

# 2024 AWS NATIONAL AWARD RECOGNITION CEREMONY

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The AWS Awards Recognition Ceremony of the American Welding Society serves an important function. It recognizes the men and women in the industrial, education, and research communities who have made distinctive contributions to advance the science, technology, and application of welding and allied processes, including joining, brazing, soldering, cutting and thermal spraying. This booklet describes the various awards, listing recipients for the past twenty–five years along with a brief biography of this year's recipients. A complete listing of awards and their recipients may be obtained from the AWS website at **aws.org**.

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## **COMFORT A. ADAMS LECTURE AWARD**

The American Welding Society sponsors this lectureship, which was created in memory of Dr. Comfort A. Adams, its founder and first President. The award is presented to an outstanding scientist or engineer for a lecture describing a new or distinctive development in the field of welding. The lecture is presented during the AWS Welding Show and Convention.

Recipients of award:

Key, J. F. (1990) Peaslee, R. L. (1991) Eagar, T. W. (1992) David, S. A. (1993) Baeslack III, W. A. (1994) Gooch, T. G. (1995) Kotecki, D. J. (1996) Lippold, J. C. (1997) Edwards, G. R. (1998) Smartt, H. B. (1999) DebRoy, T. (2000) Evans, G. M. (2001) Cieslak, M. J. (2002) Matsunawa, A. (2003) Bhadeshia, H. K. D. H. (2004) Matsuda, F. (2005) Vitek, J. M. (2006) Elmer, J. W. (2007) Liu, S. (2008) Thomas, W. (2009) Cerjak, H. (2010) Grong, O. (2011) Kou, S. (2012) DuPont, J. N. (2013) Goldak, J. (2014) Robino, C. V. (2015) Vianco, P.T. (2016) Babu, S. S. (2017) Nishimoto, K. (2018) Dong, P. (2019) No presentation (2020) Cross, C. E. (2021) Koseki, T. (2022) Norrish, J. (2023)

#### "NANOJOINING - A NEW FRONTIER IN WELDING AND JOINING OF MATERIALS."



Y. (NORMAN) ZHOU is a professor and Canada Research Chair at the University of Waterloo. Fifteen years ago, he established Waterloo's Centre for Advanced Materials Joining, which has since grown to include six welding professors collaborating with the automotive, aerospace, medical, and microelectronics industries. Dr. Zhou has been a member of AWS since 1995 and was elected a Fellow in 2015.

Dr. Zhou received his bachelor's and master's degrees from Tsinghua University, China, and his PhD from the University of Toronto, Canada. He has authored and co-authored more than five hundred peerreviewed journal papers on various joining processes, including laser and resistance welding, brazing, ultrasonic wire bonding, and electrical-spark deposition. His research also encompasses advanced high-strength steels (DP, TRIP, TWIP, PHS, etc.), Al-, Mg-, Ni- and NiTi-alloys. Additionally, Dr. Zhou has worked on nanomaterials and nanodevices for applications such as water treatment, memory resistors, and self-powered IoT sensors. He has published several books, including "Microjoining and Nanojoining" and "Joining and Assembly of Medical Materials and Devices." Over the past 25 years, he has trained over 40 PhD students, 70 MASc students, and 25 post-doctoral fellows. Dr. Zhou is also a co-founder of two university spinoffs: smarteralloys.com and aquasensing.com.

#### ADAMS MEMORIAL MEMBERSHIP AWARD

This award is sponsored by the American Welding Society and recognizes educators for outstanding teaching activities in their undergraduate and postgraduate engineering institutions.

#### Recipients of award:

Hardt, D. E. (1989) Matlock, D. K. (1989) Dickinson, D. W. (1990) Jacobi, M. (1990) Aidun, D. K. (1991) Kerr, H. (1991) North, T. H. (1991) Benatar, A. (1992) DebRoy, T. (1992) Mikols, J. S. (1992) Sheppard, S. D. (1992) Cook, G. E. (1993) Guedes de Alcantara, N. (1993)Messler, Jr., R. W. (1993) Papritan, J. C. (1993) Kuk, K. A. (1994) Quintino, L. (1994) Patchett, B. M. (1995)

Dilthey, U. (1996) Murray, D. H. (1996) Kovacevic, R. (1997) Lippold, J. C. (1997) Morgan, D. W. (1997) Walsh, D. (1997) Farson, D. F. (1998) Adonyi, Y. (1999) Acoff, V. L. (2000) Bracarense, A. Q. (2001) Indacochea, J. E. (2001) DuPont, J. N. (2002) Cross, C. E. (2003) Gale, W. F. (2004) Nelson, T. W. (2004) Zhang, Y. (2005) Li, Leijun (2006) Merzthal, J. T. (2006) Bhadeshia, H.K.D.H. (2007) Mazumder, J. (2007) Wei, P-S (2008) Ceriak, H. (2009) Tsai, H-L (2010) Chin, B. A. (2011) Babu, S. S. (2012) Warke, R. W. (2013) Mendez, P. F. (2014) Palmer, T. A. (2015) Zhang, W. (2016) Phillips, D. H. (2017) Zhou, Y. N. (2018) Alexandrov, B. (2019) Gerlich, A. (2019) Hardesty, J. B. (2020) Miles, M. (2021) Andersson, J. (2022) Madigan, R. B. (2023)



**PROF. ZHENZHEN YU** is an Associate professor in the department of Metallurgical and Materials Engineering at Colorado School of Mines, the Director of the Center for Joining, Welding and Coatings Research, and site director of NSF I/UCRC Manufacturing & Materials Joining Innovation Center (Ma2JIC). She also serves as a joint faculty at National Renewable Energy Laboratory and co-founder of HYSA Fillers LLC that tackles challenges in metallurgical joining and repair. She received MS and

PhD degrees from the Department of Materials Science and Engineering at the University of Tennessee, Knoxville. Before joining CSM, she worked as a postdoctoral research associate at Oak Ridge National Laboratory. Her research interests include weld metallurgy, development of similar/dissimilar joining technologies, weld consumables design, and simulation and characterization of transient material states during welding. She received the American Welding Society District Educator Award, National Science Foundation Faculty Early Career Development CAREER Award, Prof. Koichi Masubuchi Award, and best paper awards such as James. F. Lincoln Gold Medal, and the A.F. Davis Silver Medal Awards.

## HOWARD E. ADKINS MEMORIAL INSTRUCTOR MEMBERSHIP AWARD

This award is sponsored by the Adkins family and ¬recognizes instructors for their outstanding teaching accomplishments at the high school, trade school, technical institute, and community college levels.

Recipients of award:

Bailey, D. H. (1989) Lanier, R. C. (1989) Arneson, D. (1990) Leppiaho, E. A. (1990) Edge, R. C. (1991) Foley, J. (1991) Gaylen, J. D. (1992) Kimbrell, G. (1992) Heinrich, V. E. (1993) Shopper, A. L. (1993) Henderson, E. P. (1994) Walker, D. L. (1994) Geesey, J. L. (1995) Jackson, H. L. (1995) Rowe, R. J. (1996) Shreve, W. L. (1996) Massey, H. L. (1997) Wallerich, G. (1997) Ciaramitaro, J. A. (1998) Woods, J. (1998)

Heinrich, V. E. (1999) Smith, F. D. (1999) Miller, Jr., W. P. (2000) Fasting, J. L. (2001) Vann, M. J. (2001) Kimbrell, P. D. (2002) Odom, J. C. (2002) Galvery, Jr., W. L. (2003) Johnston, K. D. (2003) Benton, W. S. (2004) Rayborn, Jr., D. (2004) Kee, Jimmy (2005) Sullivan, J. H. (2005) Norman, Ed. (2006) Western, J. W. (2006) Mueller, B. O. (2007) Theiss, R. S. (2007) Harris, W. L. (2008) Lange, D. H. (2008) Main, D. K. (2009)

Carney, J. N. (2010) Gammill, G. L. (2010) Hutchison, R. J. (2011) Gill, T. L. (2012) Sutherland, S. H. (2012) Siepert, G. (2013) Polanin, W. R. (2014) Mitchell, J. L. (2015) Smith, S. C. (2016) Otto, B. (2016) Hughes, H. (2017) King, J. L. (2017) Sumal, A. A. S. (2018) Vann, R. L. (2018) Knapp, J. (2019) No presentation (2020) No presentation (2021) Emery, R. (2022) Jones, R. R. (2023)



**BRETT CAMACHO** has been a welding and fabrication educator for twenty-eight years, nineteen of those years at Fresno City College as a full-time welding and fabrication instructor. He has helped transform the FCC welding programs into one of the most technologically advanced programs in California, from two full-time instructors in one shop to five full-time instructors and two shops, where students have their choice of majoring in Metal Fabrication, Pipe and Structural Steel, or Welding Automation.

Brett has helped developed strong industry partnerships and community relations by sitting on advisory committees, hiring committees, conducting workshops for high school instructors, presenting at conferences, hosting welding competitions, fabricating projects for local businesses; one of the coolest being, having his students fabricate orangutan sleeping baskets and feeders for the Fresno Chaffee Zoo.

In 2019, Brett led the charge to work with NC3 and Lincoln Electric and become a Lincoln Electric Educational Partner School; he is one of five Master Instructors helping to train instructors wanting to implement the LEEPS program into their school. In 2024 Brett proudly passed the CWI exams and is now a Certified Welding Inspector and a Certified Welding Educator. Brett's professional goals are to continue to expand the welding and fabrication program which includes another 7,000 square foot shop currently being renovated, taking the day program from a two-year program to a one-year program, increasing the number of skilled welders ready to enter the work force.

## KENNETH L. BROWN MEMORIAL SAFETY AND HEALTH AWARD

This award is sponsored by the American Welding Society to recognize individuals for promoting welding safety and health through research, educational activities, development of safe practices, or dissemination of information through publications or other means, thereby fostering public safety awareness and welfare.

Recipients of award:

Spies, G. R. (1992) Fisher, O. J. (1993) McMillan, G. H. G. (1994) Lesnewich, A. (1995) Manz, A. F. (1996) Sliney, D. H. (1997) Hinrichs, J. F. (1998) Brown, K. L. (2000) Rockwell, Jr., R. J. (2001) Lyttle, K. A. (2002) DeLong, W. T. (2004) Castner, H. R. (2005) Antonini, J. (2006) No presentation (2007) Fiore, S. R. (2008) No presentation (2009) No presentation (2010) Palmer, W. (2011) Fink, D. A. (2012) No presentation (2013) Costa, L. (2014) No presentation (2015) No presentation (2017) Clark, D. (2018) No presentation (2019) No presentation (2020) No presentation (2021) Petkovsek, J. (2022) No presentation (2023)

No presentation this year.

### **ROBERT J. CONKLING MEMORIAL AWARD**

This award is named in memory of Robert J. Conkling. He encouraged young people to enter the welding industry and contributed generously of his time and talents to the development of the AWS Welding Show and Convention.

This award is sponsored by the American Welding Society and is presented to the schools that trained the two first-place winners in the national SkillsUSA welding competition.

#### 2024 SkillsUSA Championships Gold Medalists Schools

*First Place – High School* Uintah Basin Technical College-Roosevelt Roosevelt, Utah

> *First Place – Post Secondary* Utah State University Eastern Price, Utah

#### 2023 PAPER I A. F. DAVIS SILVER MEDAL AWARD

This award is endowed by the late A. F. Davis, former Vice President and Secretary of The Lincoln Electric Company. It is awarded to the authors of papers published in the Welding Journal during the previous calendar year that represent the best contributions to the progress of welding in the categories of 1) Machine Design, 2) Maintenance and Surfacing, and 3) Structural Design.

