturing sector which is a very large contributor to the Shipbuilding and Offshore industries. CanWeld will bring together people from an extensive range of industry contributors such as educators, decision makers, influencers, suppliers and consultants. It will be a great opportunity to discuss issues around current trends and advances, welding and joining, health and safety, and so much more.

Delegates attending the conference will be drawn from a wide range of industries including:

- oil and gas
- pipelines
- power generation
- petrochemical
- fabrication and construction
- mining
- manufacturing
- steel and shipbuilding
- pulp and paper and others...

CanWeld will highlight the manufacturing and energy sectors and, most importantly, be a platform to connect with industry professionals and leaders from all over Canada and worldwide.



# OVERVIEW OF THE SCHEDULE - CANWELD 2019

## RECEPTION, TUESDAY OCTOBER 8 TH, 2019

5:00PM TO 6:30PM	Pre-Conference Reception & Registration Location: Hotel Halifax (Bluenose Room). Event: Registration, Networking, Cash Bar, Refreshments and Light Snacks Provided.
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## DAY 1, WEDNESDAY OCTOBER 9 TH, 2019

7:30AM TO 8:30 AM	Breakfast - Room: Argyle	
8:30AM TO 9:15AM	Keynote: Mark Sansom - Irving Shipbuilding	
9:15AM TO 9:45AM	Uwe Aschemeier - SGS Diving - Underwater Repair Projects	
9:45AM TO 10:10AM	Annual Awards Presentations	
10:10AM TO 10:20AM	Morning Break	
10:20AM TO 12:00PM	Exhibitor Visits - Corridor	
12:00PM TO 1:00PM	Lunch	
	<b>Room 201 - Moderator Cristian Zanfir &amp; Paul Robanske</b>	<b>Room 202 - Moderator Bleriot Feujofack &amp; Nada Feki</b>
1:00AM TO 1:30PM	Joel Pepin - PCL Industrial Management Inc. Technical Procurement Challenges and Opportunities for Pressure Piping Components	Duncan Beaumont - Translas Weld Fume Safety Practices for Working in Enclosed Spaces
1:35PM TO 2:05PM	Mahyur Asadi - SKC Engineering Active Exploration of Weld Distortion Scenarios on Digital Twin.	Laurent Gerin - University of Waterloo Evaluation and Modelling of Partial Joint Penetration Groove Welds in Aluminum Plate Connections
2:10PM TO 2:40PM	Andrew Crawford - Buffalo Inspection Phased Array - The Future of Welding and Maintenance Inspection	Yuji Kisaka - University of Waterloo A Study on Effects of Microstructures in API X80 Girth Weld Metals on Hydrogen Embrittlement
2:40PM TO 2:50PM	Break	
2:55PM TO 3:25PM	Ken Mui - Lincoln Electric Engineering and Shop Practices to Optimize CVN Properties in Welds	Jacob Kleiman - SINTEC Advances in Engineering Methods for Non-Destructive Measurement and Beneficial Redistribution of Residual Stresses
3:30PM TO 4:00PM	Jeff Noruk - Servo Robot Welding Robots Equipped With Special 3D Laser Vision Systems Help Deal With Welder Shortage	Baset Midawi - University of Waterloo Investigating the Mechanical Properties of High Strength Steel Welds by Means of Instrumented Indentation
4:05PM TO 5:00PM	Cristian Zanfir - CWB Group Free Session for all CWB Clients and Association members - CSA Standard W47.1 2019 Edition Highlights	
7:00PM TO 10:30PM	Networking Event - Alexander Keith's Brewery - Self Guided Tour	

## DAY 2, THURSDAY OCTOBER 10 TH, 2019

8:00AM TO 9:00 AM	Breakfast - Room: Argyle	
9:00AM TO 10:00AM	CWB Panel - Embracing, Supporting and Inspiring Women Welders in the Shop	
10:00AM TO 10:20AM	Morning Break	
	<b>Room 201 - Moderator Baset Midawi &amp; Tony Rose</b>	<b>Room 202 - Moderator Adrian Gerlich &amp; Iulian Radu</b>
10:20AM TO 10:50AM	Satya Gajapathi - CCNB-Innovation Are Welding Simulations Key to Next-Level Growth in Welding Productivity	Alejandro Hintze Cesaro - University of Alberta Austenite Formation Rate During Continuous Heating in Microalloyed Steels
10:55AM TO 11:25AM	Robert Shaw - Steel Structures Technology Centre Plate Girder Flange Fractures - Lessons Learned	Rafael Ribeiro - University of Waterloo Comparing Gas Metal Arc Welding (GMAW), Cold Wire GMAW and Hot Wire GMAW Using Electrode Negative Polarity for V-Groove Root Passes
11:30AM TO 12:00PM	Rob Di Valentin - 3M A Safer Approach to Metal Surface Preparation	Jeff Molyneux - MaJIC Alternate Methods of Determining Weldability for Hardenable Steels
12:00PM TO 1:00PM	Lunch	
	<b>Room 201 - Moderator Jeff Molyneux &amp; Joel Pepin</b>	<b>Room 202 - Moderator Duncan Beaumont &amp; Rafael De Araujo Ribeiro</b>
1:00PM TO 1:30PM	Patricio Mendez - University of Alberta Recent developments at CCWJ	Pritti Wanjara - Research and Technology Development on Additive Repair of a Titanium Alloy for Aero-Engine Fan Blade Application
1:35PM TO 2:05PM	Steve Robertson - Nederman The Negative Impact of Welding Fume to your Business	Adrian Gerlich - University of Waterloo Update on the Centre for Advanced Materials Joining at Waterloo
2:10PM TO 2:40PM	Nick Senior & Larry Parkinson CanMet Materials & Canadian Coast Guard Marine Engineering talk about A Different Approach to Understanding Weldment Corrosion in Marine Environments.	Blériot Feujofack - University du Québec à Rimouski Online Monitoring of Weld Quality in Electrical Spot Welding of A36 Mild Steel through Dynamic Resistance
2:40PM TO 2:50PM	Break	
2:50PM TO 3:20PM	Paul Chang - FuseRing FuseRing, the KEY That Enables Pipeline, Refineries and Nuclear Refurbishments to be Connected Using one System	Michel Gagnon - Henlex Ways to Reduce Fume Concentration Levels in Welders Breathing Zone
3:25PM TO 4:10PM	Jim Galloway - Conestoga College Free Session for all CWB Clients and Association members - Electrical Hazard Reduction and Other Updates to CSA Standard W117.2-19	
4:10PM TO 4:25PM	Prize giveaways and closing	

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Being a metalworker requires grit, tenacity, skill and precision. Not to mention the right tools. Every day you create products that impact our lives in countless ways—a task that often goes unrecognized. 3M celebrates people like you for shaping the products that shape our world.

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## CANWELD SPEAKER SESSIONS 2019



DAY 1, Wednesday October 9, 2019

8:30  
9:15  
Argyle  
Room

### KEYNOTE SPEAKER

**Mark Sansom**  
IRVING SHIPBUILDING  
Welding Manager



9:15  
9:45  
Argyle  
Room

**Uwe Aschemeier**  
SGS DIVING  
Underwater  
Repair Projects



1:00  
1:30  
Room  
201

**Joel Pepin**  
PCL INDUSTRIAL MANAGEMENT INC.  
Technical procurement  
challenges and opportunities  
for pressure piping components  
**Lulian Radu**  
Welding Engineer



1:00  
1:30  
Room  
202

**Duncan Beaumont**  
TRANSLAS  
Weld Fume Safety Practices  
for Working in Enclosed Spaces



1:35  
2:05  
Room  
201

**Mahyar Asadi**  
SKC ENGINEERING  
Active Exploration of  
Weld Distortion Scenarios  
on Digital Twin.



# CANWELD SPEAKER SESSIONS 2019



DAY 1, Wednesday October 9, 2019

1:35  
2:05  
Room  
202

**Laurent Gerin**  
UNIVERSITY OF WATERLOO  
Evaluation and Modelling of Partial Joint Penetration Groove Welds in Aluminum Plate Connections  
**Dr Susan Guravich**  
PhD of Science in Engineering at the University of New Brunswick with: Skarborn Engineering Ltd.



2:10  
2:40  
Room  
201

**Andrew Crawford**  
BUFFALO INSPECTION  
Phased Array - The Future of Welding and Maintenance Inspection



2:10  
2:40  
Room  
202

**Yuji Kisaka**  
UNIVERSITY OF WATERLOO  
A study on effects of microstructures in API X80 girth weld metals on hydrogen embrittlement



2:55  
3:25  
Room  
201

**Ken Mui**  
LINCOLN ELECTRIC  
Engineering and Shop Practices to Optimize CVN Properties in Welds



2:55  
3:25  
Room  
202

**Jacob Kleiman**  
SINTEC  
Advances in Engineering Methods for Non-Destructive Measurement and Beneficial Redistribution of Residual Stresses



3:30  
4:00  
Room  
201

**Jeff Noruk**  
SERVO ROBOT  
Welding Robots Equipped With Special 3D Laser Vision Systems Help Deal With Welder Shortage



## CANWELD SPEAKER SESSIONS 2019



DAY 1, Wednesday October 9, 2019

3:30

4:00

Room  
202

### Abdelbaset Midawi

UNIVERSITY OF WATERLOO

Investigating the Mechanical Properties of High Strength Steel Welds by Means of Instrumented Indentation



4:05

5:00

Room  
201

### Cristian Zanfir

CSA STANDARD W47.1

2019 EDITION

HIGHLIGHTS

Open to all CWB Clients and Association members



10:20

10:50

Room  
201

### Satya Gajapathi

CCNB-INNOVATION

Are Welding Simulations Key to Next-Level Growth in Welding Productivity?