NOTE: Code number after each name designates category in which award was won:

- (1) Machine Design
- (2) Maintenance and Surfacing
- (3) Structure Design

As of 2023 and update to the following categories was implemented:

(I) Design of Welding Processes, machines, and equipment

- (2) Maintenance, Repair and Surfacing
- (3) Design of welded structures and equipment
- (4) Designs that improve skills development, education, and training

Recipients of award:

Marsh, C. (3) (1989) Stol, I. (1) (1990) McGough, M. (2) (1990) Denys, R. M. (3) (1990) Guu, A. C. S. (1) (1991) Rokhlin, S. I. (1) (1991) Chen, S-J (2) (1991) Devletian, J. H. (2) (1991) Oh, Y. K. (2) (1991) Leggatt, R. H. (2) (1992) Bentley, A. E. (1) (1993) Marburger, S. (1) (1993) Gittos, M. (2) (1993) Gooch, T. G. (2) (1993) Wang, P. C. (3) (1993) Einerson, C. J. (1) (1994) Smartt, H. B. (1) (1994) Miller, E. G. (3) (1994) Nagel, G. (3) (1994) Rybicki, E. F. (3) (1994) Stonesifer, R. B. (3) (1994) Bucknall, P. W. (1) (1995) Richardson, I. M. (1) (1995) Stares, I. (1) (1995) Lafave, R. A. (2) (1995) Wiegand, R. C. (2) (1995) Ewing, K-M W. (3) (1995) Wang, P. C. (3) (1995) Kimchi, M. (1) (1996) Westgate, S. A. (1) (1996) Kotecki, D. J. (2) (1996)

Ogborn, J. S. (2) (1996) Boomer, D. R. (1) (1997) Hao, M. (1) (1997) Newton, C. J. (1) (1997) Osman, K. A. (1) (1997) Graham, M. (3) (1997) Hirak, D. M. (3) (1997) Kerr, H. W. (3) (1997) Weckman, D. C. (3) (1997) Li, P. (1) (1998) Wang, Q. L. (1) (1998) Hong, J. H. (2) (1998) Tsai, C. L. (2) (1998) Yao, P. (2) (1998) Barber, J. R. (3) (1998) Fang, C-K (3) (1998) Kannatey-Asibu, Jr., E. (3) (1998)Feng, Z. (2) (1999) Jirinec, M. J. (2) (1999) Keiser, J. R. (2) (1999) Swindeman, R. W. (2) (1999)Taljat, B. (2) (1999) Wang, X-L (2) (1999) Zacharia, T. (2) (1999) McCauley, R. B. (3) (1999-posthumous) Tsai, C. L. (3) (1999) Tsai, M. J. (3) (1999) Blachowiak, E. G. (1) (2000)

McCowan, C. N. (1) (2000) Madigan, R. B. (1) (2000) Quinn, T. P. (1) (2000) Smith, C. (1) (2000) Weaver, M. A. (3) (2000) Li, P. (1) (2001) Zhang, Y. (1) (2001) Balmforth, M. C. (2) (2001) Lippold, J. C. (2) (2001) Dupont, J. N. (3) (2001) Marder, A. R. (3) (2001) Nawrocki, J. G. (3) (2001) Robino, C. V. (3) (2001) Elmer, J. W. (1) (2002) Teruya, A. T. (1) (2002) Banovic, S. W. (2) (2002) Dupont, J. N. (2) (2002) Marder, A. R. (2) (2002) Cho, Y-J (1) (2003) Rhee, S. (1) (2003) Menon, R. (2) (2003) Cook, G. E. (1) (2004) Crawford, R. (1) (2004) Mitchell, J. E. (1) (2004) Smartt, H. B. (1) (2004) Srauss, A. M. (1) (2004) Kang, S. W. (3) (2004) Kim, W. S. (3) (2004) Bruce, W. A. (2) (2005) Beckett A. S. (2) (2005) Kusko, C. S. (3) (2005)

#### 2023 PAPER I A. F. DAVIS SILVER MEDAL AWARD (cont)

DuPont, J. N. (3) (2005) Marder, A. R. (3) (2005) Kang, S. K. (1) (2006) Na, S-J (1) (2006) Lassen, T. (3) (2006) Darcis, P. (3) (2006) Recho, N. (3) (2006) Choi, H. W. (1) (2007) Farson, D. F. (1) (2007) Cho, M. H. (1) (2007) Palmer, T. A. (2) (2007) Elmer, J. W. (2) (2007) Brasher, D. G. (2) (2007) Butler, D. J. (2) (2007) Riddle, R. (2) (2007) Tsai, C. L. (3) (2007) Dickinson, D. W. (3) (2007) Kim, C-Y (3) (2007) Garnett, M. D. (3) (2007) Palmer, T. A. (1) (2008) Elmer, J. W. (1) (2008) Nicklas, K. D. (1) (2008) Mustaleski, Jr., T. M. (1) (2008) Tosten, M. H. (2) (2008) West, S. L. (2) (2008) Kanne, Jr., W. R. (2) (2008) Cross, B. J. (2) (2008) Banovic, S. W. (3) (2008) Siewert, T. A. (3) (2008) Li, K. (1) (2009) Zhang, Y-M (1) (2009) Malin, V. (2) (2009) Sciammarella, F. (2) (2009) Huang, Y. (1) (2011) Zhang, Y. (1) (2011) Pargeter, R. J. (2) (2011) Wright, M. D. (2) (2011) Korinko, P. S. (2) (2012) Adams, T. M. (2) (2012) Malene, S. H. (2) (2012) Gill, S. C. D. (2) (2012) Smugeresky, J. (2) (2012) Fan, Y. (1) (2013) Yang, C. (1) (2013) Lin, S. (1) (2013) Fan, C. (1) (2013) Liu, W. (1) (2013) Zhou, Y. (2) (2013) Yang, Y. L. (2) (2013) Li, D. (2) (2013) Yang, J. (2) (2013) Jiang, Y. W. (2) (2013) Ren, X. J. (2) (2013)

Yang, Q. X. (2) (2013) Radakovic, D. J. (3) (2013) Tumuluru, M. (3) (2013) Xiao, J. (1) (2014) Zhang, G. (1) (2014) Wu, L. (1) (2014) Chen, S. (1) (2014) Zhang, Y. (1) (2014) Aschemeier, U. (2) (2014) Peters, K. (2) (2014) Zhang, Y (1) (2015) Shao, Y (1) (2015) Ramirez, J. E. (2) (2015) Sigler, D. R. (3) (2015) Vanimisetti, S. K. (3) (2015) Liu, D. S. (2) (2016) Wei, P. (2) (2016) Chen, S. J. (1) (2017) Xiao, J. (1) (2017) Zhang, G. (1) (2017) Zhang, Y. (1) (2017) Chai, X. (2) (2017) Kou, S. (2) (2017) Landwehr, D. (2) (2017) Yu, P. (2) (2017) Achuthan, A. (3) (2017) Aidun, D. K. (3) (2017) Bunn, J. R. (3) (2017) Coules, H. E. (3) (2017) Eisazadeh, H. (3) (2017) Goldak, J. A. (3) (2017) Chen, J. (1) (2018) Wu, S. (1) (2018) Zhang, K. (1) (2018) Zhang, Y. (1) (2018) Gao, Y. H. (2) (2018) Liu, Z. X. (2) (2018) Lu, L. (2) (2018) Wang, P. C. (2) (2018) Zhi, Q. (2) (2018) Frostevarg, J. (1) (2019) Kaplan, A. (1) (2019) Näsström, J. (1) (2019) Anderson, N. (2) (2019) Kannan, R. (2) (2019) Li, L. (2) (2019) Liu, D. (2) (2019) Long, W. (2) (2019) Wei, P. (2) (2019) Wu, M. (2) (2019) Aidun, D. (3) (2019) Bunn, J. R. (3) (2019) Cornwell, P. (3) (2019) Eisazadeh, H. (3) (2019)

Payzant, E. A. (3) (2019) Feng, J. (1) (2020) Sun, Q. (1) (2020) Teng, J. (1) (2020) Wang, J. (1) (2020) Duch, J. (2) (2020) DuPont, J. N. (2) (2020) Brochu, M. (3) (2020) Chekir, N. (3) (2020) Sixsmith, JJ. (3) (2020) Tollett, R. (3) (2020) Carlson, B. E. (1) (2021) Haselhuhn, A. (1) (2021) Hu, S. (1) (2021) Li, Y. (1) (2021) Lin, Z. (1) (2021) Ma, Y. (1) (2021) Han, Y. (2) (2021) Jia, C. (2) (2021) Wu, CS. (2) (2021) Wu, J. (2) (2021) Yang, Q. (2) (2021) Zhang, Y. (2) (2021) Bunn, J. (3) (2021) Feng, Z. (3) (2021) Kolbus, L. (3) (2021) Liu, S. (3) (2021) Wang, Z. (3) (2021) Wu, X. (3) (2021) Yu, Z. (3) (2021) Assuncao, H. L. (1) (2022) Bracarense, A.Q. (1) (2022) Pereira Pessoa, E. C. (1) (2022)Rizzo, F. (1) (2022) Rocha dos Santos, V. (1) (2022)Gould, J. E. (1) (2022) Lester, P. (1) (2022) Lindamood, L. (1) (2022) Malpica, J. (1) (2022) Marinho, R. R. () (2022) Carlson, B. E. (3) (2022) Chen, J. (3) (2022) Feng, Z. (3) (2022) Huang, H. (3) (2022) Wang, H-P. (3) (2022) ) Ayoade, A. A. (1) (2023) Steele, J. P.H. (1) (2023) Bai, J. (1) (2023) Lin, Z. (1) (2023) Yang, S. (1) (2023) Yin, Q. (1) (2023)

## DESIGN OF WELDING PROCESSES, MACHINES, AND EQUIPMENT (I)

#### "MELTING CHARACTERISTICS OF C-TYPE FILLER METAL IN GTAW"



**DR. MURALI MOHAN CHEEPU** served as a research manager at STARWELDS Inc., leveraging over ten years of experience in the research and manufacturing industries. His expertise encompassed welding, brazing, additive manufacturing, automation, and digitalization. At STARWELDS, he played a pivotal role in pioneering Super-TIG Welding (GTAW with C-Filler) to significantly enhance the productivity of WAAM, overlay and welding. Currently, he holds the position of welding manager at VITZROTECH Co., Ltd.,

focusing on developing welding solutions for the aerospace industry and contributing to the ITER fusion energy research and engineering mega project, aimed at generating energy through a fusion process akin to an artificial sun.

Dr. Cheepu holds several patents and publications on welding processes. His accolades include the "Young Fellow Award" and "Best Researcher Award" from the Korean Welding and Joining Society, the "Outstanding Young Manufacturing Engineer Award" from the Society of Manufacturing Engineers, and the "Outstanding Contribution Award" from the KSPE. Additionally, he serves on editorial boards, acts as a reviewer and participates on technical committees for various conferences.

Dr. Cheepu graduated with honors from the National Institute of Technology Tiruchirappalli, India, with a master's degree in Welding Engineering. He earned a doctorate in Mechatronics Engineering from Kyungsung University, Korea, where his research focused on the development of welding processes for high-temperature materials.



**MR. HYOJIN BAEK** served as a team manager at STARWELDS Inc. for over six years, where he worked on multiple projects, particularly focusing on Super-TIG welding technology and its various applications. Currently, he is a senior researcher at ARCWEL Co., Ltd. in Korea, where he is developing robotic welding systems for diverse industrial uses. Mr. Baek pursued his undergraduate studies in Materials System Engineering at Kyungsung University and Pukyong National University, graduating in February 2018.

He then continued his academic journey at Pukyong National University, earning a master's degree in Welding Technology in February 2020. His master's thesis was titled "Effect of Welding Parameters on Application in Super-TIG Welding of 9% Ni Steel." Mr. Baek's passion for materials engineering and his significant academic achievements underscore his potential for contributing substantially to advancements in his field. He is a member and an award recipient of the Korean Welding and Joining Society, highlighting his commitment to excellence and innovation in welding technology.

## DESIGN OF WELDING PROCESSES, MACHINES, AND EQUIPMENT (I)

#### "MELTING CHARACTERISTICS OF C-TYPE FILLER METAL IN GTAW" (cont)



**PROF. YOUNG SIK KIM** is a distinguished technical advisor at STARWELDS Inc., where he is instrumental in the development of Super-TIG welding and its diverse applications. Concurrently, he serves as an Emeritus Professor at Korea Maritime University, Korea, bringing his extensive expertise to the academic and industrial welding sectors. Prof. Kim holds a bachelor's degree from Korea Maritime University and earned his Ph.D. from the Tokyo Institute of Technology, Japan. His academic

career began as an Assistant Professor in the marine division at Korea Maritime and Ocean University, where he dedicated many years to teaching and research before retiring as a full Professor. Renowned for his pioneering contributions to welding processes and technologies, especially in the marine and industrial sectors, Prof. Kim also served as the President of the Korean Welding and Joining Society. Prof. Kim's work has significantly advanced welding processes and technologies for marine and various industrial applications, establishing him as a leading figure in the field.



**DR. SANG MYUNG CHO** earned his Ph.D. in Welding Engineering from JWRI, Osaka University, Japan. He served as a professor at Pukyong National University in Busan, Korea, for 27 years. Currently, he is the C.E.O. of STARWELDS Inc., a company he founded in 2014. STARWELDS specializes in the design of welding processes, digital transformation, and robotic SI for welding solutions.

Dr. Cho is renowned for inventing Super-TIG welding, a groundbreaking technology that introduced the use of a C-type filler metal in GTAW for the first time. Prior to founding STARWELDS, he was a distinguished professor at Pukyong National University, where his research focused on arc physics, welding process monitoring for spot and arc welding, Wire Arc Additive Manufacturing (WAAM), and robotic welding solutions. He is also a recognized Professional Engineer (PE).

Dr. Cho is a Fellow of the Korean Welding and Joining Society and has received numerous awards for his contributions to welding processes and technology development, including recognition from the American Welding Society.

### DESIGN OF WELDING PROCESSES, MACHINES, AND EQUIPMENT (I)

#### "EFFECTS OF FILLER WIRE INTERVENTION ON THE GAS TUNGSTEN ARC: PART III – PROCESS STABILITY CONTROL OF WIRE-FILLED GTAW"



**MR. YUE CAO** is currently pursuing a PhD in Electrical Engineering at the University of Kentucky. He holds a bachelor's degree in Material Forming and Control Engineering and a master's degree in Material Processing Engineering, both from Tianjin University, where his research centered on process control of Gas Metal Arc Welding (GMAW). Prior to his PhD, Yue gained practical experience as a software engineer in the automotive industry, further enhancing his skills.

Yue's current research focuses on developing intelligent and advanced robotic systems for complex welding processes. These systems facilitate human-robot collaboration, leveraging human intelligence for process monitoring and control development. Yue has published papers in prominent journals such as the Journal of Manufacturing Processes, IEEE Robotics and Automation Letters, and IEEE Transactions on Control Systems Technology. Looking ahead, he aims to explore the integration of artificial intelligence in welding, particularly focusing on improving the adaptability and flexibility of robotic welding systems with advanced deep learning technologies.



**MR SHENGSUN HU** was born in Tianjin, China, in 1956. He received the B.S. degree and the M.S. degree in welding technology in 1981 and 1987 both from Tianjin University, Tianjin, China. His research interests include welding process control and welding automation, innovative welding processes, high energy beam welding, and new materials welding. He published more than 200 papers, 3 textbooks, and awarded more than 10 patents. He was awarded the second prize for National Higher Education

Teaching Achievement in China, the second prize for Tianjin Science & Technology Progress Award, and the third prize for Science & Technology Progress Award of the Ministry of Education in China.

He has been an Assistant Professor, a Lecturer, and a professor of welding engineering at Tianjin University since 1982. He retired in 2021 from Tianjin University. He served as vice-dean of School of Materials Science and Engineering, Tianjin University, from 2001 to 2009; and director of Tianjin Key Laboratory of Advanced Joining Technology from 2008 to 2012. He was once appointed as the deputy secretary-general of Chinese Welding Society (CWS), a member of Robotics & Automation Committee of CWS, and the president of Tianjin Welding Society.

### DESIGN OF WELDING PROCESSES, MACHINES, AND EQUIPMENT (I)

#### "EFFECTS OF FILLER WIRE INTERVENTION ON THE GAS TUNGSTEN ARC: PART III – PROCESS STABILITY CONTROL OF WIRE-FILLED GTAW" (cont)



**DR. ZHIJIANG WANG** was born in Tangshan City, Hebei, China, in 1981. He received his B.S. degree in metal material engineering (welding major) in 2003 from School of Materials Science and Engineering of Tianjin University (TJU), Tianjin 300372, China; and received the M.S. degree and the Ph. D. degree in material processing engineering (welding major) in 2005 and 2010 both from the State Key Laboratory of Advanced Welding Production Technology at the Harbin Institute of Technology, Harbin,

Heilongjiang 150001, China. He worked with Dr. YuMing Zhang as a visiting scholar at the University of Kentucky for more than two years since 2008. His research interests include innovative welding processes, monitoring and control of welding processes, welding automation and additive manufacturing. He published more than 60 papers and awarded more than 10 Chinese patents.

Dr. Zhijiang Wang was a Lecturer at TJU from 2010 to 2016 and has now served as an Associate Professor at TJU since 2016. He was appointed a member of Youth Committee and Robotics & Automation Committee in Chinese Welding Society (CWS), a member of American Welding Society (AWS), and a reviewer of "Welding Journal" by AWS and "Journal of Manufacturing Processes" by Society of Manufacturing Engineers.



**MR. SHUANGYANG ZOU** is currently pursuing a PhD in Materials Science and Engineering at Shanghai Jiao Tong University. He obtained a bachelor's degree in Materials Forming and Control Engineering from Southwest Jiaotong University in 2017, and a master's degree in Materials Processing Engineering from Tianjin University in 2020. At that time, his research mainly focused on sensing and control of arc welding processes. Then, he joined the Nuclear Power Institute of China and worked on welding

research for special equipment about two years.

Shuangyang's current research interests are in the process development, process monitoring, and numerical simulation of laser welding technology for advanced high-strength steel, copper, aluminum alloys, and aluminum matrix composites. The purpose is to provide reliable welding solutions for the large-scale production of motors or batteries for new energy vehicles, as well as theoretical and technical reserves for the lightweight manufacturing of welding structures for the next generation of spacecraft. Shuangyang has published papers in prominent journals such as Welding Journal, Journal of Intelligent Manufacturing, and Journal of Process Control.

#### **MAINTENANCE, REPAIR AND SURFACING (II)**

#### "FINITE ELEMENT ANALYSIS OF UNDERWATER WET WELDING: THE IMPLEMENTATION OF BUBBLE CONFIGURATION"



**DR. JIANFENG WANG** is currently an Associate Professor at the College of Materials Science and Technology, Nanjing University of Aeronautics and Astronautics, China. He earned his Bachelor degree (2013), Master degree (2015) and PhD degree (2019) from the State Key Laboratory of Advanced Welding and Joining, Harbin Institute of Technology (HIT) in China. He has published 68 papers of archival significance, including 32 as first author and 16 as corresponding author. 56 of my journal papers

appear on the influential SCI, such as Weld. J., Virtual Phys. Prototy., J. Mater. Sci. Technol., Mater. Sci. Eng. A, J. Mater. Process. Tech., etc. His paper on J. Manuf. Process. (2019, 37: 563-577) has been recognized as the "Key Scientific Article" by Advances in ENGINEERING (Canada), the World's leading source of Engineering research news. He applied/authorized 36 national invention patents.

He was granted the European Union's Horizon 2020 Research and Innovation Programme under the Marie Sklodowska-Curie Actions (2022). He is devoted to fundamental research activities involving underwater wet welding processes with an emphasis placed on arc bubble control via Ultrasonic Wave, addressing issues covering arc behavior, metal transfer, microstructure modification of weld metal. He is the Committee Member of Laser Processing Committee of Chinese Optical Society and serves as the Associate Editor for the Board of the Advance in Materials Science



**DR. YUYING CHEN** is currently an Assistant Professor at the College of Materials Engineering, Jinling Institute of Technology, China. She earned her bachelor's degree (2013) from Shenyang University of Technology, Master degree (2015) and PhD degree (2020) from Materials Science and Engineering, Harbin Institute of Technology (HIT) in China. She has published 15 papers of archival significance, including 9 as first author and as corresponding author. All of her journal papers appear on the influential SCI,

such as Weld. J., J. Alloy. Compd., J. Mater. Res. Technol., Int. J. Hydrogen Energ., etc. She is devoted to fundamental research activities involving de/hydrogen storage properties of Mg-based alloy and Zn-induced embrittlemnt of steel by First Principle Calculation Method.

## **MAINTENANCE, REPAIR AND SURFACING (II)**

#### "FINITE ELEMENT ANALYSIS OF UNDERWATER WET WELDING: THE IMPLEMENTATION OF BUBBLE CONFIGURATION"

(cont)



**JINPING LIU** is currently the deputy director of the Welding Research Institute at the Nuclear Industry Engineering Research and Design Co., LTD., and serves as the deputy director of the Key Laboratory for Highly Efficient and Intelligent Welding of China National Nuclear Corp (CNCC). He obtained his master's degree in Materials Processing Engineering from Harbin Institute of Technology and is currently pursuing his doctoral studies at Tianjin University. He has been dedicated to the research

and development of efficient welding technologies for several major national nuclear projects. He has successfully implemented the first applications of more than ten welding equipment and processes in these significant nuclear projects, significantly improving the quality and efficiency of the welded structure. As the PI, he has led four major national scientific research projects and has been granted six patents for inventions. He has received over ten awards and honors, including being named a Young Talent by CNCC and winning the gold prize in the "Good Hualong" special competition of the Second CNNC Science and Innovation Competition.



**TAO ZHANG** is a Ph.D. student of Material Processing at Tohoku University, Sendai, Japan. He received his master's degree (2023) from the Institute for Materials Research (IMR) at Tohoku University, and Bachelor's degree (2020) from the School of Materials Science and Engineering at Harbin Institute of Technology (HIT), China. He has authored or coauthored 10 peer-reviewed journal papers appearing on the influential SCI, such as Welding Journal, the Journal of Materials Processing Technology, Materials

& Design, etc. He has also attended one international academic conference and six domestic academic conferences in Japan.



**CANCAN YAN** is currently the senior engineer in the Welding Research Institute of the Nuclear Industry Engineering Research and Design Co., LTD. She earned a bachelor's degree and is currently studying for a master's degree in Tianjin University. She participated in the application and implementation of 15 scientific research projects such as National Major Projects, National Defense Science and Industry Administration and China National Nuclear Group, with a total research fund of more than 5 million.

She won 5 provincial and ministerial science and technology awards and applied for 15 patents. She has published 11 papers, including 3 SCI papers. She is committed to carrying out advanced laser welding technology research for national key projects, nuclear power and other industries, and has completed the research and development of five laser welding equipment and technology.



**YINGCHAO FENG** is a professor level senior engineer, the State Council Special Allowance, the scientific and technological leader of China National Nuclear Corp, and a visiting scholar of KTH Royal Institute of Technology. Currently, he is the chief engineer of the Nuclear Industry Engineering Research and Design Co., LTD., and the director of the Key Laboratory for Highly Efficient and Intelligent Welding of China National Nuclear Corp. He received his master's degree from Tsinghua University and is currently

studying for his PhD at Northeastern University. He has published more than 50 papers, 19 patents and 3 monographs. He undertook more than 20 scientific research projects independently established by the National Energy Administration, the Science and Industry Bureau and the company, with a fund of more than 7 million. He is mainly committed to national major projects, nuclear power to carry out advanced welding technology, intelligent, digital, high-end technology research in retirement, leading the industry welding and development. The relevant technologies have reached the international advanced and domestic leading level, ensuring the construction progress, project quality and safety of major national science and technology projects and important military industries.



**CHENG LIU** is currently a professor level senior engineer in the Welding Research Institute of the Nuclear Industry Engineering Research and Design Co., LTD. He earned a bachelor's degree in China. He participated in the application and implementation of 10 scientific research projects such as National Major Projects, National Defense Science and Industry Administration and China National Nuclear Group, with a total research fund of more than 1 million. He won 3 provincial and ministerial science and

technology awards and applied for 10 patents. He has published 8 papers, including 2 SCI papers. He is committed to carrying out advanced laser welding technology research for national key projects, nuclear power and other industries, and has completed the research and development of five laser welding equipment and technology.

### **DISTINGUISHED WELDER AWARD**

This award is sponsored by the American Welding Society and is presented to an individual(s) who has exceptional welding skills and experiences related to all aspects of the art of welding.

Recipients of award:

Samanich, R. (2012) Tichelar, C. W. (2012) Bane, G. F. (2013) Sanchez, A. (2013) Collier, W. (2014) Duffield, A. (2014) Glidewell, D. S. (2014) Kincaid, D. (2014) Thomas, D. (2014) Elsloo, D. (2015) Blom, J. D. (2016) No presentation (2017) Schmerl, J. (2018) Vachon, R. G. (2018) No presentation (2019) No presentation (2020) Kustra, G. A. (2021) Gibbs, G. (2022) No presentation (2023)



**JOHN L. MENDOZA** is a 36-year veteran of the power generation industry. He attended San Antonio Trade School where he received a certification in welding technology in 1973. He joined CPS Energy as a welder's helper, completed a three-year apprenticeship, and attained journeyman status performing weld repairs on pressure piping and related components. During this time, he was qualified to ASME Section IX in shielded metal and gas tungsten arc welding. Over the years Mendoza also attained

AWS Certified Welding Inspector and AWS Certified Welding Educator credentials. He is currently a consultant for Lone Star Welding in San Antonio, Texas.



**TIMOTHY ROLAND** started his welding education in the Fall of 2000 at Central Community College Hastings, Nebraska and completed his Welding Certificate in April 2001. This was a certification for mig, tig, and stick welding on plate and pipe. He started his first welding job that April with Fagen Inc at the ethanol plant in York, Nebraska. Later in 2001 he began his travel welding career working near Phoenix, Arizona welding at the Red Hawk Powerplant. From there he continued to travel around the central and

western states working shutdowns and new construction at multiple industrial power plants, oil refineries, compressor stations, ethanol plants, etc. Each of these plants had different welding procedures and different types of metals to weld including stainless steel, carbon, and chrome pipe in uphill or downhill procedures. He has also worked on various vessel repairs. In 2022 he started his own welding business T&C Welding LLC performing commercial pipe upgrades to local businesses as well as helping farmers build power lift shop doors for large equipment along with various other jobs around central Nebraska. He often works alongside and with Strobel Energy out of Clarks, Nebraska.

# EXCELLENCE IN ROBOTIC AND AUTOMATED ARC WELDING AWARD

This award is sponsored by the American Welding Society to recognize significant individual achievements in the area of robotic arc welding. This work can include things such as the introduction of new technologies, establishment of the proper infrastructure (training, service, etc.) to enable success and any other activity having significantly improved the state of a company and/or industry. Since 2011, it has been awarded every other year.