10:20

10:50

Room  
202

### Alejandro Hintze Cesaro

UNIVERSITY OF ALBERTA

Austenite Formation Rate During Continuous Heating in Microalloyed Steels



10:55

11:25

Room  
201

### Robert Shaw

STEEL STRUCTURES TECHNOLOGY CENTRE

Plate Girder Flange Fractures – Lessons Learned



10:55

11:25

Room  
202

### Rafael Ribeiro

UNIVERSITY OF WATERLOO

Comparing Gas Metal Arc Welding (GMAW), Cold Wire GMAW and Hot Wire GMAW Using Electrode Negative Polarity for V-Groove Root Passes



# CANWELD SPEAKER SESSIONS 2019



DAY 2, Thursday October 10, 2019

**11:30**  
**12:00**  
**Room 201**

**Rob Di Valentin**  
3M  
A Safer Approach to Metal Surface Preparation



**11:30**  
**12:00**  
**Room 202**

**Jeff Molyneaux**  
MAJIC  
Alternate Methods of Determining Weldability for Hardenable Steels



**1:00**  
**1:30**  
**Room 201**

**Patricio Mendez**  
UNIVERSITY OF ALBERTA  
Recent developments at CCWJ



**1:00**  
**1:30**  
**Room 202**

**Pritti Wanjara**  
NATIONAL RESEARCH COUNCIL CANADA  
Research and Technology Development on Additive Repair of a Titanium Alloy for Aero-Engine Fan Blade Application



**1:35**  
**2:05**  
**Room 201**

**Steve Robertson**  
NEDERMAN  
The Negative Impact of Welding Fume to your Business



**1:35**  
**2:05**  
**Room 202**

**Adrian Gerlich**  
UNIVERSITY OF WATERLOO  
Associate Professor



## CANWELD SPEAKER SESSIONS 2019



DAY 2, Thursday October 10, 2019

2:10  
2:40  
Room 201

**Nick Senior**  
CANMET MATERIALS  
A Different Approach to Understanding Weldment Corrosion in Marine Environments.

**Larry Parkinson**  
Manager Canadian Cost Guard



2:10  
2:40  
Room 202

**Blériot Feujofack**  
UNIVERSITY DU QUÉBEC  
À RIMOUSKI  
Online Monitoring of Weld Quality in Electrical Spot Welding of A36 Mild Steel through Dynamic Resistance



2:50  
3:20  
Room 201

**Paul Chang**  
FUSERING  
FuseRing, the KEY That Enables Pipeline, Refineries and Nuclear Refurbishments to be Connected Using one System



2:50  
3:20  
Room 202

**Michel Gagnon**  
HENLEX  
Ways to Reduce Fume Concentration Levels in Welders Breathing Zone



3:25  
4:10  
Room 201

**Jim Galloway**  
ELECTRICAL HAZARD REDUCTION AND OTHER UPDATES TO CSAW117  
Open to all CWB Clients and Association members



4:10  
4:25  
Room 201

**Prize Giveaways and Closing**  
Open to all CWB Clients and Association members



# CANWELD SPEAKER SESSIONS 2019



DAY 1 - 8:30 to 9:15 am - Argyle Room

## KEYNOTE SPEAKER Mark Sansom

Welding Manager  
Irving Shipbuilding

**Conference Session Topic: Canada's National Shipbuilding-** The most modern shipyard in North America.

**Session Summary:** It is an exciting time to be a shipbuilder at Irving Shipbuilding, Canada's National Shipbuilder. Since 2012, Irving Shipbuilding has invested more than \$400 million in facilities, people, processes, and technology, making Halifax Shipyard one of the most modern and capable shipyards in the world. In September 2018, the company launched Canada's lead Arctic and Offshore Patrol Ship, the largest Navy ship built in Canada in 50 years. And they're just getting started. Over the next few decades the more than 2,000 shipbuilders at Halifax Shipyard will construct 21 modern patrol ships and surface combatants for the Royal Canadian Navy. The work underway at Halifax Shipyard is revitalizing Canada's shipbuilding industry and providing the men and women of the Royal Canadian Navy with the ships they need to protect Canada's interests at home and abroad.

**Speaker Bio:** Mark Sansom is a leading international welding engineer who has applied his expertise to major naval build and maintenance programs in the United Kingdom and Canada. Mark joined Irving Shipbuilding in May 2019 as a welding manager at Halifax Shipyard working on the construction of the Royal Canadian Navy's Arctic and Offshore Patrol Ships (AOPS), the largest navy ships built in Canada in 50 years. Prior to joining Irving Shipbuilding, Mark spent 10 years working in the largest naval nuclear repair yard in Western Europe, where he held several roles related to Nondestructive Testing (NDT), Welding Engineering, and Welding Quality Control. His final role before moving to Canada was as Chief Welding Engineer responsible for Welding Engineering, Welder Training, and Weld Quality Teams across the yard's projects.

Mark holds a BSc (Hons) in Marine and Composite Technology from the University of Plymouth and completed a MSc in Welding Engineer at Cranfield University. He is a Chartered Engineer, an International Welding Engineer, and a member of the UK's Welding Institute and Royal Institute of Naval Architects.



## CANWELD SPEAKER SESSIONS 2019



DAY 1 - 9:15 to 9:45 am - Argyle Room

### Conference Session Topic: Underwater Repair Projects

**Target Audience:** Students, welders, divers, engineers, PhDs, ship owners, lawyers

### Key Learning: Underwater repairs are of sound quality

**Session Summary:** This "All Picture Slide Show" introduces the audience to the world of underwater repair projects on ships and structures with emphasis on underwater wet welding. It introduces the audience to hyperbaric wet and dry welding, as well as top site welding as repair techniques on ocean going vessels and maritime underwater structures. The presentation is based on performed projects, giving the audience an idea, what permanent and temporary underwater repairs are possible. Students, welders, divers, engineers, PhDs, ship owners, lawyers may benefit from this presentation, since it will uncloak the myth, that underwater welding is always associated with substandard welds that can only be applied as a temporary repair solution.

**Speaker Bio:** Uwe Aschemeier is a German born and educated Welding Engineer who has evolved through the metals industry by studying mechanical engineering and welding engineering at various advanced education institutions in Germany. Mr. Aschemeier worked for the German Welding Society at its Institute in Munich for several years prior to moving to the United States of America. Once in the United States, Mr. Aschemeier continued his expertise development by working for the Chicago Manufacturing Center, a non-profit consulting organization as well as Charcas Engineering/Domson Engineering in Toronto, Canada. In 2000 he joined H.C. Nutting Company in Cincinnati, where he worked as a senior welding engineer, commercial diver, and consultant. After consulting for Miami Diver for several years in welding related topics, he joint Miami Diver LLC. (now Subsea Global Solutions) as their senior welding engineer and commercial diver. Mr. Aschemeier serves on the ISO/TC 44/SC 11/WG 1 - Underwater welding committee and on several AWS Standard committees and task groups in several senior positions. He has authored and co-authored numerous welding and NDE related articles published in the "Welding Journal", "Inspection Trends" and other national and international trade magazines. For six years, he served on the AWS Board of Directors.

### Uwe Aschemeier

SR.Welding Engineer  
Subsea Global  
Solution, LLC.



## CANWELD SPEAKER SESSIONS 2019



DAY 1 - 1:00 to 1:30 pm - Room 201

**Conference Session Topic: Technical procurement challenges and opportunities for pressure piping components**

**Target Audience:** Welding professionals, engineers, purchasers, material controllers, designers, project coordinators / managers, and materials specialists.

**Key Learnings:** Ways of establishing technical procurement processes to ensure all Code, jurisdictional, and project requirements are met or exceeded, while minimizing cost and schedule delays.

**Session Summary:** There is a significant number of natural resource extraction or processing facilities that are built in western Canada every year. PCL's Industrial operations support the development of new facilities and maintenance of existing ones by housing the construction of pressure piping spools, pressure-containing skids, and plant modules.

**Speaker Bio:** Joel Pepin is PCL Industrial's Quality Systems Engineer and Lead Auditor. Over the last 7 years, Joel has encountered many technical procurement challenges and opportunities, and he looks forward to sharing some lessons learned with the audience.

**Speaker Bio:** Iulian (Julian) Radu is a welding engineer with PCL Industrial Management Inc. of Edmonton Alberta. He holds a PhD in Materials Engineering from University of Alberta. Julian has more than 20 years' experience in research, development, design, construction, and operations in oil sands, power generation, petrochemical, heavy machinery, structural steel, offshore and shipbuilding industries. He is vice chair of AWS D10.8 committee on welding of Chromium-Molybdenum alloys and AWS D10.21 committee on welding creep-strength-enhanced ferritic steels (e.g. P91). Julian has published 14 articles in technical journals and has presented at numerous national and international conferences.

### Joel Pepin

Quality Systems

Engineer & Lead Auditor  
PCL Indus. Manag. Inc.



### Iulian Radu

Welding Engineer  
PCL Industrial  
Management Inc.

## CANWELD SPEAKER SESSIONS 2019



DAY 1 - 1:00 to 1:30 pm - Room 202

### Duncan Beaumont

Executive Director  
Translas Canada

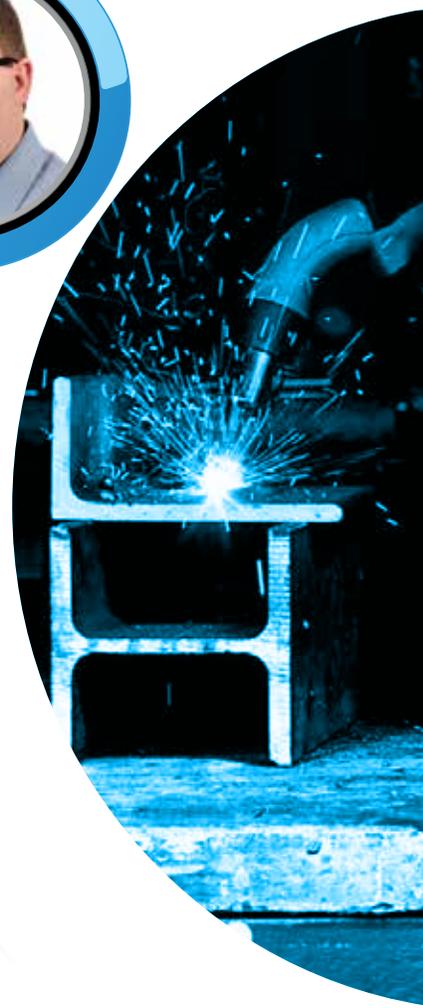
**Conference Session Topic: Weld Fume Safety Practices for Working in Enclosed Spaces**

**Target Audience:** Welders, Welding & Fabrication Managers, Plant Managers / Supervisors, Maintenance Managers, Production Managers, Health & Safety & Environmental Managers, Industrial Hygienists

**Key Learnings:** Become more educated as to the harmful nature of welding, the practices we can put in place to overcome them, specifically in enclosed spaces where the risk increases, and people aren't as aware or knowledgeable as to how to overcome the risks. There is a way to be more productive at the same time of remaining sustainable.

**Session Summary:** When welders are working in tight or enclosed spaces, such as inside silos or fuel tanks, controlling weld fumes and keeping them out of the welder's breathing zone is challenging. The dangers of weld smoke, the special challenges of controlling fumes in enclosed areas, engineering control options and personal protective equipment (PPE) are detailed. This presentation is targeted towards welders, fabrication shop owners, plant managers, health and safety professionals, and others concerned with weld fume safety.

**Speaker Bio:** Duncan Beaumont is Executive Director for Translas Canada, serving the Canadian Region. He brings more than fifteen years of project management and sales experience in industry. In his current role at Translas Canada, he helps the Welding & Fabrication sector select and implement air quality solutions to mitigate health and safety risks and ensure regulatory compliance. With a deep understanding of evolving regulations and Hi-Vacuum collection technologies, he works with companies to balance regulatory, economic and health and safety needs and design the best overall system for their goals.



## CANWELD SPEAKER SESSIONS 2019



DAY 1 - 1:35 to 2:05 pm - Room 201

**Conference Session Topic: Active Exploration of Weld Distortion Scenarios on Digital Twin Target**

**Audiences:** Engineering Managers, Production Engineers, Weld Designers, Standards Committees, Welding Engineer Consultant, R&D personals, Technical Government Officials, Project Managers.

**Key Learning:** The audiences will be learning about the trend in welding distortion engineering using advanced techniques that enable engineers for weld sequence design and finding the best sequence out of many possibilities as fast as real-time.

**Session Summary:** The familiar CSA W59 (or equivalent AWS D1.1) reference standard for welded structures commits contractors for submitting an effective distortion control plan where welds shall be made in sequence such as to minimize distortion and welding heat shall be balanced. These are all requirements, but standard presents no solutions on how to achieve them. Typically, plans to control weld distortion are therefore mostly intuitive with welding engineers relying on their experience combined with the results of a limited number of practical tests.

**Speaker Bio:** Mahyar's technical background is in Materials Engineering with a Ph.D. in Computational Weld Mechanics and Fracture Analysis. Mahyar has been working for several years in different companies for initiating, developing and directing high-end services and proposals for weld modelling solutions for stress, thermal, microstructure, fatigue, creep, and fracture in welded structures.

He has a strong track record of applying emerging technologies such as AI and Machine Learning in welding engineering. He is a Professional Engineer as well as holding an International Welding Engineering designation. He is also adjunct teaching professor at the Material Engineering Department at the University of British. His portfolio consists of several papers, presentations, workshops, seminars, and co-authoring a chapter for ASM Handbook on "Numerical Aspects of Welding."

### Mahyar Asadi

Director of modeling  
and simulation  
SKC Engineering



## CANWELD SPEAKER SESSIONS 2019



DAY 1 - 1:35 to 2:05 pm - Room 202

**Conference Session Topic: Evaluation and Modelling of Partial Joint Penetration Groove Welds in Aluminium Plate Connections**

**Target Audience:** Engineers and Designers

**Key Learnings:** Behaviour, modelling, and strength determination of partial joint penetration (PJP) groove welds in aluminium, which are not currently addressed in the Canadian CSA S157 design standard.

**Session Summary:** This presentation will describe an experimental program on PJP welds, and will describe a developed strength model and its use in the context of the Canadian design codes (e.g. CSA W59.2). The experimental program will involve static strength and fatigue tests on connections containing PJP welds to investigate the validity of the current strength penalties imposed on these welds, and to begin to establish better models for use in design. In order to do this, 58 laboratory tests on aluminium plate connections are planned.

**Speaker Bio:** Laurent completed his B.A.Sc. in Civil Engineering with Waterloo's class of 2018. During his undergrad, he completed internships with various employers such as the Canadian Coast Guard, BC Hydro and Walter P Moore in Orlando, FL. He started his ongoing M.A.Sc. degree in civil engineering in 2018, where he is researching the use of aluminum in structures. His master's thesis will consist of a thorough evaluation of the strength and reliability of partial joint penetration (PJP) groove welds in aluminum structures, both under static and fatigue loading.

**Speaker Bio:** Dr Susan Guravich obtained her Masters and PhD of Science in Engineering at the University of New Brunswick. Her research topics were plate reinforced HSS connections in tension or compression and standard shear connections with combined shear and tension loading. Susan has worked for Skarborn Engineering Ltd for 27 years in the areas of structural design for aluminum and steel structures and welding engineering. As a designer of aluminum structures, she has noted the absence of guidance for determining weld capacity of partial penetration groove welds for this material, and is working with the University of Waterloo on this topic.

**Laurent Gerin**  
Masters Student  
University of Waterloo



**Dr Susan Guravich**  
PhD of Science in Engineering  
at the University of  
New Brunswick

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## CANWELD SPEAKER SESSIONS 2019



DAY 1 - 2:10 to 2:40 pm - Room 201

**Conference Session Topic: Phased Array - The Future of Welding and Maintenance Inspection**

**Target Audience:** Engineers, designers, inspectors, fabricators and supervisors

**Key Learnings:** PAUT Technology is well beyond fixed attenuation methods and provides quantitative data to allow engineers and designers to understand the nature of defects and degradation of structures.

**Session Summary:** Phased Array Ultrasound Testing (PAUT), how it works and where it is being used is becoming history. PAUT is a tool that provides an auditable trail, profile imagery and a far higher level of confidence on the type and extent of defects found. The technology is increasingly relying on software enhancements and attributes since the hardware is becoming more uniform between manufacturers. Recent advancements in the technology include Full Matrix Capture (FMC) and Total Focus Method (TFM) with current developments in Plane Wave Technology becoming more successful.

**Speaker Bio:** Andrew is a NDT professional with 38 years' experience in multiple countries and jurisdictions. He arrived in Canada in 1994 to train local technicians on TKY UT inspections for the Hibernia M20 module. Andrew has degrees in Physics, Technology Management and completed a Master's Program in NDT. His qualifications include: CGSB Level 3 in RT, UT, MT, PT – ACCP Level 3 RT, UT, MT, PT; PCN Phased Array Level 2, CSWIP Digital RT Level 2. Currently he is managing R&D responsibilities for our SRED program on advance NDT methods; Technical authority for Buffalo Inspection and TQMS Manager. Andrew is also on the Curriculum board for SAIT, W59 NDT committee and ISO TC 44 participant for TFM/FMC ultrasonics. Lastly, he is a joint author of guidance notes for the inspection of Offshore Structures for the UK Department of Energy.



**Andrew Crawford**  
TQMS Manager  
Buffalo Inspection  
Services

## CANWELD SPEAKER SESSIONS 2019



DAY 1 - 2:10 to 2:40 pm - Room 201

**Conference Session Topic: A study on effects of microstructures in pipeline welds on hydrogen embrittlement**

**Target Audience:** Metallurgists, welding engineers, researchers, quality control personnel, design and procurement personnel in pipeline construction

**Key Learnings:** Hydrogen susceptibility depends on microstructures, and finer grain microstructures which have high strength can still demonstrate low hydrogen susceptibility compared with coarse and soft grain structures.

**Session Summary:** Pipelines are the most economical way to transport nature gas and oil, so they have been long preferred over alternatives. In this area, hydrogen embrittlement of welds can often be a concerned, especially in the case of pipelines for severe sour environments where hydrogen attack may cause premature failure. In this work, the factors that control hydrogen embrittlement in steel welds will be reviewed in order to improve selection of welding consumables and procedures. A case study of the hydrogen susceptibility for two welds with differing microstructures (with different intragranular ferrite (IGF) volume fraction) was investigated, in terms of tensile behavior, and hardness after hydrogen charging.

**Speaker Bio:** Yuji Kisaka studied Mechanics at Kure National College of Technology, Japan. He also studied Engineering and Social & Environmental System Engineering at Hiroshima University in Japan. Most recently, he's a PhD candidate in Mechanical and Mechatronics Engineering at the University of Waterloo.

**Yuji Kisaka**  
University of  
Waterloo



## CANWELD SPEAKER SESSIONS 2019



DAY 1 - 2:55 to 3:25 pm - Room 201

**Conference Session Topic: Engineering and Shop Practices to Optimize CVN Properties in Welds**

**Target Audience:** Engineers, Supervisors, Welders  
**Key Learning:** How to optimize CVN properties in production welds.

**Session Summary:** Optimize Charpy V-Notch (CVN) results in production welding will be discussed focusing both on the engineering stage, and shop floor practices. At the Engineering Level, there are caveats of consumable selection by the electrode classification, certificate of conformance or letter of approval. Specific topics such as CVN transition curves, 2 run and limited pass welds, Thermo Mechanical Control Process (TMCP) steel and fundamentals of heat input will also covered.

Shop Level practices will be discuss on using techniques to ensure the optimal CVN values in the weld metal and heat affected zone. Despite careful selection of welding consumables and welding procedures, often technique at the welder level can cause poor CVN results of the weld.

**Speaker Bio:** Ken Mui is the Application Engineer for the Lincoln Electric Company. He has been with Lincoln for over 25 years and has a broad range of experience in all arc welding processes and welding metallurgy. He started his career with Lincoln in Cleveland, Ohio and has worked in Alberta where he specialized in applications for welding pressure vessels and piping for the oil and gas industry. In his current role he provides technical support for a wide array of welding processes across all industry segments. Ken has presented at various Welding association events on topics such as SAW, Wave-form controlled SAW, Modes of GMAW Transfer, One Sided Panel Welding, Welding Defects, Austenitic and Duplex Stainless welding. He is the current Chair of the B.C. chapter of the Canadian Welding Association. Mr. Mui attended Michigan State University where he obtained his B.Sc in Mechanical Engineering and is a P.Eng registered in BC.

**Ken Mui**  
Application Engineer  
Lincoln Electric



## CANWELD SPEAKER SESSIONS 2019



DAY 1 - 2:55 to 3:25 pm - Room 202

**Conference Session Topic: Advances in Engineering Methods for Non-Destructive Measurement and Beneficial Redistribution of Residual Stresses**

**Target Audiences:** The presentation is aimed firstly at researchers, students, welding supervisors and engineers, it is also highly beneficial to all involved in design, maintenance and repair of welded structures .

**Key Learning:** The presentation will introduce the audience to a unique new concept of Residual Stress Management and how it can help designers, engineers and users to approach the formation, analysis and redistribution of residual stresses that are the major cause for most of fatigue failures.

**Session Summary:** Engineering properties of structures and materials, such as fatigue life, distortions, dimensional stability and corrosion resistance can be considerably affected by presence of residual stresses (RS) [1]. The knowledge of RS and ability to control their distribution is critical in welded structures when evaluating their fatigue life and preventing catastrophic failures. To address the major aspects of residual stresses and their behavior in structural elements, an engineering concept of residual stress management (RSM) has been developed [2] that takes into account all major stages of stress interaction with materials and structures, i.e. RS determination, RS analysis and RS redistribution. Using this approach, stresses in structures can be evaluated in each specific case either theoretically or experimentally and their performance optimized.

**Speaker Bio:** In 1989 Dr. Kleiman formed Integrity Testing Laboratory Inc., ISO 9001:2015, high-tech, diversified Technology-oriented Company. In 2010, Prof. Kleiman and Dr. Y. Kudryavtsev formed Structural Integrity Technologies (Sintec) company. Major mission of Sintec is the development/ industrial applications of ultrasonic technologies for fatigue life improvement and residual stress measurement. Prior to 1989 Prof. Kleiman worked for 3M Canada and Israel Institute for Technology (Technion) in research, engineering and teaching positions.

**Jacob Kleiman**  
SINTEC  
ADJ./Consulting  
professor



## CANWELD SPEAKER SESSIONS 2019



Day 1 - 3:30 to 4:00 pm - Room 201

**Conference Session Topic:** Welding robots equipped with special 3d laser-vision systems help deal with welder shortage

**Target Audience:** Wide - manufacturing plant owners and supervisors, engineers, inspectors, welders.

**Key Learnings:** Robotic welding, machine vision used for seam tracking, seam finding, adaptive welding, weld inspection, weld quality control.

**Session Summary:** Over the recent years, the evolution and concept of manufacturing has been driven by the adoption of industrial robots, in particular in large industry. Increased robot intelligence and flexibility, reduced ecological footprint as well as easy teaching and collaboration with a human being are required to expand this technology among small and medium size companies.