Recipients of award:

Hinrichs, J. F. (2004) Woodman, Jr. C. L. (2005) No presentation (2006) Lefebvre, R. R. (2007) No presentation (2008) No presentation (2009) No presentation (2010) Boillot, J-P (2011) No presentation (2012) Anderson, C. T. (2013) No presentation (2014) Noruk, J. S. (2015) No presentation (2016) Rhoda, D. P. (2017) No presentation (2018) Mangold Jr., V. L. (2019) No presentation (2020) No presentation (2021) Rasmussen, C. (2022) No presentation (2023)



**KAREN GILGENBACH** holds a BS in Engineering Mechanics from Michigan State, an MS in Weld Engineering from Ohio State, an MBA through Indiana University and an MS in Finance from Indiana University. She has been a CWI since 2006 and is a CWS as well as a CRAW-T.

Professionally, Karen is currently a Zone Vice President for Matheson Gas, a distributor

of gas and welding supplies.

Karen is an incoming Board Member for the AWS Board, with a term starting in 2025, the Chair of the AWS D16 Committee on Robotic and Automatic Welding, a member of the AWS TAC and a member of the AWS Diversity, Equity and Inclusion Committee.

Karen is a former Chairperson, Treasurer and Secretary of the AWS Milwaukee Section. She co-chaired the National Robotic Arc Welding Conference from 2007 to 2017, which provided the initial funding for the John F Hinrichs Memorial Endowment. She was one of the founders of the John F. Hinrichs Memorial Endowment National Scholarship, which currently provides over \$20,000 annually to students pursuing welding and welding engineering degrees. Karen was one of the founders of the David J. Landon National Scholarship, and her family created the Karen M. Gilgenbach National Scholarship.

## DALTON E. HAMILTON MEMORIAL CWI OF THE YEAR AWARD

This award is sponsored by the American Welding Society in memory of Dalton E. Hamilton, who contributed greatly to the success of the Society's Certified Welding programs. This award recognizes AWS members participating in the SCWI/CWI programs whose inspection, Society and civic activities have enhanced public awareness of the Society and the CWI program or who have otherwise made an outstanding contribution to the science of welding inspection.

#### Recipients of award:

Mancuso, L. A. (1989) Sanguini, E. V. (1990) Soref, E. (1991) Hoffman, J. J. (1992) Tuttle-Stewart, J. (1993) Kriger, G. D. (1994) Sisson, J. E. (1995) Cole, G. L. (1996) Slote, R. C. (1997) Falbo, P. (1999) Plumstead, R. F. (2000) Timmerman, H. T. (2001) Stockton, K. R. (2002) Beck, W. R. (2003) Fairbanks, Jr., G. D. (2004) Hennessy, J. P. (2005) Elwood, F. F. (2006)

Willard, J. A. (2007) Kane, J. (2008) Zammit, P. (2009) Wright, D. (2010) Waite, R. F. (2011) Alston, J. (2012) No presentation (2013) No presentation (2014) No Presentation (2015) Griffith, B. (2016) Twitty, D. L. (2017) Pariseau, J. (2018) Redding, J. (2019) Corbin, J. D. (2020) No presentation (2021) No presentation (2022) Barrett, S. (2023)



**DARYL PETERSON** is the Quality Manager for Central Maintenance and Welding and currently supervises and mentors several CWI's. In addition, Daryl serves as the AWS District 5 Director with responsibilities for most of Florida, Georgia, and South Carolina. Daryl earned his CAWI in 1994, his CWI in 1996 and again in 2009, and then passed the SCWI examination in 2015. He also maintains certifications as a ASNT NDT Level III in MT, PT and UT as well as API 653 Authorized above ground tank inspector and had also

held certifications as a Level II Protective Coatings Inspector and Bridge Coatings Inspector from SSPC.

As a Senior CWI with experience in numerous industry sectors, Daryl is dedicated to mentoring early career CWI's as well as those wanting to attain the AWS CWI certification. He also is a frequent contributor to the AWS member network forum and has had articles published in AWS's Inspection Trends magazine. In addition to volunteering to serve the welding community, Daryl also volunteers at home, serving on the Hillsborough County Sheriff Department's Citizen Patrol.

#### 2023 PAPER I W. H. HOBART MEMORIAL AWARD

This award is presented in memory of William H. Hobart, Sr., and is sponsored by Hobart Brothers Company. It is awarded to the authors of the paper published in the Welding Journal during the previous calendar year that describes the best contribution to pipe welding, the structural use of pipe or similar applications, excluding the manufacture of pipe.

#### Recipients of award:

Howe, P. (1989) Signes, E. G. (1989) Marshall, P. W. (1990) Feng, Z. (1991) Grantham, J.A. (1991) Soisson, L. (1991) Tsai, C-L (1991) Bentley, A. E. (1992) Giedt, W. H. (1992) Hicken, G. K. (1992) Bezzant, R. K. (1994) Engel, Jr., L. B. (1994) Ganesan, N. (1998) Krishnakumar, R. K. (1998) Raghupathy, V. P. (1998) Ravichandran, G. (1998) Hummelgaard, P. (2002) Mackie, P. (2002) Still, J. (2002) Bang, I-W (2003) Kim, W-S (2003) Kim, Y. P. (2003) Oh, K. H. (2003) Son, Y-P (2003) Bruce, W. A. (2004) Frankel, G. S. (2004) Kock, G. H. (2004) Omweg, G. M. (2004) Ramierez, J. E. (2004) Akselsen, O. M. (2005) Rørvik, G. (2005) Kvaale, P. E. (2005) Van der Eijk, C. (2005)

Ramirez, J. E. (2006) Mishael, S. (2006) Shockley, R. (2006) No presentation (2007) Kim, D. (2008) Kim, T. H. (2008) Park, Y. W. (2008) Sung, K. (2008) Kang, M. (2008) Kim, C-M (2008) Lee, C-K (2008) Rhee, S. (2008) Ramirez, J. E. (2009) Onsøien, M. I. (2010) M'Hamdi, M. (2010) Mo, Asbjørn (2010) Shi, S. (2011) Lippold, J. C. (2011) Ramirez, J. E. (2011) Drexler, E. (2012) Darcis, P. P. (2012) McCowan, C. N. (2012) Sowards, J. W. (2012) McColskey, J. D. (2012) Siewert, T. A. (2012) Li, X. R. (2013) Shao, Z. (2013) Zhang, Y. (2013) Silwal, B. (2014) Li, L. (2014) Deceuster, A. (2014) Griffiths, B. (2014) Bortsov, A (2015)

Frantov, I. I. (2015) Velichko, A. A. (2015) Utkin, I. Y. (2015) Beidokhti, B. (2016) Pouriamanesh, R. (2016) Li, L. (2017) Wang, Y. (2017) No presentation (2018) Anderson, T. (2019) Fairchild, D. (2019) Jin, H. (2019) Ma, N. (2019) Wasson, A. (2019) Yue, X. (2019) Parker, J. (2020) Siefert, J. A. (2020) Thomson, R. (2020) Anderson, N. (2021) Arafin, M. (2021) Collins, L. (2021) Guo, L. (2021) Kannan, R. (2021) Li, L. (2021) Rashid, M. (2021) Kumar Dwivedi, D. (2022) Kulkarni, A. (2022) Vasudevan M. (2022) Ustundag, O. (2023) Bakir, N. (2023) Gook, S. (2023) Gumenyuk, A. (2023) Rethmeier, M. (2023)

#### 2023 PAPER I W. H. HOBART MEMORIAL AWARD (cont)

#### "CORROSION RESISTANCE OF DISSIMILAR GTA WELDS FOR OFFSHORE APPLICATIONS"



**DR. LEIJUN LI** is Professor of Materials Engineering and Dept Chair for Chemical and Materials Engineering at University of Alberta. Prior to his Alberta appointment, Dr. Li was a professor of manufacturing for 15 years in the Department of Mechanical and Aerospace Engineering at Utah State University. Dr. Li obtained his Ph.D. degree in Materials Engineering from the Warren "Doc" Savage Materials Joining Lab at Rensselaer Polytechnic Institute (RPI). He is a Fellow of American Welding Society, ASM International,

and the Canadian Welding Bureau. Dr. Li received several AWS awards, including the A.F. Davis Silver Medal Award (2019), W.F. Savage Memorial Award (2018), McKay-Helm Award (2018), W.H. Hobart Memorial Award (2014, 2017, and 2021), and the Adams Memorial Award (2006). This 2024 Hobart Award is the 4th time for him to receive the pipe welding award.



**DR. NITIN SAINI** is a postdoctoral fellow in the Departments of Chemical and Materials Engineering at the University of Alberta. He obtained his Ph.D. and master's degree in welding metallurgy from the Indian Institute of Technology Roorkee, India. His current research focuses on the weldability and heat treatments of 9Cr steels, life assessments of coke drums, flow accelerated corrosion in girth welds, failure analysis of bend tubes and welds, and CTOD testing of pipeline girth welds.



**SUVAN DEV CHOUDHURY** holds a Ph.D. in Materials Engineering from the University of Alberta, Canada. During his doctoral studies under Prof. Leijun Li, he specialized in failure mechanisms of in-service water walls, non-destructive 3-dimensional characterization of weld defects, finite element simulation of fatigue crack path propagation, and life cycle estimation of water walls under complex thermo-mechanical conditions. Currently, Dr. Suvan Dev Choudhury serves as an R&D Engineer at A.R. Thomson Engineered

Solutions. In this role, he leverages his expertise in mechanical and materials engineering to drive significant advancements in materials technology, enhance product durability, and optimize performance under challenging operational conditions.



**Dr. Rahul Chhibber** is affiliated with the Indian Institute of Technology Jodhpur as Professor in the Department of Mechanical Engineering. He obtained his Ph.D. in Welding Engineering from the Indian Institute of Technology Roorkee in 2008. His research interest includes fabrication and structural integrity assessment of dissimilar material joints, developing welding consumables for SMAW and SAW processes, and investigations on fiber-reinforced nano composites. He has published over one hundred research papers in

peer reviewed journals and supervised 10 Ph.D. theses around welding and joining.



**DR. WARIS NAWAZ KHAN** received his Ph.D. degree in Mechanical Engineering from Indian Institute of Technology Jodhpur in 2022. He is affiliated with the University of Alberta as a Postdoctoral fellow, researching welding and physical metallurgy applied to energy systems. He was a recipient of prestigious Overseas Visiting Doctoral Fellowship by the Science & Engineering Research Board, Govt. of India, to study in Prof. Leijun Li's group at University of Alberta. He has been researching different aspects of welding

including consumable development, filler metals, performance evaluation and parameter optimization. He has published nineteen peer reviewed journal papers, one book chapter, and presented his work at 10 reputed international conferences.



**DR. YAJING WANG** is a postdoc researcher in Materials Engineering at University of Alberta. During her PhD program at Taiyuan University of Science and Technology, she obtained a prestigious China Scholarship Council fellowship to study for two years in Prof. Leijun Li's group at the University of Alberta as an exchange student. Prior to her doctoral studies, she obtained a M.Eng. and a B.Eng. from the Inner Mongolia University of Science and Technology. Dr. Wang has accumulated rich work experience and

professional knowledge, working at Lyuliang University as a Lecturer in Materials Science, and serving as an Assistant Engineer at Inner Mongolia North Heavy Industries, Ltd. She has experience applying engineering principles to industrial projects.



**DR. RAVIKIRAN KOPPARTHI** is a Ph.D. candidate in Materials Engineering at the University of Alberta, Edmonton, Canada. Sponsored by the American Welding Society Graduate Fellowship (2023-2025), Ravi's research focuses on the "Bond Formation Mechanism During Electric Resistance Welding of Pipeline Steels" under the supervision of Prof. Leijun Li. Ravi earned a master's degree in Welding Engineering from the National Institute of Technology, Tiruchirappalli, India, and have been involved in welding pipeline-

grade steels for oil and gas transportation, manufacturing dissimilar metal weld joints for the nuclear industry, and superalloys and thermal spray coatings for gas turbine blades.

#### HONORARY MEMBERSHIP AWARD

This award is sponsored by the American Welding Society and is presented to a person of acknowledged eminence in the welding profession or who is credited with exceptional accomplishments in the industry.