**Speaker Bio:** Jeffrey Noruk's career began as welding engineer for P&H (Komatsu) and since then he has worked for 35 years in all facets of welding automation. Since 2001, Jeffrey Noruk has been President of SERVO-ROBOT CORP. (Milwaukee, WI) which is the US subsidiary of SERVO-ROBOT GROUP. SERVO-ROBOT is a leading manufacturer of 3D laser-vision systems for intelligent control of welding automation including joint tracking, joint finding, adaptive robot control and inspection. Jeffrey Noruk graduated from the Ohio State University, is a CWI, CQE and IWE, and is active with AWS D16 and D8 (Automotive committees).

**Jeff Noruk**  
President  
Servo-Robot Corp.



## CANWELD SPEAKER SESSIONS 2019



DAY 1 - 3:30 to 4:00 pm - Room 202

### Conference Session Topic: Investigating the Mechanical Properties of High Strength Steel Welds by Means of Instrumented Indentation

**Target Audience:** Welding engineers, quality control staff/inspectors, researchers, design staff, Canadian standards committee members who review the current pipeline testing procedures.

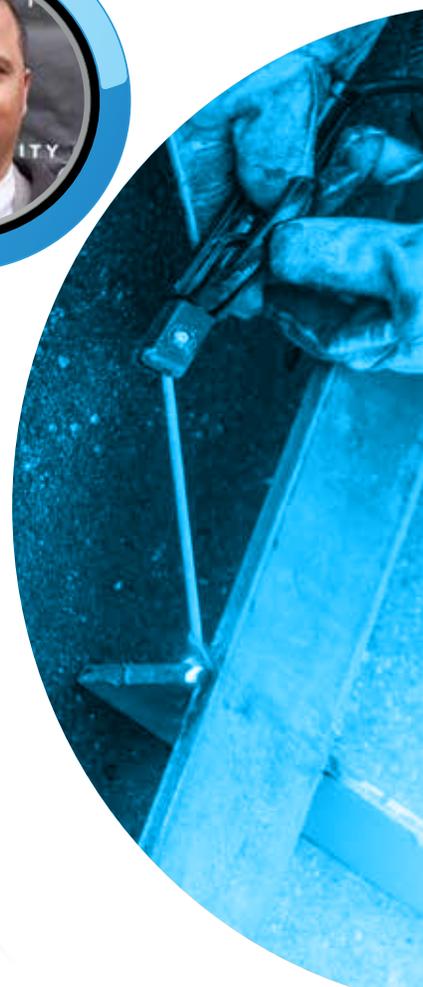
**Key Learnings:** The methods of how to measure weld metal strength and possible complications and errors that may contribute to this because of residual stresses. In addition, how strength mismatch is currently measured.

**Session Summary:** In order to assess welded structures it is important to overmatch the weld yield strength with respect to the parent metal yield strength. Typically, this is evaluated using all weld metal and cross weld tensile testing to verify the level of strength overmatching, which actually stress the weld metal in different directions (axial versus transverse direction). Although it is assumed that the weld metal has the same strength in these directions, the thermal cycle of a welding processes such as GMAW can form residual stresses owing to the thermal expansion and contractions may present, and this leads to heterogeneous mechanical properties (anisotropic behaviour in the yield strength).

**Speaker Bio:** Abdelbaset Midawi is a PDF at University of Waterloo. He joined CAMJ group in the fall 2013 since then his focus is to develop new technique based on instrumented indentation in order to measure the strength for pipeline welded structures. The technique successfully developed to measure yield strength for different zones across the weld zone such as WM, CGHAZ, and FGHAZ. Finite element modelling was used to validate the experimental indentation results. Currently, Dr. Midawi research focus on Gen3 AHSS spot welding optimization and characterization in order to substitute the Gen1 and 2 AHSS and conventional high strength steel parts by Gen3 AHSS, which could reduce the vehicles weight and gas consumption while maintaining low cost and better crash performance.

### Abdelbaset Midawi

University of  
Waterloo



## CANWELD SPEAKER SESSIONS 2019



### DAY 1 - 4:05 to 5:00 pm - Room 201

#### Conference Session Topic: CSA Standard W47.1 2019 Edition Highlights Workshop

**Target Audience:** Welding professionals, engineers, purchasers, project coordinators / managers, welding inspectors and company owners

**Key Learnings:** New provisions for welding certification with respect to qualification of welding procedures and welding personnel.

**Session Summary:** The new edition of CSA Standard W47.1 has introduced its own new provisions for robotic applications, welding of sheet steel of 3mm and less, welding of stainless steel of all thicknesses and new provisions specific for marine applications. These new provisions will apply to all CSA W47.1 certified welding companies when such applications are required by the Contract, Product Standard or by the National or Provincial Building Codes.

**Speaker Bio:** Cristian Zanfir joined CWB Group in 2004 when started his new career as a certification representative in Ontario region. During his career with the CWB Group he's held several roles like Procedure Verification Engineer, Supervisor Ontario Operations, Supervisor Procedure Verification Engineer and Electrodes Certification Department. Today, Cristian is working for the Office of Public Safety of the CWB Group as Assistant Manager Standards. He's main role is to contribute to developing standards within many standards' committees of the AWS, ASME, CSA and ISO organizations. Cristian earned his Bachelor of Engineering in Welding in Romania and after 4 years of experience as Field Engineer he decided to relocate to Canada. During the 4 years of work in Romania he gained welding experience in the field of pipeline and other many applications available in refineries and petrochemical plants.

### DAY 2 - 9:00 to 10:00 am - Argyle Room

#### Conference Session Topic: CWB Panel Embracing, Supporting and Inspiring Women Welders.

This session is part of a broad and deep effort to change the conversation and support the awareness and success of women welders. This will be an inspiring hour of conversation with women welders sharing their successes and giving you practical ideas to implement some changes in workplaces and classrooms.

**Cristian Zanfir**  
Assistant Manager  
Standards  
CWB Group



## CANWELD SPEAKER SESSIONS 2019



DAY2 - 10:20 to 10:50 pm - Room 201

**Conference Session Topic:** Are welding simulations key to next-level growth in welding productivity?

**Target Audience:** Production and Manufacturing Managers, Engineers and Researchers working on welding residual stress and distortion, development of new welding procedures and process optimization

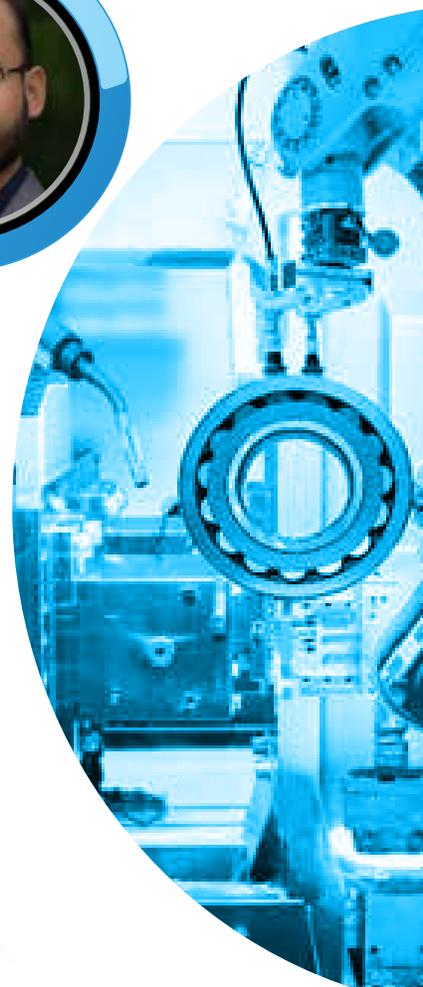
**Key Learnings:** Welding simulations provide a scientific approach to solving many welding problems and can be key to unlocking the next level of productivity growth.

**Session Summary:** This presentation discusses practical welding problems from industry and how simulations are applied to find solutions. Using an example of a stud welding model, optimization of welding parameters to obtain a specific microstructure is presented. Further, multiple examples of thermo-mechanical analysis of large fabricated structures are discussed. Distortion minimization through optimizing welding sequence, fixturing, pre-bending and thermal straightening are demonstrated. The final solutions achieved through simulations would either be impossible to arrive at or would have taken relatively huge amount of time and cost through the conventional approach.

**Speaker Bio:** Satya Gajapathi is the Innovation Lead for Advanced Manufacturing & Welding Division of CCNB-INNOV. In his role to foster advancement of the welding industry in Atlantic Canada, he collaborates with manufacturing companies to develop solutions in the areas of welding automation and robotics, welding simulations, residual stress and distortion management. He has worked on weld overlays in the drilling and mining industry in Alberta for six years before moving to New Brunswick. Satya is a graduate from the Canadian Center of Welding and Joining (University of Alberta) where he developed a novel micro electron beam welding technology during his Masters. He was awarded the Granjon Prize (highest ranked student award in the world for best welding research at Masters/Ph.D. level) by the International Institute of Welding.

### Satya Gajapathi

Innovation Lead  
Advanced Manufacturing  
& Weldin Division  
of CCNB-INNOV



## CANWELD SPEAKER SESSIONS 2019



DAY 2 - 10:20 to 10:50 am - Room 202

**Conference Session Topic: Austenite Formation Rate During Continuous Heating in Microalloyed Steels**

**Target Audience:** Welding metallurgists, Engineers, Designers, Shop Supervisors

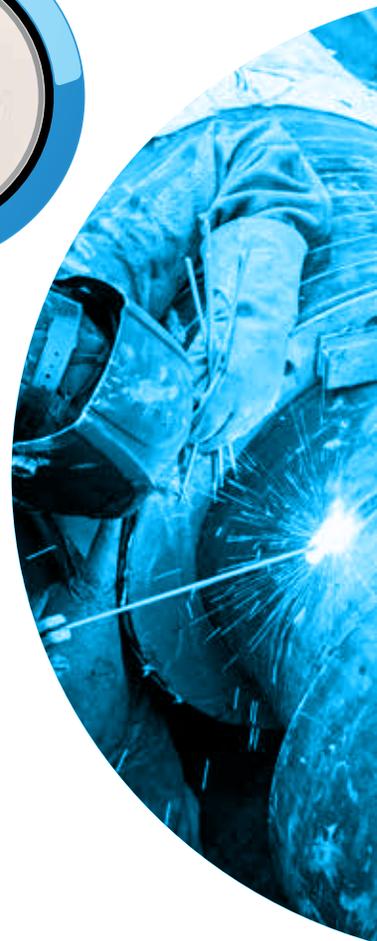
**Key Learnings:** The audience will understand how the microstructure of the heat affected zone evolves during the heating part of the welding thermal cycle. And with this information, more accurate calculation/predictions can be made about the final properties of the HAZ.

**Session Summary:** Due to the intimate relationship between the resulting microstructures and the mechanical and performance properties after any thermal cycle, the phase transformation of low alloyed steels upon cooling has been widely studied for many years by several different authors. From all the past works, besides the cooling rate, the strong influence of the parent phase characteristics on the kinetics of phase transformation during cooling is constantly highlighted.

**Speaker Bio:** Alejandro Hintze Cesaro graduated from the Insituto Sabato (UNSAM – CNEA) with a Master’s degree in Materials Science and Technology. His thesis was focused on phase transformations of heat resistant steels. In the 2017 Fall, he joined the Canadian Centre of Welding and Joining as a Ph.D. candidate under the supervision of Dr. Patricio Mendez. His present project involves the study of phase transformation upon heating in pipeline steels.

### Alejandro Hintze Cesaro

PH.D. Candidate  
Canadian Centre of  
Welding and Joining



## CANWELD SPEAKER SESSIONS 2019



DAY 2 - 10:55 to 11:25 am - Room 201

### Conference Session Topic: Plate Girder Flange Fractures – Lessons Learned

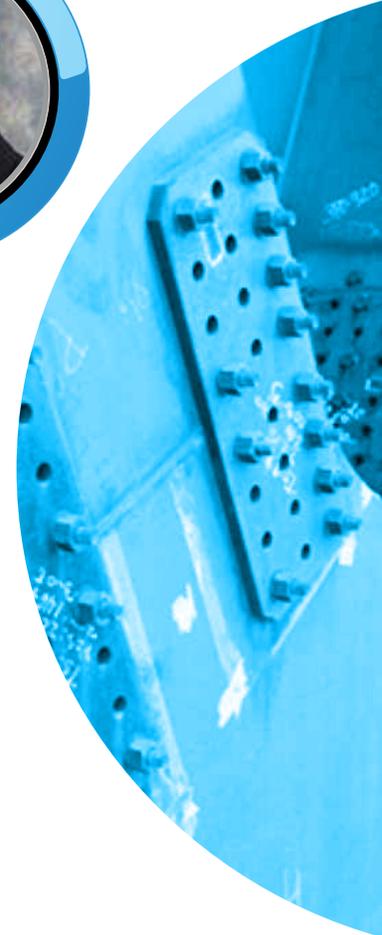
**Target Audience:** Structural engineers, steel detailers, steel fabricators, inspectors, specification and standards writers

**Key Learnings:** Thermally cut heavy sections require special consideration that may not be fully addressed in codes and standards. The attendee will receive an overview of items that require further consideration and care.

**Session Summary:** Two significant long-span tapered plate girders at the roof level recently experienced bottom flange fractures where a hanger extended through the bottom flange to support the heavy floor below. The girders spanned 26.5 meters, were 2.4 meters in depth at the hanger, with flanges 100 mm thick and 915 mm wide. Two similar girders that used a different fabrication sequence did not fail. The investigation into material properties, thermal cut edge conditions, welding sequence, residual and applied stresses, and the cause of failure in two girders but not the other two, will be discussed. Several recommendations are forthcoming to minimize the risk of future failures, including fabrication and material standards, joint details, thermal cutting procedures, surface finishing and testing, and the role of the involved parties.

**Speaker Bio:** Bob Shaw is President of the Steel Structures Technology Center, Inc., a consulting engineering firm in Howell, Michigan. Bob has 46 years' experience in steel construction, is a registered professional engineer, and is an ICC Certified Special Inspector for Structural Steel and Bolting and for Structural Welding Inspection. Bob chairs the IIW International Institute of Welding's Commission XVIII on Quality Management, and serves on numerous standards committees, including AISC, AWS D1, RCSC, ASTM, and ISO. He developed and instructs the CISC seminar on Inspection of Steel Building Structures and developed the CISC examination for Accredited Steel Inspector – Buildings.

**Robert E Shaw, Jr, PE**  
President  
Steels Structures  
Technology Center, inc.



## CANWELD SPEAKER SESSIONS 2019



DAY 2 - 10:55 to 11:25 am - Room 202

**Conference Session Topic: Comparing Gas Metal Arc Welding (Gmaw), Cold-Wire Gmaw, and Hot-Wire Gmaw Using Electrode Negative Polarity for V-Groove Root Passes**

**Target Audience:** Welding engineers and researchers interested in new processes to increase deposition, and higher productivity, and reducing distortion of welded parts.

**Key Learnings:** It is shown that electrode negative polarity can be used in structural applications with auxiliary wires, offering some improvement in mechanical properties.

**Session Summary:** Direct current electrode negative has the advantage that the majority of heat generated in the arc concentrates in the electrode, which can potentially reduce distortion. Another advantage is increase in the melting rate which accounts for improved productivity. However, the phenomenon of arc climbing and the repulsive metal transfer make this technique less prevalent in the field.

**Speaker Bio:** R. A. Ribeiro is a Ph. D student at the Centre for Advanced Materials Joining (CAMJ) in the University of Waterloo, Ontario, Canada. He holds a master and undergraduate degrees in mechanical engineering, both completed at the Federal University of Pará (UFPA), Belém-PA, Brazil. His main research interests are welding engineering and metallurgy. Currently, his research is about the study of the cold wire gas metal arc welding (CW-GMAW) and its possible industrial applications.

**R.A. Ribeiro**  
Student Centre for  
Advanced Materials  
Joining (CAMJ)



## CANWELD SPEAKER SESSIONS 2019



DAY 2 - 11:30 to 12:00 am - Room 201

### Conference Session Topic: A Safer Approach to Metal Surface Preparation

**Target Audience:** Production Managers/Supervisors, Health and Safety Committee Leaders or Representatives, Welders, Metal Fabricators and Finishers, Educators

**Key Learnings:** This presentation will help the audience to recognize the safety features and performance benefits when evaluating abrasive products, particularly when it comes to using wire wheels and brushes for metal cleaning and surface preparation.

**Session Summary:** With an increased awareness of occupational health and safety awareness, workers and employers are seeking out new products and processes that will improve worker safety. We will discuss advancements in abrasive product technology and design that have improved operator safety while increasing productivity and reducing costs over the longer term.

Participants will explore methods that remove weld spatter, rust and paint that eliminate the potential risk of broken wires becoming embedded in operator's eyes, body and clothing. Attendees will learn about the technology behind the latest abrasive product technology, including precision-shaped grain that reduce risks related to noise, hand-arm vibration, airborne particles and cuts or other injuries. We will also discuss examples of improved performance while contributing to a safer workplace.

**Speaker Bio:** Rob Di Valentin is an Applications Development Specialist in the Abrasives Systems Division of 3M Canada. Rob has been with the 3M Abrasives Systems Division for over 10 years. He is 3M Canada's Scotch-Brite™ and Transportation Specialist and focuses on metal finishing and paint repair. Rob works with customers in many industries across Canada to help them work more efficiently and safely by using the most appropriate industry leading abrasive products and tools.

### Rob Di Valentin

Applications

Development Specialist  
3M Canada



## CANWELD SPEAKER SESSIONS 2019



DAY 2 - 11:30 to 12:00 am - Room 202

### Conference Session Topic: **Welding the Hard Stuff – Practical Application of Weldability Testing**

**Target Audience:** Engineers and Technologists interested in techniques to evaluate weldability of new materials

**Key Learnings:** How Weldability is quantified and how technology is used to predict post weld properties in the HAZ.

**Session Summary:** Recent advancements in steel alloy development have allowed manufacturers to reduce weight and increase product life using high strength steels. While steel makers sometimes consider weldability for some of the newer Advanced High Strength Steels, it is ultimately the responsibility of the fabricators to verify if these materials are weldable using methods and procedures that work for their business. Weldability testing is a sound technique for determining the susceptibility of steel to cracking and other defects. This presentation will explore some of the fundamental weldability tests that are available to fabricators to evaluate new materials. Additionally, new techniques for measuring cooling rates using infrared video has simplified the process of measuring cooling rates and predicting hardness values throughout the HAZ.

**Speaker Bio:** Jeff Molyneaux is a graduate of the Northern College Welding Engineering Technology program. He is an enthusiastic advocate of advanced welding technologies and applications. Jeff started his career working at Automated Welding Systems in Markham Ontario, assisting in the development of advanced laser welding technologies for automotive applications. He later moved to Multimatic as a Project Manager for stamped and welded assemblies. In 2004 Jeff join Van-Rob Inc. as a Project Manager and was quickly promoted to Engineering Manager subsequently taking on additional responsibility. In 2012, he was asked to take the role of Director of Program Management for Van-Rob North America with direct responsibility for all Projects from Canada to Mexico. Since January 2015, Jeff returned to the academic world and has been leading applied research projects at the Materials Joining Innovation Center while teaching code related courses at Northern College to the next generation of welding professionals. In his spare time Jeff enjoys spending time with his family, home improvement projects, tinkering and the great outdoors.

**Jeff Molyneaux**  
Executive Director/CEO  
MAJIC



## CANWELD SPEAKER SESSIONS 2019



**DAY 2 - 1:00 to 1:30 pm - Room 201**

**Conference Session Topic: Recent Developments in Welding Research at the CCWJ**

**Target Audience:** All welding professionals

**Key Learnings:** This presentation will summarize the recent discoveries and developments in welding research at the Canadian Centre for Welding and Joining.

**Session Summary:** Progress can be roughly divided in two categories: Process development and Materials Development. Some progress is opening new areas of research. On the process area, the CCWJ is pioneering a methodology to determine welding features associated with heat transfer, such as cooling rate, HAZ width, melting efficiency, solidification time, etc. Simultaneously, another project is developing the foundation to calculate deposition rate accounting for issues such as polarity and different gases. These projects are applicable to any metal, not just steel.

**Speaker Bio:** Prof Mendez is the Weldco/Industry Chair in Welding and Joining and Director of Canadian Centre for Welding and Joining at University of Alberta. His teaching and research focus on physics and mathematics of welding and materials processing, including heat transfer, magnetohydrodynamics, arc plasma, thermodynamics, and kinetics. Applications include wear protection for mining, and oil extraction, alloy development, procedure development, new welding processes such as laser cladding, casting, solidification, and direct metal additive manufacturing using semi-solid processing. Before joining the University of Alberta in January 2009, he taught and researched at the Colorado School of Mines. Before that, he was a consulting engineer at Exponent Inc. In 1995 Dr. Mendez co-founded Semi-Solid Technologies Inc. in Cambridge, MA. Prof. Mendez holds a Ph.D. and a M.S. degree in Materials Engineering MIT, and a Mechanical Engineer degree from the University of Buenos Aires. He is a Fellow of the AWS and the CWA. Awards include, UofA Outstanding Mentorship in Undergraduate Research, AWS William Irrgang Award, IIW Kenneth Easterling Award, the ASM Brian Ives Award, the NSF CAREER Award, the MIT Rocca Fellowship, and UBA Research Fellowship. He has 68 indexed publications and 9 patents.

### Patricio Mendez

Chair in Welding  
& joining Canadian  
Centre for Welding



## CANWELD SPEAKER SESSIONS 2019



DAY 2 - 1:00 to 1:30 pm - Room 202

### Research and Technology Development on Additive Repair of a Titanium Alloy for Aero-Engine Fan Blade Application

#### National Research Council of Canada (NRC)

**Target audience:** Welding engineers and researchers working on welding residual stress, distortion or development of new welding processes

**Key learning:** The audience will understand how electron beam additive manufacturing can be applied for weld repair of parts and the different characteristics of the weld deposit (microstructure, properties) relative to wrought Ti6Al4V.