#### Recipients of award:

Pepper, C. E. (1989) Siewert, T. A. (1989) Hinricks, J. F. (1990) Moeller, J. W. (1990) Hemzacek, R. T. (1991) Ritter, S. L. (1991) Bovie, D. F. (1992) David, S. A. (1992) Booher, K. L. (1993) Cary, H. B. (1993) Cable, H. H. (1994) Campbell, H. C. (1994) Kammer, P. A. (1995) Olson, D. L. (1995) Christoffel, R. J. (1996) Liu, S. (1996) Collin, A. L. (1997) Mohri, T. (1997) O'Brien, R. L. (1998) Urbick, W. F. (1998) Eagar, T. W. (1999)

Hastings, D. F. (1999) McQuaid, D. L. (2000) Slaughter, G. M. (2000) Baeslack, III, W. A. (2001) Sekely, J. J. (2001) Cieslak, M. J. (2002) Stopki, Jr., J. M. (2002) DebRoy, T. (2003) Weller, M. L. (2003) Mustaleski, Jr., T. M. (2004) Roth, D. K. (2004) DeFreitas, L. (2005 Edwards, G. R. (2005) Cole, N. C. (2006) Nangle, D. J. (2006) Beneteau, D. M. (2007) Sciaky, A. (2007) Davis, C. (2008) Elmer, J. W. (2008) Dammann, J. (2009) Kvidahl, L. G.(2009)

Lipphardt, E.C. (2010) Dilthey, U. (2011) DeRocco, E. S. (2012) McNelly, J. M. (2012) Bileca, M. (2013) Alonso, Jr., O. (2013) Andringa, M. V. (2014) Yevick, E. G. (2014) Feng, Z (2015) White, T. J. (2015) Kou, S. (2016) Purvis, R. F. (2016) Cook, M. C. (2017) Ruof, W. (2017) DuPont, J. N. (2018) No presentation (2019) Allford, D. (2020) Barbie the Welder (2020) Zhou, Y. N. (2021) Ripple, R. (2022) Zhang, H. (2023)



**DAVID J. NANGLE** recently retired from the Lincoln Electric Company and currently resides in Florida with his wife Gail. He is an Adjunct Professor of Business Management at University of North Florida and sits on the Coggin College of Business Advisory Board. In addition, he is on the Finance and Counselors Committees of the American Welding Society and the Board of Governors at the Sawgrass Country Club in Ponte Vedra Beach, FL.

Dave joined Lincoln Electric in 1979 and during a distinguished 42-year career with the Lincoln Electric Company, held various sales management leadership positions before being named President of the Harris Products Group in 1999, followed by President of the retail subsidiary, WCTA LLC in 2003, and President of J.W. Harris Co. in 2005. As Executive VP and President of Harris Products Group, Dave recently achieved fifteen years of record sales and profitability growth in the segment through transformational commercial and operational initiatives. In addition, his commitment to operational excellence and sustainability has positioned Harris Products Group as an operational leader at Lincoln Electric, as reflected in the many "Chairman Environmental, Health & Safety Awards" earned under his leadership. In addition, Harris was awarded Industry Week's "Best Plant Winner" for their Mason, Ohio facility.

He retired in 2022. He is a graduate of Roanoke College in Virginia, with a Bachelor of Business Administration degree. In addition, he earned a Master of Business Administration from Fresno State University in California.

Dave was awarded the Life Member Award and Counselor Award for AWS in 2008. He has served in various capacities for AWS including Board of Directors, Finance Committee, Counselors Committee, Executive Search Committee and founder and Chairman of Fresno, CA section.

#### INTERNATIONAL MERITORIOUS CERTIFICATE AWARD

This award is given in recognition of the individual's significant contributions to the worldwide welding industry. This award reflects "service to the international welding community" in the broadest terms.

#### Recipients of award:

Bramat, M. (1999)
Hernandez, G. (1999)
Kotecki, D. J. (2000)
Thomas, Jr., R. D. (2000)
Quintino, M. (2001)
Von Hofe, I. (2001)
Wall, N. C. (2001)
Al-Erhayem, O. (2002)
Braithwaite, B. (2002)
Matsunawa, A. A. (2003)
Ramsey, P. W. (2003)
Dolby, R. (2004)

Levert, Sr., E. D. (2004) Pekkari, B. (2005) Cornish, S. P. (2006) Pilarczyk, J. (2006) Smallbone, C. (2006) Beaufils, D. (2007) Fink, D. A. (2007) Sperko, W. J. (2007) Davis, C. (2008) Tsai, C-L (2008) Luciani, D. R. (2009) Sperko, W. J. (2009) Ahrens, C. (2010) Liu, S. (2010) Mustaleski, Jr., T. J. (2010) Ziegenfuss, H. G. (2010) Bernasek, M. (2011) Miglietti, W. (2012) Middeldorf, K. (2012) Scotchmer, N. (2013) Diez, F. M. (2014) Mukherjee, A. K. (2015) Ymker, K. (2016) Marshall, P. W. (2017) Shaw, R. E. (2017) Newell, Jr., W. F. (2018) Tumuluru, M. (2018) Hochanadel, P.W. (2019) Ferraz, R. (2020) Freeman, R. (2020) Zhang, Y. (2020) Miglietti, W. (2021) Wu, CS. (2021) Borrelli, J. (2022) Johnston, M. (2022) No Presentation (2023)



**DR. GENTRY WOOD** is a graduate from the Canadian Centre for Welding and Joining (CCWJ) at University of Alberta (2017) where he completed his PhD in modelling of the laser cladding process under Dr. Patricio Mendez: a project sponsored by Apollo-Clad.

He has been associated with Apollo since the summer of 2011 where he worked as a metallurgical intern. He has 3 first author peer reviewed publications, 8 co-authored

publications, 1 patent, and 20 conference presentations including international speaking engagements. Gentry has received the prestigious honor of Fellow of the Canadian Welding Bureau Association and was recognized by the University of Alberta with the Alumni Horizon Award for his early career achievements and community contributions.

Gentry is actively involved in the welding community and technical societies. He is an expert delegate of the Canadian Commission of the International Institute of Welding (CCIIW) in Commission IV on Power Beam Processes, a member of the American Welding Society (AWS) Technical Papers Committee, Former Chair for the Canadian Welding Association (CWA) National Advisory Council, and Past Chair for the local Edmonton CWA Chapter.



**DR. BIN WANG**, a distinguished professor at Zhejiang Normal University in Jinhua, Zhejiang Province, China, earned his doctorate from the Institute of Metal Research of the Chinese Academy of Sciences. He has also been a visiting scholar at the University of Toledo's College of Engineering in the United States. Dr. Wang has made significant contributions to the field of welding, focusing on advanced welding techniques and materials. His work on resistance spot welding, impact self-piercing riveting, and friction

spot joining has garnered attention and acclaim. Notably, he led numerous research projects sponsored by national and provincial agencies.

In academia, Dr. Wang played a pivotal role in establishing the mechanical engineering international program at Zhejiang Normal University. He has also been instrumental in setting up provincial key laboratories and experimental teaching centers. Dr. Wang's industrial engagements include strategic roles in professional organizations and collaborations with companies. His efforts have significantly enhanced the company's R&D capabilities and production value. He also serves as the Executive Deputy Director of the Yangtze River Delta (Lanxi) Magnesium Material Research Institute of Chongqing University. Dr. Wang's contributions have greatly advanced the welding industry in China and internationally, blending academic excellence with practical application.

#### WILLIAM IRRGANG MEMORIAL AWARD

This award is sponsored by The Lincoln Electric Company to honor the late William Irrgang. It is awarded to the individual who has done the most to enhance the American Welding Society's goal of advancing the science and technology of welding over the last five years.

#### Recipients of award:

Hemzacek, R. T. (1989) Manz, A. F. (1990) Goodwin, G. M. (1991) Olson, D. L. (1992) Eagar, T. W. (1993) Mustaleski, T. M. (1994) Hastings, D. F. (1995) David, S. A. (1996) Cieslak, M. J. (1997) Edwards, G. R. (1998) Shira, C. S. (1999) Graff, K. F. (2000) Howden, D. G. (2001) Lippold, J. C. (2002) Jellison, J. L. (2003) Pierce, R. C. (2004) Kvidahl, L. (2005) DuPont, J. N. (2006) McQuaid, D. L. (2007) Elmer, J. W. (2008) Girotra, C.B.C. (2009) Thomas, W. (2010) Babu, S. S. (2011) Stockton, K. R. (2012) Mendez, P. (2013) Wei, P-S (2014) Landon, D. J. (2015) Lienert, T. J. (2016) Zhang, Y. (2017) Kou, S. (2018) Tumuluru, M. (2019) Newell, Jr., W. F. (2020) Debroy, T. (2021) Campbell, R. (2022) Sperko, W. J. (2023)



**DR. SUDARSANAM (SURESH) BABU** obtained his bachelor's degree in metallurgical engineering from PSG College of Technology, Coimbatore, India, and his master's degree in industrial welding metallurgy-materials joining from Indian Institute of Technology, Madras. He obtained his PhD in materials science and metallurgy from the University of Cambridge, UK in 1992. He also worked as a research associate in the prestigious Institute for Materials Research, Sendai, Japan before joining ORNL in 1993. From

1993 to 1997, he held joint researcher position with ORNL, University of Tennessee and The Penn State University. From 1997 to 2005, he worked as an R&D staff at ORNL. From 2005 to 2007, Suresh held a senior level technology leader position in engineering and materials at Edison Welding Institute, Columbus, Ohio. From 2007 to 2013, Suresh served as Professor of Materials Science and Engineering and Director of NSF I/UCRC Center for Materials Joining Science for Energy Applications, at The Ohio State University. In 2013, Suresh was appointed as UT/ORNL Governor's chair of advanced manufacturing at the University of Tennessee, Knoxville, TN. In 2019, Suresh was also appointed as Director of Bredesen Center for Interdisciplinary Research and Education for Energy- and Data- Science and Engineering. In 2020, Suresh was selected to be the founding educational director of the UT-Oak Ridge Innovation Institute. In 2020, Suresh was appointed to the National Science Board by the President of the United States of America for a six-year term.

#### 2023 PAPER I CHARLES H. JENNINGS MEMORIAL AWARD

This award is sponsored by the American Welding Society in honor of Charles H. Jennings, who served as AWS President during the 1951–52 year. This award is presented for the most valuable paper written by a college student or faculty representative published in the Welding Journal during the previous calendar year.

Recipients of award:

Baeslack III, W. A. (1989) Lata, W. P. (1989) West, S. L. (1989) David, S. A. (1990) Maguire, M. C. (1990) Santella, M. L. (1990) Choi, I. (1991) Lisin, M. (1991) Matlock, D. K. (1991) Olson, D. L. (1991) Eagar, T. W. (1992) Kim, Y-S (1992) McEligot, D. M. (1992) David, S. A. (1993) Edwards, G. R. (1993) Maguire, M. C. (1993) Sheppard, S. D. (1994) Vogler, M. M. (1994) Bransch, H. N. (1995) Kerr, H. W. (1995) Weckman, D. C. (1995) DuPont, J. N. (1996) DuPont, J. N. (1996) Marder, A. R. (1996) DebRoy, T. (1997) Ebner, R. (1997) Mundra, K. (1997) Pitscheneder, W. (1997) Bott, I. D. S. (1998) Corvalan, P. (1998) Jorge, J. C. F. (1998) Ramini de Rissone, N. M. (1998)

Surian, E. (1998) Baeslack III, W. A. (1999) Lienert, T. (1999) Nagy, P. B. (1999) DuPont, J. N. (2000) Michael, J. R. (2000) Newbury, B. D. (2000) Kou, S. (2001) Limmaneevichitr, C. L. (2001) Huang, C-C (2002) Kou, S. (2002) Kang, Y. H. (2003) Na, S-J (2003) Eagar, T. W. (2004) Mendez, P. F. (2004) Collins, M. G. (2005 Ramirez, A. J. (2005) Lippold, J. C. (2005) De, Amitava (2006) DebRoy, T. (2006) Kumar, A. (2007) DebRoy, T. (2007) Nguyen, T. C. (2008) Weckman, D. C. (2008) Johnson, D. A. (2008) Payares-Asrino, M. C. (2009) Katsumoto, H. (2009) Liu, S. (2009) Firouzdor, V. (2010) Kou, S. (2010) Moulton, J. A. (2011) Weckman, D. C. (2011) Huang, Y. (2012)

Zhang, Y. (2012) Zhang, W. (2013) Zhang, Y. (2013) Wagner, D. C. (2014) Yang, Y. (2014) Kou, S. (2014) Huang, X (2015) Le Gall, I. (2016) Mendez, P. F. (2016) Borle, S. (2016) Lippold, J. C. (2017) Wheeling, R. A. (2017) Debroy, T. (2018) Liu, T. (2018) Qui, W. C. (2018) Wei, H. (2018) Yang, L. (2018) Dai, T. (2019) Lippold, J. (2019) Aidun, D. (2020) Goldak, J. (2020) Martinez, M. (2020) Nimrouzi, H. (2020) Pliazhuk, M. (2020) Reyes, C. (2020) Kou, S. (2021) Liu, K. (2021) Yu, P. (2021) Aidun, D. (2022) Hejripour, F. (2022) Huang, Y. (2023) Meng, X. (2023) Xie, Y. (2023)

# **2023 PAPER I CHARLES H. JENNINGS MEMORIAL AWARD** *(cont)*

#### "QUANTITATIVE INTERPRETATION OF DYNAMIC RESISTANCE SIGNAL IN RESISTANCE SPOT WELDING"



**TIAN-LE LV** received her bachelor's degree and master's degree in mechanical engineering in Shanghai Jiao Tong University and was awarded as the Outstanding Graduate of Shanghai Jiao Tong University. Tian-le Lv is now a doctoral student and studying with Professor Yongbing Li in the Institute of Manufacturing for Thin-walled Structures, School of Mechanical Engineering, Shanghai Jiao Tong University.