To improve aero-engine blade repair, integrated solutions based on additive manufacturing technology are being developed to advance process automation as well as reduce cycle time, high-value material waste and costs. In this work, the application of wire-fed electron beam additive manufacturing of Ti6Al4V to build up a new section on a thin mock-up airfoil will be discussed through examination of the build-integrity, microstructure, residual stresses, airfoil distortion, as well as static and dynamic properties.

**Biography :**Dr. Priti Wanjara is a Senior Research Officer at the National Research Council of Canada (NRC). She earned her B. Eng. (1993) and Ph.D. (1999) from McGill University in Materials Engineering. Since joining NRC in 2002, she has been involved in research projects with industrial clients and academic collaborators on fusion welding, solid-state joining, and additive manufacturing for fabrication and repair of advanced materials. She is a co-author of over 150 refereed articles and Fellow of ASM International, CIM, and CWB Association.

**Priti Wanjara**  
National Research  
Council Canada



## CANWELD SPEAKER SESSIONS 2019



DAY 2 -1:35 to 2:05 pm - Room 201

**Conference Session Topic: The Negative Impact of Welding Fume to your Business**

**Target Audience:** Health and Safety Committee Leaders or Members, Production Managers/Supervisors, Facility Maintenance Staff/Management

**Key Learnings:** Clean air leads to healthy, efficient and increased profitable business practices and behaviour

**Session Summary:** The purpose of this presentation is to bring awareness to weld fume and the effects both financial and human on our industry. Weld fume, when not adequately mitigated, lowers the productivity of your employees affecting bottom line profits. Poor indoor air quality due to weld fume presents challenges in retention of skilled workers, and increases your employee's time off ill by double. We will explore simple but effective ways to increase air quality and profitability while ensuring a high level of ROI. Weld fume extraction / filtration equipment solutions must be tailored to each individual operation. We will give a brief overview of the solutions on the market today.

**Speaker Bio:** Steve has served the industrial market with Nederman since 2011 operating in both Canada and the eastern United States. Steve is experienced in industrial fume extraction methods that Nederman has to offer across many different industries including welding and metal fabrication. Steve works closely with both engineering firms and end customers to ensure the best possible fume and dust extraction solution is determined to meet application needs, budgets, and efficiency.

**Steve Robertson**  
Solution Sales Manager  
ON/QC & Atlantic  
Canada, Nederman



## CANWELD SPEAKER SESSIONS 2019



DAY 2 - 1:35 to 2:05 pm - Room 202

### Conference Session Topic: Investigating the Mechanical Properties of High Strength Steel Welds by Means of Instrumented Indentation

**Target Audience:** Welding engineers, quality control staff/inspectors, researchers, design staff, Canadian standards committee members who review the current pipeline testing procedures.

**Key Learnings:** The methods of how to measure weld metal strength and possible complications and errors that may contribute to this because of residual stresses. In addition, how strength mismatch is currently measured.

**Session Summary:** In order to assess welded structures it is important to overmatch the weld yield strength with respect to the parent metal yield strength. Typically, this is evaluated using all weld metal and cross weld tensile testing to verify the level of strength overmatching, which actually stress the weld metal in different directions (axial versus transverse direction). Although it is assumed that the weld metal has the same strength in these directions, the thermal cycle of a welding processes such as GMAW can form residual stresses owing to the thermal expansion and contractions may present, and this leads to heterogeneous mechanical properties (anisotropic behaviour in the yield strength).

**Speaker Bio:** Professor Gerlich has been an Associate Professor at Waterloo since 2012 and was appointed the NSERC/TransCanada Industrial Research Chair in Welding for Energy Infrastructure in 2014. His research focuses on welding metallurgy of ferrous and non-ferrous materials and characterization of microstructures using electron microscopy, with a strong focus on solid-state joining techniques, such as friction stir welding and joining of dissimilar materials. To date he has published over 150 journal papers and more than 30 conference papers, along with one book chapter, which together have garnered more than 4000 citations. He has attracted over \$1.9M in operating funding and more than \$6M in capital as a principal investigator, and has trained more than 32 graduate, post-doctoral researchers, and undergraduate students.

**Adrian Gerlich**  
Associate Professor  
University of  
Waterloo



## CANWELD SPEAKER SESSIONS 2019



DAY 2 - 2:10 to 2:40 pm - Room 201

**Conference Session Topic: A different approach to understanding weldment corrosion in marine environments**

**Target Audience:** This work is applicable to all marine industries using low alloy steels, from shipbuilding, to marine structures and offshore platforms. It is particularly pertinent when cathodic protection and painting systems are unreliable. The target audience includes engineers and designers who specify welding consumables and procedures.

**Key Learnings:** The performance of weldments can be predicted based upon composition differences between the weld metal and base plate, with microstructure playing a secondary role. No significant influence of welding process was identified, and stress was not considered. A simple method, termed the 'Corrosion Equivalent' formula, was developed. This permits identification of welding consumables that are well matched against base plate steel, avoiding rapid weld corrosion and heat-affected zone (HAZ) corrosion. The model developed in this work also supports repair of weldments undergoing HAZ corrosion through identification of welding consumables that can be used to lay down sacrificial anode beads over the affected HAZs. These are anticipated to last several years and prevent the growth in weldment width with subsequent repairs.

**Session Summary:** The weldment corrosion behaviour of icebreakers has been an issue of concern for several decades. Ice abrasion removes paint from the bow, stern and ice belt regions along the entire ship length. The wind and water strakes (water line and splash zone) of the hull are only intermittently protected, at best, by cathodic protection. Over the past few decades, welding processes, consumables and hull steels have evolved and Canadian icebreakers display the full range of weldment behaviours including rapid weld corrosion and heat-affected zone corrosion.

**Speaker Bio:** Dr. Senior is an electrochemist specializing in the corrosion behaviour of steels and copper in the marine, pipeline and nuclear waste disposal industries. He is employed as a Research Scientist at CanmetMATERIALS (Natural Resources Canada) and is based in Hamilton, Ontario.

**Dr. Nick Senior**  
Research Scientist  
Canmetmaterials  
(Natural Resources Canada)



**Larry Parkinson**  
Manager  
Canadian Cost Guard

## CANWELD SPEAKER SESSIONS 2019



DAY 2 - 2:10 to 2:40 pm - Room 202

**Conference Session Topic: Online Monitoring of Weld Quality in Resistance Spot Welding of A36 Mild Steel through Dynamic Resistance**

**Target Audience:** Students, engineers, welding supervisors, welding operators.

**Key Learnings:**

- Nugget dynamic resistance, a variable that is obtained from acquired current and voltage signals is a great indicator of weld nugget quality.
- Weld nugget quality can be monitored in real time through dynamic resistance signal.
- Physical welding conditions (sheet surface condition, presence of dirt, overlapping welds, one sheet welding, curved sheets, and absence of sheets during welding) can be accurately determined through dynamic resistance signature.
- Dynamic resistance can be used as a pre-inspection feature in resistance spot welding.

**Session Summary:** Resistance spot welding is among the most used joining techniques in aerospace and automotive industries. Nowadays this process has been fully automated in order to increase the production speed and repeatability. However, resistance spot welding still faces several other issues. One of these issues is the integrity of performed welds. Indeed, due to miscellaneous hazards, welding conditions are never the same and resulting welds are sometimes of poor quality.

**Speaker Bio:** Blériot Feujofack is a second year master's student in mechanical engineering at the University of Quebec at Rimouski, Quebec, Canada. Blériot's research focuses on monitoring, modeling and optimization process parameters in laser and resistance spot welding of thin steel sheets for automotive industry. Before taking an interest in steel joining, he studied civil engineering and holds an undergraduate degree from University of Bamenda, Cameroon and a master engineering from University of Yaoundé I in Cameroon.

### Blériot Feujofack

Masters Student  
University of Quebec  
at Rimouski



## CANWELD SPEAKER SESSIONS 2019



**DAY 2 - 2:50 to 3:20 am - Room 201**

**Conference Session Topic: FuseRing a Revolutionary Technology That Enables Pipeline, Refineries and Nuclear Refurbishments to be Connected Using one Welding System**

**Target Audience:** Engineers, supervisors, estimators, financial planners, etc.

**Key Learnings:** Innovation in pipe welding with significant improvements in welding properties and welding economics

**Session Summary:** For the past 18 +/- years, argument from the pipeline industry was that they cannot weld or flange the last joint. FuseRing technology provides a solution and enables solid state fusion for the entire project. Tie-ins may now be made from wellhead to refineries, and from refineries to shipping terminals. Ship building, nuclear subs are equipped with lots of pipe in very confined spaces and makes it impractical to weld manually. Now many welding process may be automated that in the past was not practical. Welds may now be made in very tight and confined spaces. The process may be used in pipes that are only separated by 1/2" to allow for heating paddles, induction, withdrawal of paddles, forge pipes together / rotate. One shot. The ID profile is easy to regulate.

**Speaker Bio:** Paul Cheng was born in Hong Kong and immigrated to Canada 1969 with his parents at age 4. In his youth he had a paper route and summer construction jobs, saved up and paid for 1st year university. Paul had an OSAP loan for the 2nd year which he repaid in full over 10 years. As a young man, Paul traveled out West and worked on the oil rigs. Paul graduated from University of Alberta in 1984 with a BA in Economics and Geology. He received an MBA from Singapore university. Paul holds 2 patents from United States Patent and Trademark Office (USPTO) in advanced materials (FuseRing.com). After graduation Paul started working as a consultant for oil companies. When oil hit US\$ 10/barrel, he nearly starved for 9 years until 1993 when oil prices started to recover to US\$ 20/barrel. Paul's consulting focused on oil companies in exploration / wild cats in Africa, Outer Mongolia, U.S., offshore Peru and Mid East. He retired from Aramco in 2016. Paul is a member of Canadian Welding Bureau Association (CWBA), American Welding Society (AWS); Organization of Canadian Nuclear Industries (OCNI); Canadian Nuclear Association (CNA); American Nuclear Society (ANS). He enjoys time on our little boat 'Always Late', have not decide if the tender should be named 'Even Later' or 'On Time'.

**Paul Chang**  
Fusering



## CANWELD SPEAKER SESSIONS 2019



DAY 2 - 2:50 to 3:20 pm - Room 202

**Michel Gagnon**  
Enlex inc.

**Conference Session Topic: Ways to Reduce Fume Concentration Levels in Welders Breathing Zone**

**Target Audience:** Shop owners, health and safety people, welding supervisor, welders, engineers and anyone that takes care for welder health and safety.

**Key Learnings:** Ways to answer demands on actual and incoming TLV in welders breathing zone. Actual test results done on manganese concentration in welder breathing zone.

**Session Summary:** This presentation will deal with the welding fume emissions; electrode and base metal composition plus shielding gas influences on the particulate concentration in welder breathing zone. This relationship with the hot air convection column velocity and volume to the welding parameters and how welding particulate emissions are contained in the convection column. The importance of understanding the welding fume convection column generated from the puddle, which is about 2,600°F.