The research interests of Tian-le Lv include multi-physics numerical modeling, intelligent real-time process monitoring, welding quality prediction of resistance spot welding, and advanced joining of aluminum alloy. Her papers have been published in the Welding Journal, Journal of Manufacturing Processes, Journal of Manufacturing Science and Engineering, and Welding in the World. And she has attended the ASME 2023 18th International Manufacturing Science and Engineering Conference. Tian-le Lv has participated in the research projects with Novelis (China) Aluminum Products Co. Ltd, General Motors Global R&D, and Sinotruk Group Technology Research Institute from 2019 to present.



**PROF. YONGBING LI** mainly majors in advanced spot welding and joining processes. He received his Ph.D. degree from Shanghai Jiao Tong University (SJTU) in 2005, and has been a Professor with the School of Mechanical Engineering in SJTU since 2015. In 2023, he became the director of Shanghai Key Laboratory of Digital Manufacture for Thin-Walled Structures. Meanwhile, he worked as the deputy director of SJTU-General Motors Collaborative Research Laboratory, the member of ASME Manufacturing Processes

Technical Committee, and the associate editor of Journal of Manufacturing Processes.



**DR. BLAIR E. CARLSON** is currently Lab Group Manager for the Light Weight Systems Manufacturing group and a Senior Technical Fellow at the GM Global R&D. His current focus is the joining of dissimilar materials. During his 30+ years of experience within GM has had assignments in Sweden, Germany, and China for both manufacturing engineering and research. He holds a Ph.D. in Materials Science from the University of Michigan, and a Masters in Executive Technology Planning from Chalmers University. Carlson is

an industrial board member for the Technical Advisory Committee Member for Solid Phase Processing Science Initiative at PNNL, and a member of the AWS R&D Committee. He is currently a guest Research Professor at the Shanghai Jiao Tong University and industrial committee member for 2 Ph.D. students at University of Michigan and Southern Methodist University.



**DR. HASSAN GHASSEMI-ARMAKI** is currently Staff Researcher in Global R&D, General Motors. He is working on Artificial Intelligence (AI) of welding to improve the quality of joints and battery manufacturing through Machine Learning of processing signals and Materials-Informatics using AI-based computational tools considering continuous change in product design and variability of materials design from different suppliers.

Before joining General Motors, Hassan worked at ArcelorMittal Global R&D on Joining for Automotive parts with International Auto-OEMs and Additive Manufacturing of Ferrous Materials. He has published more than 60 papers in international journals with more than 2500 citations, 23 filed patents, 25 Trade Market Secrets and has been awarded 7 times for his papers and presentations. He is the Chairman of AWS D8 Committee, and leader of Auto-Steel Partnership (A-SP) Joining team.

Hassan has performed research in Tohoku Univ. in collaboration with R&D centers of Sumitomo Metal Ind. and Nippon Steel in Japan and was a senior research associate at Brown University, working on ICME. He has a bachelor's degree in metallurgy engineering, a master's degree in characterization and selection of materials, and a doctoral degree in materials science and engineering from Tohoku University in Sendai, Japan.



**DR. YU-JUN XIA** mainly majors in online monitoring and intelligent control of welding process, especially the resistance spot welding process. He received his B.S. and M.S. degree in welding technology and engineering from Harbin Institute of Technology (HIT) in 2014 and 2016, respectively. Then he got his Ph.D. degree in mechanical engineering in Shanghai Jiao Tong University (SJTU) in 2021. Currently, he works as an assistant professor in SJTU, and is a member of the Pressure Welding Committee of the Chinese

Welding Society.

The research interests of Yu-Jun Xia include interpretable AI-driven quality diagnosis, and model predictive adaptive control of welding process. He is committed to combining domain knowledge in the welding field with AI to improve the interpretability and generalization of data-driven methods. His work has been funded by the international cooperation project of General Motors, and he is selected in the Youth Talent Support Program of the China Association for Science and Technology, and the Shanghai Rising-Star Program.

## 2023 PAPER I JAMES F. LINCOLN GOLD MEDAL AWARD

This award is endowed by the late J. F. Lincoln, former Chairman of the Board of The Lincoln Electric Company. This award is presented for the paper with a single author that represents the best original contribution to the advancement and use of welding published in the Welding Journal during the previous calendar year.

Recipients of award:

Pollard, B. (1989) Alberry, P. J. (1990) Alcini, W. (1991) Cieslak, M. J. (1992) Evans, G. M. (1993) Janosch, J. J. (1994) Gould, J. E. (1995) Castner, H. R. (1996) Fuerschbach, P. W. (1997) No presentation (1998) Fuerschbach, P. W. (1999) Colligan, K. J. (2000)

- Kinsey, A. J. (2001) Solomon, H. D. (2002) No presentation (2003) Pargeter, R. (2004) No presentation (2005) No presentation (2007) Tumuluru, M. (2008) Metzler, D. A. (2009) No presentation (2010) Tumuluru, M. (2011) No presentation (2012)
- No presentation (2013) Ramirez, J. E. (2014) Badger, J. A. (2015) Kou, S. (2016) No presentation (2017) No presentation (2018) No presentation (2020) No presentation (2020) No presentation (2021) Sampath, K. (2022)

"OBSERVATION OF ARC AND METAL TRANSFER BEHAVIOR ACCORDING TO SHIELDING GAS IN THE WAAM OF TI-6AI-4V ALLOY USING THE PULSED GAS METAL ARC PROCESS"



DR. TAEHYUN LEE. Staff Engineer, SAMSUNG SDI



CHEOLHEE KIM. Vice President, Samsung SDI.



**DR. DONG HYUCK KAM.** Principal Researcher, Korea Institute of Industrial Technology



**PROF. JE HOON OH.** Professor of Mechanical Engineering, Hanyang University ERICA

#### 2023 PAPER I MCKAY-HELM AWARD

This award is sponsored by Hobart Brothers Company, to honor two pioneers of the welding industry. James C. McKay was the president of the McKay-Helm Company for more than 30 years, and Dr. David Helm occupied the McKay chair in welding metallurgy at the Mellon Institute in Pittsburgh from 1934 to 1973. It is presented for the best contribution to the advancement of knowledge of low-alloy steel, stainless steel or surfacing welding metals, involving the use, development or testing of these materials, as represented by articles published in the Welding Journal during the previous calendar year.

#### Recipients of award:

McCowan, C. N. (1989) Olson, D. L. (1989) Siewert, T. A. (1989) Matlock, D. K. (1990) Oldland, P. T. (1990) Olson, D. L. (1990) Ramsay, C. W. (1990) Ginn, B. J. (1991) Gooch, T. G. (1991) Cremers, D. A. (1992) Korzekwa, D. R. (1992) Lewis, G. K. (1992) Ke, L. (1993) North, T. H. (1993) Shinozaki, K. (1993) DebRoy, T. (1994) Mundra, K. (1994) Lippold, J. C. (1995) Karlsson, L. (1996)

Pak, S. (1996) Ryen, L. (1996) Baeslack, W. A. (1997) Lippold, J. C. (1997) Shademan, S. (1997) Murugan, N. (1998) Parmar, R. S. (1998) Maguire, M. C. (1999) Michael, J. R. (1999) Robino, C. V. (1999) Brooks, J. A. (2000) Garrison, Jr., W. M. (2000) Iskander, Y. S. (2001) Oblow, E. M. (2001) Vitek, J. M. (2001) Babu, S. S. (2002) David, S. A. (2002) McLane, J. E. (2002) Quintana, M. A. (2002)

Liu, S. (2003) Wang, W. (2003) Grimmett, B. B. (2004) Lienert, T. J. (2004) Stellwag, Jr., W. L. (2004) Warke, R. W. (2004) Lensing, C. A. (2005) Park, Y-D (2005 Maroef, I. S. (2005) Olson, D. L. (2005) Zsofka, S. K. (2006) DuPont, J. N. (2006 Marder, A. R. (2006) Sudha, C. (2007) Paul, V. T. (2007) Terrance, A. L. E. (2007) Saibaba, S. (2007) Vijayalkahsmi, M. (2007) Cho, M. H. (2008)

#### 2023 PAPER I MCKAY-HELM AWARD (cont)

Farson, D. F. (2008) Kapustka, N. (2009) Conrardy, C. (2009) Babu, S. S. (2009) Albright, C. E. (2009) Rai, R. (2010) Palmer, T. (2010) Elmer, J. (2010) DebRoy, T. (2010) Sowards, J. W. (2011) Ramirez, A. J. (2011) Dickinson, D. W. (2011) Lippold, J. C. (2011) No presentation (2012) Taban, E (2013) Bhooge, A. (2013) Kaluc, E. (2013) Deleu, E. (2013) DuPont, J. N. (2014) Stockdale, A. (2014) Caizza, A. (2014)

Esposito, A. (2014) Aidun, D. K. (2015) Bahrami, A. (2015) Valentine, D. T. (2015) Carlton, H. D. (2016) Elmer, J. W. (2016) Pong, R. (2016) Vaja, J. (2016) Blecher, J. J. (2017) DebRoy, T. (2017) Palmer, T. A. (2017) Li, L. (2018) Xu, P. (2018) Zhou, D. (2018) Cao, Y. (2019) Luo, C. (2019) Shan, J. (2019) Zhau, L. (2019) Switzner, N. T. (2020) Yu, Z. (2020) Johnson, A. (2021)

Carpenter, J. S. (2021) Coughlin, D. R. (2021) Dvornak, M. J. (2021) Elmer, J. W. (2021) Gibbs, G. (2021) Gurung, P. (2021) Hochanadel, P. W. (2021) Vaja, J. (2021) Kou, S. (2022) Morrow, J. D. (2022) Yu, P. (2022) Dai, T. (2023) David, S. (2023) Feng, Z. (2023) Rogers, M. (2023) Tzelepis, D. (2023) Kyle, D. (2023) Sebeck, K. (2023) Vieau, P. (2023)

#### "IMPACT OF PLATE THICKNESS AND JOINT GEOMETRY ON RESIDUAL STRESSES IN 347H STAINLESS STEEL WELDS"



**DR. JUDITH VIDAL** from the National Renewable Energy Laboratory (NREL) is the Manager of Building Thermal Energy Science Group, the Sub-Program Lead of Buildings Emerging Technologies, and a Distinguished Member of Research Staff. Dr. Vidal is also a joint faculty member at the Colorado School of Mines (CSM). She has established an international reputation for her cutting-edge work on thermal systems and has published many journal articles on her work in journals such as Nature Materials Degradation.

Dr. Vidal has received prestigious awards such as the NREL Distinguished Member of Research Staff in February 2021 and the NREL Chairperson's Award in 2017.

In the area of thermal systems, thermal storage materials, thermomechanical evaluations of wrought alloys and their weldments, and advanced manufacturing, Dr. Vidal is currently leading several R&D efforts evaluating systems to extend the lifetime of thermal materials and components. Dr. Vidal has diversified her expertise and capabilities in other technologies such as building emerging technologies, decarbonized building construction materials, circular economy, and electrochemical processes. Her collaborative efforts, domestically and internationally, cover several technologies and leverage the R&D activities for early-stage research to create efficient and decarbonized technologies to help the clean energy transition.



**PROF. ZHENZHEN YU** is an Associate professor in the department of Metallurgical and Materials Engineering at Colorado School of Mines, the Director of the Center for Joining, Welding and Coatings Research, and site director of NSF I/UCRC Manufacturing & Materials Joining Innovation Center (Ma2JIC). She also serves as a joint faculty at National Renewable Energy Laboratory and co-founder of HYSA Fillers LLC that tackles challenges in metallurgical joining and repair.

She received MS and PhD degrees from the Department of Materials Science and Engineering at the University of Tennessee, Knoxville. Before joining CSM, she worked as a postdoctoral research associate at Oak Ridge National Laboratory. Her research interests include weld metallurgy, development of similar/ dissimilar joining technologies, weld consumables design, and simulation and characterization of transient material states during welding. She received the American Welding Society District Educator Award,



**TIMOTHY PICKLE** is a PhD candidate in Metallurgical and Materials Engineering department at Colorado School of Mines (CSM) in the Center for Welding, Joining, and Coatings Research (CWJCR). His research focus is on reheat cracking or stress relaxation cracking (SRC) of austenitic stainless steel and additively manufactured Ni-super alloy welds. He is expected to graduate in 2024.

He earned a B.S. in Materials Joining and Welding Engineering at LeTourneau University in 2018 with an undergraduate research focus on multi-pass welding effects on super duplex stainless-steel microstructure. He graduated in 2021 with a M.S. in Metallurgical and Materials Engineering at CSM with a thesis title on "Effect of PWHT and Filler Metal on Stress Relaxation Cracking Susceptibility in 347H Stainless Steel Welds for Elevated Temperature Service."



**DR. YU (HENRY) HONG** joined the Department of Mechanical Engineering at Baylor University as an Associate Research Scientist in 2022. He earned his B.S. in Engineering Mechanics from Dalian University of Technology, China, his M.S. in Solid Mechanics from Huazhong University of Science & Technology, China, and his Ph.D. in Mechanical Engineering from the University of Florida. Before his current role at Baylor, Dr. Hong served as an associate research scientist at the University of Alabama. He also completed

postdoctoral research at the Colorado School of Mines, where he worked on welding simulation of 347H stainless steel with Dr. Zhenzhen Yu, and at Missouri University of Science and Technology. Additionally, Dr. Hong gained industry experience as a Mechanical Engineer at Caterpillar. Dr. Hong's current research focuses on developing new materials through experimental and numerical techniques, with a particular emphasis on sustainable polymer composites inspired by biomaterials.

**CHAD AUGUSTINE**. No information provided

### **PROFESSOR KOICHI MASUBUCHI AWARD**

This award is sponsored by the Center for Ocean Engineering at the Department of Mechanical Engineering, Massachusetts Institute of Technology. It was established to recognize Professor Koichi Masubuchi, who has made significant contributions to advancing the science and technology of welding, especially welding fabrication of marine and space structures. This award is presented to an individual who has made significant contributions to the advancement of science and technology of materials joining through research and development.

#### Recipients of award:

Baeslack III, W. A. (1992) Kokawa, H. (1992) Cieslak, M. J. (1993) Ohkita, S. (1993) Buchmayr, B. (1994) Shinozaki, K. (1994) Elmer, J. W. (1995) Minami, F. (1995) Grong, O. (1996) Lin, W. (1996) Kim, D. S. (1997) Robino, C. V. (1997) Babu, S. S. (1998) DuPont, J. N. (1999) Feng, Z. (2001) Takahashi, K. (2002) Nelson, T. W. (2003) Liu, W. (2004) Kozeschnik, E. (2005)

Palmer, T. A. (2006) No presentation (2007) Tanaka, M. (2008) Sato, Y. S. (2009) Zhang, W. (2010) Yamamoto, M. (2011) Park, S.H.C. (2012) Mayr, P. (2013) Noecker II, F. F. (2014) Morisada, Y. (2015) Gerlich, A. (2016) Mikami, Y. (2017) Ogura, T. (2018) Pouranvari, M. (2019) Siefert, J. A. (2020) Yu, Z. (2021) Fink, C. (2022) Rodelas, J (2023)



**DR. YIYU (JASON) WANG** is currently a R&D Associate Staff in the Materials Science and Technology Division at Oak Ridge National Laboratory (ORNL). Dr. Wang joined ORNL since 2018. He earned his Ph.D. degree from University of Alberta in 2018. Dr. Wang's research focuses on advanced manufacturing (welding & joining), physical metallurgy and welding metallurgy, advanced materials characterization, in-situ/ex-situ mechanical testing.

Dr. Wang is an active member of many professional associations, including the AWS and ASME, by presenting technical papers and chairing sessions in conferences and seminars. Dr. Wang has authored more than 50 peer-reviewed journal papers and 50 conference papers in topics of creep-resistant steel welding, pipeline integrity, failure analysis of welded pressure vessels, and joining dissimilar metals. He is a recipient of the W. H. Hobart Memorial Award (2017) and the Warren F. Savage Memorial Award (2018, 2023) from the American Welding Society.

#### SAMUEL WYLIE MILLER MEMORIAL MEDAL AWARD

This award is sponsored by the American Welding Society to honor Samuel Wylie Miller, President during the 1921–22 years. It is awarded for meritorious achievements that have contributed conspicuously to the advancement of the art and science of welding and cutting.

Recipients of award:

Manz, A. F. (1989) Parks, J. M. (1990) Winsor, F. J. (1991) Dickerson, P. B. (1992) Webster, R. T. (1993) Kiser, S. D. (1994) Brosilow, R. (1995) Pickering, Jr., E. W. (1996) Jackman, J. W. (1997) Reeve, Jr., R. C. (1998) Alexander, Sr., L. N. (1999) Vilkas, E. P. (2000) Martinez, D. (2001) Thomas, W. M. (2002) Elmer, J. W. (2004) Grubbs, C. E. "Whitey" (2005 – Posthumous recognition) No presentation (2006) Cossaboom, G. E. (2007 – Posthumous recognition) Blodgett, O. W. (2008) Peaslee, R. L. (2009) Kotecki, D. J. (2010) Siewert, T. (2011) Szumachowski, E. R. (2012) Temple, P. I. (2013) Devletian, J. H. (2014) Crockett, D. D. (2015) Martukanitz, R. P. (2016) Yevick, E. G. (2017) Landon, T. (2018) Sparschu, T. M. (2019) Miller, D. K. (2020) Melfi, T. (2021) Campbell, R. D. (2022) Sekely, J. (2023)

**GLEN KNIGHT** President and Principal Consultant at Welding Services, Inc.

#### NATIONAL MERITORIOUS AWARD

This award is sponsored by the American Welding Society and is given in recognition of good counsel, loyalty and devotion to the affairs of the Society; assistance in promoting cordial relations with industry and other organizations; and for the contribution of time and effort on behalf of the Society.

#### Recipients of award:

Blaisdell, R. E. (1989) Bohnart, E. R. (1989) Bertossa, D. C. (1990) Metzger, G. E. (1990) Randall, M. D. (1991) Walker, J. H. (1991) Berger, D. S. (1992) Fassinger, C. R. (1992) Gerken, J. M. (1993) Hemzacek, R. T. (1993) Berglind, W. E. (1994) Mattoon, R. A. (1994) Bartley, J. (1995) Huber, R. A. (1995) Christoffel, R. J. (1996) Dickinson, D. W. (1996) Ebert, H. W. (1997) Wall, N. C. (1997) Sulit, R. A. (1998) Winsand, A. O. (1998) Dammann, J. (1999) Hinrichs, J. F. (1999) Alley, R. L. (2000)

Temple, P. I. (2000) Carlson, N. M. (2001) Winsand, A. O. (2001) Bastian, B. J. (2002) Bovie, D. F. (2002) Holdren, R. L. (2003) Pierce, R. C. (2003) Kvidahl, L. G. (2004) Putnam, G. H. (2004) Castner, H. R. (2005) Franklin, J. R. "Rusty" (2005) Arn, R. L. (2006) Pali, R. G. (2006) Greer, J. E. (2007) Wiswesser, R. K. (2007) Bottenfield, C. B. (2008) Winslow, P. D. (2008) Crichton, A. B. (2009) Leno, J. (2009) Dillhoff, III, J. H. (2010 -Posthumous recognition) Richwine, R. L. (2010) Albrecht, B. (2011)

Stropki, J. M. (2011) DeCorte, D. B. (2012) McCall, J. (2012) Crisci, J. R. (2013) Houston, S. V. (2013) Raymond, S. L. (2014) Lienert, T. J. (2105) Phillips, D. C. (2015) Stricker, J. (2016) Tumuluru, T. (2016) Knight, G. A. (2017) Perdomo, J. J. (2017) Miglietti, W. (2018) No presentation (2019) Deckrow, J. (2020) Witkowski, S. (2020) oling, B. E. (2021) DeCorte, D. (2021) Aranmor, S. L. (2022) Komlos, W. (2022) Gilgenbach, K (2023) Young, A (2023)



**CAITY BROWN** received an AAS Degree in Welding Technology in 2007 from Casper College in Wyoming and earned an AWS CWI certification in 2014. She also qualified for ASNT Level III for Visual Testing (VT) in 2022. Ms. Brown has amassed considerable experience as a welder/fabricator and has worked at a variety of companies in Wyoming, Indiana, Louisiana, Pennsylvania, and Texas across several industry sectors including mining equipment, food process piping, gas turbines, and offshore pipelines since 2007.

After earning her CWI certification, she began tutoring others on CWI topics at her kitchen table. Soon, the tutoring extended to every night of the week, and she started a formal training course. This led her to start her own company, Madskills Certified Welding Services, LLC in Houston, and the CWI training course quickly became the focus of the company, offering more than eight classes each year. She is currently the Owner, Lead Instructor and Operations Manager at Madskills which also provides CWI services.



**MR. CAREY CHEN** currently serves as Chief Executive Officer of Fathom Digital Manufacturing Corporation. Mr. Chen also held roles as Chief Executive Officer of Cadrex Manufacturing Solutions; Chief Executive Officer of Incodema Holdings LLC; and Executive Chairman and President of Cincinnati Incorporated. Mr. Chen also served as Vice President of Hypertherm, Inc., and held various operating and corporate roles, including Vice President & General Manager – Light Industrial Businesses, Chief Financial Officer, and

Chief Information Officer. Earlier in his career, Mr. Chen served as Vice President – Finance for Wiremold I Legrand (PARIS: LR.PA); Chief Financial Officer for Bayliner Marine Corp., a division of the Brunswick Corp. (NYSE: BC); and held various financial planning and strategic development roles for AlliedSignal, Inc. (NYSE: ALD).

Mr. Chen currently serves as Chairman of the Board for Roberts Hawaii, Inc., and as an Independent Board Director of Chart Rehabilitation. He is also a Counselor of the American Welding Society (Class of 2022), former Treasurer of the AWS (2016 to 2022), Chairman of the AWS Audit Committee, and a Board Trustee of the American Welding Society Foundation. Mr. Chen holds an MBA from the University of Illinois at Urbana-Champaign (UIUC), a BS in Applied Mathematics from the University of California at Los Angeles (UCLA), and several U.S. patents.

## 2023 PAPER I ROBERT L. PEASLEE MEMORIAL BRAZING AWARD

This award is sponsored by the Wall Colmonoy Corporation and honors Robert L. Peaslee for his many years of dedicated service to the industry. This award recognizes the paper considered to be the best contribution to the science or technology of brazing published in the Welding Journal during the previous calendar year.

#### Recipients of award:

Ko, M. W. (1991) Onzawa, T. (1991) Suzumura, A. (1991) Sakamoto, A. (1992) Kang, S. (1993) Selverian, J. H. (1993) Camargo, P. (1994) Liu, S. (1994) Trevisan, R. E. (1994) Janeway, B. J. (1995) Timsit, R. S. (1995) Bird, R. K. (1996) Dicus, D. L. (1996) Hoffman, E. K. (1996) Humpston, G. (1997) Jacobson, D. M. (1997) Sangha, S. P. S. (1997) Cadden, C. H. (1998) Headley, T. J. (1998) Yang, N. (1998) **Rabinkin**, **A.** (1999) Ribaudo, A. J. (1999) Wenski, E. G. (1999) Hosking, F. M. (2000) Regent, J. A. (2000) Stephens, J. J. (2000) Cadden, C. H. (2001) Glass, S. J. (2001) Hosking, F. M. (2001) Stephens, J. J. (2001) Vianco, P. A. (2001) Walker, C. A. (2001) Yang, N. (2001) Carpenter, R. W. (2002) Christensen, D. T. (2002) Davé, V. R. (2002) Milewski, J. O. (2002)

Gales, A. (2003) Jacobson, D. M. (2003) Sangha, S. P. S. (2003) Schmid, E. (2003) DeLair, R. E. (2004) Solomon, H. D. (2004) Thyssen, J. R. (2004) No presentation (2005) No presentation (2006) No presentation (2007) Sigler, D. R. (2008) Schroth, J. G. (2008) Wang, Y-M (2008) Radovic, D. (2008) Elrefaey, A. (2009) Tillmann, W. (2009) No presentation (2010) Wang, H. (2011) Xue, S. (2011) Chen, W. (2011) Liu, X. (2011) Pan, J. (2011) Nasiri, A. (2012) Li, L. (2012) Kim, S. (2012) Zhou, Y. N. (2012) Weckman, D. C. (2012) Nguyen, T. C. (2012) Liu, W. (2013) Bachorik, P. (2013) Lee, N-C (2013) Nasiri, A. (2014) Weckman, D. C. (2014) Zhou, Y. N. (2014) Ekrami, A. (2015) Kokabi, A. H. (2015) Pouranvari, M. (2015)

Nasiri, A. M. (2016) Weckman, D. C. (2016) Zhou, Y. N. (2016) Smet, D. D. (2017) Grant, R. P. (2017) Kilgo, A. (2017) Kotula, P. M. (2017) McKenzie, B. M. (2017) Vianco, P. T. (2017) Walker, C. A. (2017) Busbaher, D. (2018) Preuss, T. (2018) Fu, H. (2018) Leone, E. (2018) De Smet, D. (2019) Grant, R. (2019) Kilgo, A. (2019) McKenzie, B. (2019) Vianco, P. T. (2019) Walker, C. A. (2019) Guerrero, E. (2020) Kilgo, A. (2020) McKenzie, B. (2020) Price, W. J. (2020) Vianco, P. T. (2020) Williams, S. (2020) Bo, J. (2021) Li, Z. (2021) Ma, L. (2021) Xu, Z. (2021) Yan, J. (2021) De Smet, D. (2022) Grant, R. (2022) Kilgo, A. (2022) McKenzie, B. (2022) Vianco, P. T. (2022) Walker, C. A. (2022)

#### THE HORIZONTAL SONOCAPILLARY EFFECT IN ULTRASONIC-ASSISTED SOLDERING"



**PROF. JIU-CHUN YAN** is a professor at the School of Materials Science and Engineering, Harbin Institute of Technology. He obtained his bachelor's degree (1986) in Welding Process and Equipment, and his PhD degree (2002) in Materials Processing Engineering in Harbin Institute of Technology. He became a professor of Department of Welding Science and Engineering in Harbin Institute of Technology in 2004.