Evolution of weld fume control will be discussed from early days until today. From the sharing of the above knowledge it is now possible to better protect the welders breathing zone.

**Speaker Bio:** Michael is a graduate from Polytechnique Montréal in mechanical engineering in 1974. Currently he's the President and owner of Henlex Inc. since 1986. He has been involved in welding smoke extraction since 1986 and the writer of multiple articles on welding smoke extraction. Michael wrote a white paper on GMAW smoke extraction meeting the incoming TLV on Mg. He holds 2 patents with a third one pending on smoke extraction GMAW welding gun.



## CANWELD SPEAKER SESSIONS 2019



DAY 2 - 3:25 to 4:10 pm - Room 201

**Conference Session Topic: Electrical Hazard Reduction and other updates to CSAW117.2**

**Target Audience:** Welders, Welding Supervisors/Managers, Health & Safety professionals, Others involved in overseeing welding operations and Technical Sales Staff

**Key Learnings:**

1. The role of the CSA W117.2-19 standard in Canadian industry
2. Important updates in content in the new 2019 edition of the standard.
3. New requirements in CSA W117.2 to reduce the electrical hazards from arc welding (Voltage Reduction Devices).
4. New technology that can reduce the hazards from stray welding current (Stray Current Interrupter Device).

**Session Summary:** This talk will provide a general update to the new 2019 edition of CSA W117.2, Canada's national standard concerning the health and safety of welding personnel. One focus will be on updated requirements for electrical hazard reduction in arc welding put in-place in response to a concerning cluster of fatal electrocutions and serious electrical shock injuries in Canadian welders over recent years. Other updates will focus on new the requirements for PPE, footwear, and respiratory protection, etc.

**Speaker Bio:** Jim Galloway is a Professor and the Coordinator of Welding Programs at Conestoga College in Cambridge, Ontario. He holds a B.A.Sc. and is a graduate of the Welding Technology program at Conestoga. He is also a Journeyman Welder (Red Seal). Over his 37-year career he has worked as a welding inspector and R&D technologist in the power generation industry, a technical manager in the rail-car manufacturing industry, and the manufacturing manager for a production machinery manufacturer. Jim also volunteers with several CSA Technical committees including CSAW117.2 for welding safety.

**Jim Galloway**  
Professor/Welding  
Program Coordinator  
Conestoga College



# INDUSTRY AWARDS



A CanWeld tradition that brings together the welding industry for an evening of good food and awards.

At our annual Industry Awards Night we recognize those that have made a significant contribution towards the benefit of our society and country. Join us as we congratulate these very deserving recipients.

## MICHAEL N. VUCHNICH AWARD

*Jean-Luc Fihey*



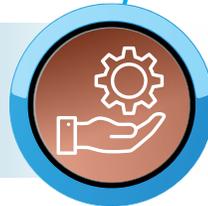
## ROBERT J. JACOBSON MEMORIAL AWARD

*Donald E Hutt*



## THE CWB ASSOCIATION PRODUCTIVITY AWARD

*Supreme Steel Group*



## THE CWB ASSOCIATION FELLOW AWARD

*Priti Wanjara*



## WILFRED I. VELLA MEMORIAL AWARD

*Frederick J Walkley*



## GOLD MEDAL AWARD

*Abdelbaset Midawi*



## INDUSTRY AWARDS MICHAEL N. VUCHNICH AWARD

Presented by LINCOLN ELECTRIC

**Presented to: Jean-Luc Fihey**  
**Nominated by: Xinjin Cao**

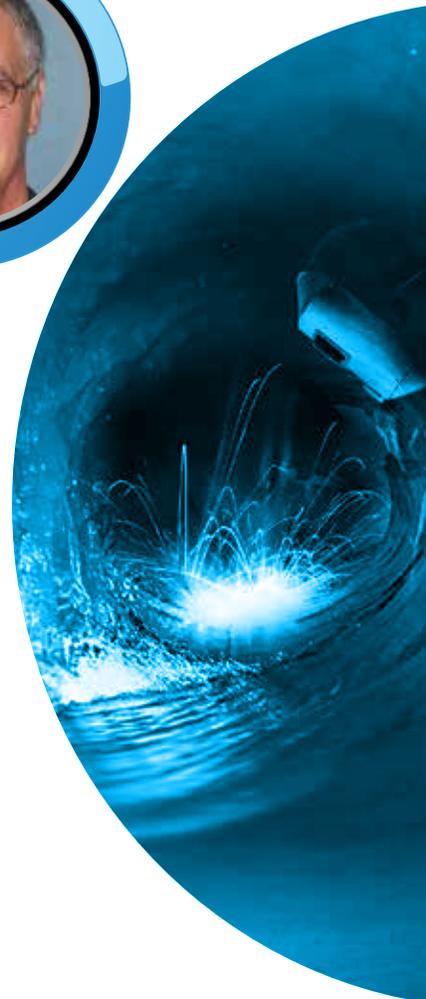
Following his completion of PhD study at École Polytechnique in 1978 and postdoctoral research at MIT in materials engineering, Dr. Jean-Luc Fihey joined Hydro-Québec in 1981 and established a very successful advanced welding research laboratory within the company. As an industrial researcher at Hydro-Québec, he had been conducting cutting-edge industrial welding research for 29 years in the field of welding metallurgy and automated robotic welding. He had developed many innovative welding techniques and successfully solved numerous welding issues encountered in industrial production and manufacturing.

As a main member of Hydro-Québec's development team for a new cavitation resistant alloy which has the best combination of both cavitation and crack propagation resistance, Dr. Fihey successfully developed a welding repair technique for cavitation damages on hydraulic turbine runners. This technology was successfully commercialized with several industrial partners and has been used worldwide for the repair and fabrication of the hydraulic turbine runners. In 1989, the R&D100, an international award that recognizes "the 100 most technologically significant products introduced in the market place over the past year" was awarded to this project team for the invention of the HQ913 Hydroloy alloy.

To further promote his research achievements into industrial applications, Dr. Fihey headed a spin-off company of Hydro-Québec with the mandate of manufacturing Scmpi welding robots. This then led to the development of two large-scale technical innovations in robotic welding: (i) robotic welding of complex joints in Francis turbine runners, which was particularly applied to the manufacturing of two 500 tons Francis runners for China's Three Gorges hydro-electric power plant and (ii) the robotic welding assembly of steel penstocks applied first to the three meter diameter penstock of the hydraulic plant SM3 in Quebec. Following the great success of the SM3 project in 2002, all major penstocks projects at Hydro-Québec were heavily relied on the adoption of industrial robots for all welding work, substantially increasing work productivity and welding quality, reducing manufacturing costs, and pioneering the industrial applications of modern welding robots.

In 1986, the Lincoln Electric Company of Canada Limited established a trust fund for the purpose of funding the Michael N. Vuchnich Award, (\$2,500 and a plaque) to be administered by a committee appointed by the Board of Directors of the Welding Institute of Canada and now its successor organization, the CWB Association. The Michael N. Vuchnich Award is presented annually to an individual who, in the opinion of the CWB Association Awards Committee, has "done the most to advance the science, technology and application of arc welding in Canada during their career."

### JEAN-LUC FIHEY



**CANWELD**  
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## INDUSTRY AWARDS ROBERT J. JACOBSON MEMORIAL AWARD

Presented by CWB ASSOCIATION

The Robert J. Jacobson Memorial Award was established to honour an individual "who has made an outstanding contribution to the CWB Association Chapter operations." This annual award consists of a plaque and a \$1,000 cash prize.

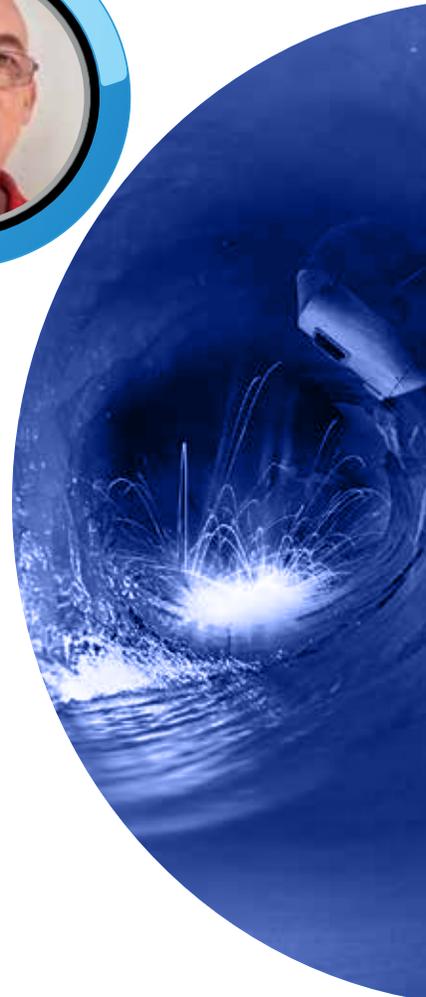
**Presented to: Donald E Hutt**  
**Nominated by: Amir Ghabraei**

Don has been an active member of the Hamilton Chapter for the past 20 years. Since 2000, he has served on the local executive as the Publicity Chair. Over the years Don has contributed countless hours and has been a part of many positive initiatives and changes that have contributed to the success of our chapter.

In 2004 Don was instrumental in creating our annual calendar. This helped to promote our local welding industry and raised funds for our local chapter. Since its inception 15 years ago, he continues to work tirelessly on the calendar making it a huge success. As a result of his efforts, tens of thousands of dollars have been raised and donated back to our local high school manufacturing programs in the form of welding PPE, consumables and equipment.

On a professional level, Don has been working at Dofasco since 1979 when he began his welding apprenticeship. Over the years he has worked in many different capacities such as Shift Leader, Team Leader, and Central Weld Shop Quality Coordinator to name a few. Regardless of his role, Don's commitment and enthusiasm for his profession has always been evident; especially, when he advocates to others about careers in welding. After 40 years of service, Don has recently announced his retirement from Arcelor Mittal Dofasco at the end of June.

### DONALD E HUTT



cwbassociation



# INDUSTRY AWARDS THE CWB ASSOCIATION PRODUCTIVITY AWARD

Presented by PRAXAIR

The Productivity Award is presented to a company that has made an investment and a conscious effort to increase efficiencies and productivity of its operations. The investment may be in automation, process or procedure improvement. The nominations must be supported by documentation. The selection of the recipient is made by the CWB Association Awards Committee. The award consists of a CWB Association medal, plaque and a \$5,000 cash prize sponsored by Praxair.

**Presented to: Supreme Steel Group**

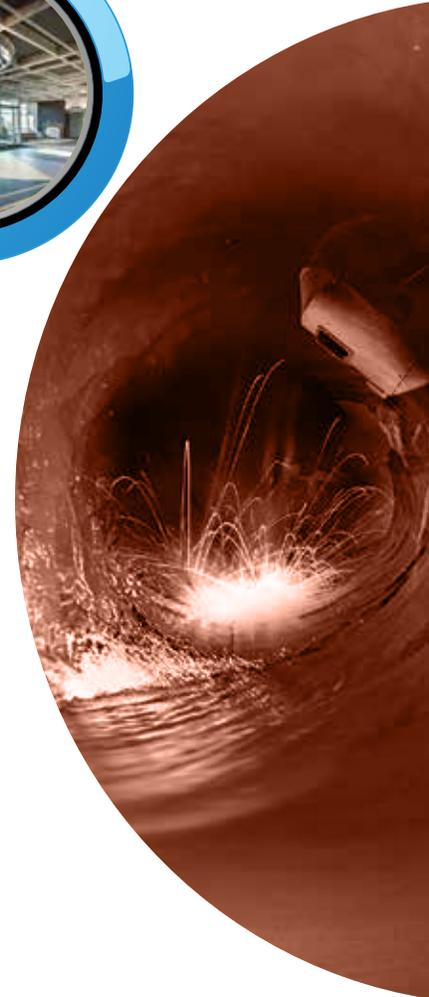
**SUPREME  
GROUP**

**Nominated by: Patricio Mendez  
University of Alberta**

The Supreme Group is the 201 recipient CWB Association Productivity Award. The award is being given in recognition for their innovative and creative approach to a unique fabrication challenge presented by the Rainier Square Tower project in downtown Seattle. Supreme Group has a deep history within the manufacturing and construction industry in Canada and have embodied a strong culture of productivity, not only to remain highly competitive, but also to advance the steel construction and manufacturing industries as a whole. Steel offers many advantages in construction in terms of efficiency and the promotion of steel construction aligns with the goals of the welding industry at large by creating jobs for skilled tradespeople and providing positive exposure for the welding industry. The Rainier Square Tower project provided a distinct challenge that allowed Supreme Group to showcase its innovative approach to fabrication resulting in a greatly reduced fabrication schedule and a significant cost savings for the owner of this landmark building. For their work on this project, the Supreme Group exemplifies the spirit of productivity and that they are the ideal candidate for this esteemed award.

Supreme Group was involved at the very initial stages of the design process, working closely with MKA to achieve the best design possible. One of the earliest efficiency contributions that Supreme Group made was reducing the design fillet weld size from 10 mm to 8 mm. This reduction allows the weld to be made in a single pass, as opposed to multiple passes. In this structure, there are over 350,000 crossties and therefore over 700,000 of these fillet welds to be made (crossties are welded on both ends). By providing the idea and subsequent proof to back up reducing this weld size, Supreme Group helped cut the welding time related to the crossties in half at the design stage.

## SUPREME GROUP



**PRAXAIR**  
*Making our planet more productive*

**CANWELD**  
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## INDUSTRY AWARDS THE CWB ASSOCIATION FELLOW AWARD

Presented by CWB ASSOCIATION

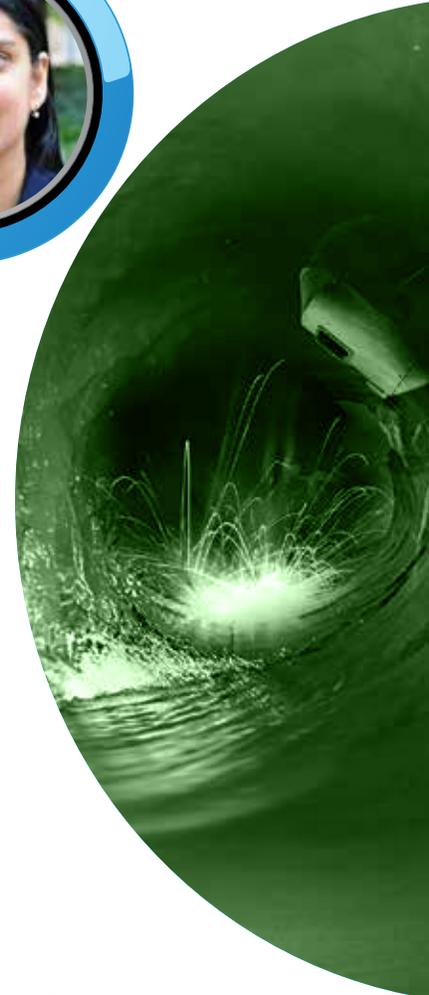
The Fellow Award honours one individual who has an exemplary reputation in the industry related to advancements of welding sciences, technology application, research, education, publication of papers, books, Journal articles and peer recognition. The Fellowship award consists of a CWB Association medal, plaque and a \$1000 cash prize.

**Presented to: Priti Wanjara National Research Council Canada**  
**Nominated by: Mathieu Brochu McGill University**

Throughout her career, Priti has been concerned with the physical metallurgy of metals/alloys, and in particular with how this knowledge can be applied to welding process design for advanced manufacturing in the aerospace, automotive and power generation industries. Her work has emphasized the understanding of solidification and microstructural phenomena during welding of various aluminum, magnesium, iron, zirconium, nickel and titanium-based materials. Her most significant research contributions include her pioneering work on electron beam additive manufacturing, linear friction welding and friction stir welding (FSW), which has accelerated fabrication and refurbishment improvements of various components for various small medium enterprises, original equipment manufacturers and maintenance repair and overhaul industries. Specifically, the use of her expertise and knowledge has permitted bridging the gap between research and industry by developing solutions for industrial welding and weld repair problems, which has been of particular value for various large industries, small-to-medium enterprises (SME), other government organizations (e.g. Department of National Defence Canada) and research consortia (e.g. CRIAQ - Consortium de recherche et d'innovation en aérospatiale and CREFARRE- Consortium de recherche en fabrication et réparation des roues d'eau) For example, a well-known achievement of her research was the industrialization of a robotic FSW cell for weld repair of aluminum cathodes that has provided a competitive edge to Canadian SME Groupe Tremblay (previously Soudure J.M. Tremblay) and their client Canadian Electrolytic Zinc Ltd (CEZinc) through reduction in waste and production costs.

To date, her welding research has resulted in over 70 refereed journal articles and 80 refereed conference proceedings, which have contributed significantly to both the national and international body of knowledge on advanced and automated joining technologies. Also, Dr. Wanjara continues to be a strong supporter and promoter of the welding community in Canada and many of Canada's current generation of welding specialists owe part of their knowledgebase to her dedicated and inspired leadership in welding research, process optimization, performance testing and certification. In this regard, Dr. Wanjara has made sustained contributions through annual lectures and industrial tours to instruct McGill University and Concordia students on advanced welding processes.

### PRITI WANJARA



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## INDUSTRY AWARDS WILFRED I. VELLA MEMORIAL AWARD

Presented by CWB ASSOCIATION

Presented to an CWB Association member who has both supported the work of the CWB Association as a member and has made a significant contribution to our society through humanitar an and or volunteer efforts and is seen as a leader in their community. This new annual award consists of a plaque and a \$2,500 cash prize.

**Presented to: Frederick J Walkley**  
**Nominated by: Robert F. Walsh**

Fred Walkley works as a welding instructor for the Grande Prairie Regional College at the Fairview Campus. Throughout his career he has also been a significant contributor to the communities where he has lived and worked.

Fred and his family are active community members whether at church or with the local outdoor club, participating in various programs and activities. Taking on volunteer leadership responsibilities in the local outdoor club, Fred played a key role in the development of hiking, running and ski trails. This led to the establishment of the Emperor's Challenge mountain half marathon run and the coaching of local cross-country skiers at provincial competitions.

At the Grande Prairie Regional College, Fred looks for meaningful ways to engage the students through video coaching and innovative projects. He has made cast aluminum plaques and airbrushed t-shirts as special student awards.

Fred volunteered as a welder with the Mercy Ships International Global Charity, working on the ship, the Africa Mercy, while it was in dry dock in the Canary Islands. Welding and functional modifications were done as part of the ongoing maintenance on the ship to allow it to continue its work safely and efficiently. The crew aboard the Africa Mercy is comprised of volunteers who donate their time and fund their own costs to serve on the ship whether in the engine room or operating room. This allows Mercy Ships to focus its resources from donations and sponsors to provide free surgeries to those who need it the most. Mercy Ships brings free advanced medical care to the poor who otherwise have limited or no access to services. More than 50% of the world population lives within 100 km of a coast, making a ship the most efficient means to reach those needing care.

Currently serving as a speaker for Mercy Ships Canada, Fred is eagerly anticipating his next speaking engagement or the opportunity to work on the ship.

### FREDERICK J WALKLEY



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## INDUSTRY AWARDS GOLD MEDAL AWARD

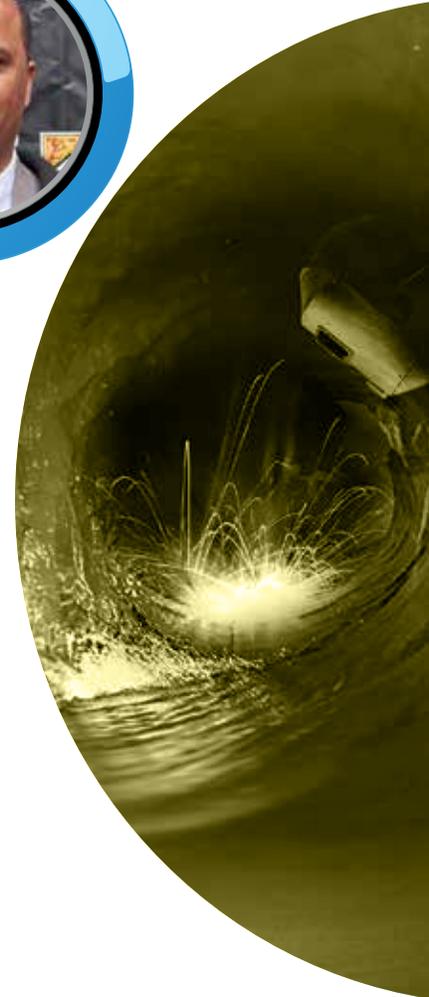
Presented by CWB ASSOCIATION

Each year in the post CanWeld Conference survey, the audience has an opportunity to select the best conference paper presentation Gold award. The 2019 CanWeldConference Gold Award is presented this year to: Abdelbaset Midawi - University of Waterloo for his paper on: Mechanical Property Characterization for X80 Pipeline Steel Welds Using indentation.

**Presented to: Abdelbaset Midawi**  
**Nominated by: CanWeld Audience**

Abdelbaset Midawi was a lecturer at University of Benghazi-Libya, after which he joined the Centre of Advanced Materials Joining (CAMJ) at the University of Waterloo to attain his PhD, where he is now a post-doctoral fellow. Dr. Midawi's area of expertise is characterising the post-welded properties of weldments. During his PhD he developed a technique to measure the local strength of weld zones of GMA welds in pipeline steels using instrumented indentation. Currently, Dr. Midawi is working to optimize the strength of spot and GMA welds state-of-the-art advanced high strength automotive steels by understanding the link between welding parameters, local microstructure and properties, and joint properties. This research will benefit Canada through improved industrial competitiveness and reduction of the environmental footprint of new vehicles. He also serves as the University of Waterloo's CWB student chapter chair since Jan. 2015.

### ABDELBASET R H MIDAWI



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Current Waves



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