His research activities include special joining technology, structure and mechanical behavior of joining interface. He is devoted to the investigation of ultrasonic-assisted soldering and brazing of aluminum alloys, magnesium alloys, ceramics and aluminum matrix composites. He has had more than 120 SCI index papers published in journals and has got 50 patents authorized (including a US Patent).



**SHU CHEN** is currently pursuing her Ph.D. degree at the School of Materials Science and Engineering, Harbin Institute of Technology. She received her B.S. degree in Shandong University of Science and Technology in July 2018, and her M. S. degree in Harbin Institute of Technology in July 2020.

The topic of her doctoral project is "The Study on the low-temperature wetting and soldering mechanism of AIN/Cu joint formed by the assistance of ultrasonication". 2 mm-thick Cu and AIN were joined using Sn9Zn at a low temperature with the assistance of ultrasonication. The microstructure and mechanical property of AIN/Cu joint were discussed and analyzed. She has published 14 articles in peer-reviewed journals in the fields of ultrasonic soldering. She also has 14 authorized or pending China patents. One patent has been industrialized.



**PROF. ZHIWU XU** is a member of the State Key Laboratory of Precision Welding & Joining of Materials and Structures, Harbin Institute of Technology (HIT), P.R. China. He received his B. S. degree, M. S. degree and Ph. D. degree in Materials Processing and Engineering from HIT in 2000, 2004 and 2008, respectively. He became a lecturer at HIT in 2005 and was promoted to professor in 2021. He worked at the Institute of Materials Engineering, TU Dortmund, Germany, as a visiting scholar under the guidance

of Prof. Dr.-Ing. W. Tillmann from June 2013 to June 2014. He has published more than 60 articles in peer-reviewed journals in the fields of ultrasonic soldering & brazing and joining of advanced materials or dissimilar materials. He has one authorized US patent and over 20 authorized or pending China patents. He serves as reviewer for a dozen journals, such as Ultrasonics Sonochemistry, Materials & Design, Journal of Alloys and Compounds, etc. His current research interests include: (1) Metallurgical problems related with joining of advanced materials or dissimilar materials; (2) Mechanism and processes of ultrasonic soldering & brazing; (3) Simulation of joining process.

## 2023 PAPER I ROBERT L. PEASLEE MEMORIAL BRAZING AWARD (cont)



**DR. ZHENGWEI LI** is an Associate Professor at the School of Materials Science and Engineering, Harbin Institute of Technology. He specializes in welding and joining technologies, including ultrasonic soldering/brazing, resistance spot welding, etc. He has published more than 80 SCI indexed papers in peer-reviewed journals, with a H-index of 22.

He obtained his Ph. D. degree (2021) in Materials Processing Engineering at Harbin Institute of Technology. He becomes an associate professor of Department of Welding Science and Engineering at Harbin Institute of Technology since 2024.



**ZHONGWEI MA** is currently pursuing his Ph.D. degree at the School of Materials Science and Engineering, Harbin Institute of Technology. He received his B.S. degree in Mechanical Engineering from Taiyuan University of Science and Technology, Taiyuan, China, in July 2016, and the M. S. degree in Aviation Engineering from Shenyang Aerospace University, Shenyang, China, in March 2019.

The topic of his doctoral project is "Ultrasonic assisted resistance welding of fiber reinforced thermoplastic composites ". Ultrasonic assisted resistance welding technology was carried out for the first time, which provides a new method to high-quality joining thermoplastic composites. Up to now, he has published more than 10 articles in peer-reviewed journals in the field of welding. He also has 4 authorized or pending China patents.



**DR. LIN MA** is a professor and PhD supervisor at the School of Material Science and Engineering of Shenyang Aerospace University, China. Lin Ma earned a master's and doctor's degrees in Materials Processing Engineering from the Harbin Institute of Technology in 2009 and 2015. After that, Professor Ma worked at Shenyang Aerospace University. From 2019 to 2021, Dr. Ma visited the University of Queensland and the University of Southern Queensland for academic research on ultrasonic-assisted brazing

and ultrasonic-assisted processing.

Professor Ma has been engaged in advanced ultrasonic-assisted welding technology for more than ten years. Her research has been granted by the National Natural Science Foundation of China, Aviation Science Foundation of China, etc. She has published more than 50 papers and twenty patents in ultrasonic-assisted brazing, friction stir welding/processing, and diffusion welding.

## PLUMMER MEMORIAL EDUCATION LECTURE AWARD

This award is sponsored by the American Welding Society to recognize Fred L. Plummer's service to the Society as President from 1952 to 1954 and Executive Director from 1957 to 1969. This award recognizes outstanding contributions to the national education lectures presented at the AWS Annual Welding Show and Convention.

Recipients of award:

Swannell, P. (1989) Helzer, S. C. (1990) Dickinson, D. W. (1991) Sabo, R. S. (1992) Bohnart, E. R. (1993) Cary, H. B. (1994) Pense, A. W. (1995) Jacobi, M. (1996) Long, R. E. (1997) Liu, S. (1998) Kielhorn, W. H. (1999) Bohnart, E. R. (2000) Klingman, D. (2001) Lippold, J. C. (2002) Knight, G. (2003) May, B. (2004) Levert, Sr., E. D. (2005) Greer, J. E. (2006)

Godley, M. A. (2007) Eagar, T. W. (2008) Compton, J. D. (2009) Madigan, R. B. (2010) Lawrence, T. W. (2011) Adonyi, Y. (2012) Polanin, W. R. (2013) Vetter, L. (2014) Stone, R. T. (2015) Burdge, S. L. (2016) Cotner, D. R. (2017) Baber, T. (2018) Turner, D. (2019) No presentation (2020) Colton, J. N. (2021) Carney, J. N. (2022) Mosman, James (2023)



**RANDY EMERY.** A graduate of the College of the Sequoias Welder training program. Along with his 2-year training, he has completed a 5-year apprenticeship program with the United Association of Plumbers and Pipefitters of the United States and Canada. This training has guided him to a 25-year career in the Plumbing and Piping Industry. While working in the industry, Randy also worked as an adjunct and fulltime welding educator for College of the Sequoias in Tulare California. This dual career allows him to bring the

industry and educational worlds together in the most productive manner.

Randy's educational and industrial experiences have been complemented by a long-term engagement with the American Welding Society. He is a lifetime member of AWS and the current District #22 Director and Treasurer for the AWS Central Valley section.

### **PRIVATE SECTOR INSTRUCTOR MEMBERSHIP AWARD**

This award was established by the AWS Board of Directors as a means of honoring educators in the welding community who teach in private facilities. These individuals, in the opinion of the AWS Education Committee, have advanced the knowledge of welding to their students through apprenticeship programs, internal corporate training programs, and similar nonpublic educational activities.

Recipients of award:

Weeks, M. G. (2000) DeFreitas, L. (2001) Ivy, J. H. (2001) Danaher, J. A. (2002) Green, S. (2002) Campbell, W. (2003) Grantham, J. A. (2003) Kolasa, Jr., J. (2004) Morris, J. W. (2004) Jones, J. J. (2005) No presentation (2007) No presentation (2008) No presentation (2009) No presentation (2010) No presentation (2011) Trevithick, M. (2012) No presentation (2013) No presentation (2014) Cox, E. J. (2015) Rolla, G. T. (2016) Adolphi, S. (2017) Sperko, W. (2017) Cowman, R. D. (2018) No presentation (2019) No presentation (2020) No presentation (2021) Grantham, J. A. (2022)



**JEFFREY JONES** Currently the Director of Railcar Shops for Herzog Railroad Services Inc. His welding experience started in welding heavy-wall pipe in a power plant, to welding and making hot taps on the Alaskan pipeline, as well as performing duties as a front-line supervisor, and as a quality control manager at refineries and the jobsite on the pipeline.

Jeffrey has maintained a current CWI for almost 15 years, he has brought over two decades of experience in his current position aiding in the development of Procedure Qualifications as well as Welder Performance Qualifications among other duties.

#### 2023 PAPER I WARREN F. SAVAGE MEMORIAL AWARD

This award is endowed by former associates of Professor Warren F. Savage to honor his dedication and accomplishments in the field of welding metallurgy. This award recognizes the paper published in the Research Supplement of the Welding Journal during the previous calendar year that best represents innovative research resulting in a better understanding of the metallurgical principles related to welding.

Recipients of award:

Lee, C. H. (1989) Lundin, C. D. (1989) Menon, R. (1989) Cieslak, M. J. (1990) Frank, R. B. (1990) Headley, T. J. (1990) Eagar, T. W. (1991) Gedeon, S. A. (1991) Goods, S. H. (1992) Karfs, C. W. (1992) Baeslack, III, W. A. (1993) Koo, H-H (1993) Baeslack, III, W. A. (1994) Lin, W. (1994) Lippold, J. C. (1994) Kawashiri, K. (1995) Ohmura, H. (1995) Yoshida, T. (1995) **Yoshimoto**, O. (1995) Acoff, V. L. (1996) Griffin, R. D. (1996) Radhakrishnan, B. (1996) Thompson, R. G. (1996) Eagar, T. W. (1997) Itsukaichi, T. (1997) O'Kane, I. (1997) Umemoto, M. (1997) Babu, S. S. (1998) David, S. A. (1998) DebRoy, T. (1998) Mundra, K. (1998) Fjaer, H. G. (1999) Grong, D. (1999) Klokkehaug, S. (1999) Kluken, A. O. (1999) Myhr, O. R. (1999) Lippold, J. C. (2000) Mills, M. J. (2000) Nelson, T. W. (2000) Kotecki, D. J. (2001) Babu, S. S. (2002)

David, S. A. (2002) Kenik, E. A. (2002) Oertelt, G. (2002) Brasher, D. G. (2003) Butler, D. J. (2003) Elmer, J. W. (2003) Terrill, P. E. (2003) Brooks, J. A. (2004) Headley, T. J. (2004) Michael, J. R. (2004) Robino, C. V. (2004) DuPont, J. N. (2005) Robino, C. V. (2005) Michael, J. R. (2005) Mizia, R. E. (2005) Williams, D. B. (2005) Cao. G. (2006) Kou, S. (2006) Keehan, E. (2007) Karlsson, L. (2007) Andrén, H-O (2007) Bhadeshia, H.K.D.H. (2007) Yang, Y. (2008) Kou, S. (2008) Yang, Y. (2009) Dong, H. (2009) Cao, H. (2009) Chang, Y. A. (2009) Kou, S. (2009) Nissley, N. E. (2010) Lippold, J. C. (2010) Caron, J. L. (2011) Heinze, C. (2011) Schwenk, C. (2011) Rethmeier, M. (2011) Babu, S. S. (2011) Lippold, J. C. (2011) Kou, S. (2012) Limmaneevichitr, C. (2012) Wei, P-S (2012) Yue, X. (2013)

Lippold, J. C. (2013) Alexandrov, B. T. (2013) Babu, S. S. (2013) Caron, J. L. (2014) Babu, S. S. (2014) Lippold, J. C. (2014) Bundy, J. (2015) Gerlich, A. (2015) Najafabadi, H. I. (2015) Mendez, P. F. (2015) Lippold, J. C. (2016) Hodgson, D. K. (2016) Dai, T. (2016) Javernick, D. A. (2017) Lienert, T. J. (2017) Liu, S. (2017) Tate, S. B. (2017) Kannan, R. (2018) Li, L. (2018) Wang, Y. (2018) Zhang, L. (2018) DuPont, J. (2019) Hamlin, R. (2019) DuPont, J. N. (2020) Kant, R. (2020) Alexandrov, B. T. (2021) Fink, C. (2021) Penso, J. A. (2021) Wang, H. (2021) Derrien, R. (2022) Liu, S. (2022) Sullivan, E. M. (2022) Briand, F. (2022) Moine, E. (2022) Dai, T. (2023) Feng, Z. (2023) Wang, Y. (2023) Kiser, S (2023) Baker, B. (2023)

#### 2023 PAPER I WARREN F. SAVAGE MEMORIAL AWARD (cont)

#### REPAIRING HIGH y' HOT SECTION GAS TURBINE COMPONENTS USING ADVANCED MANUFACTURING"



**BRIAN JORDAN** is a technical professional with almost a decade of experience working with laser blown powder directed energy deposition. His contributions to research include integrated design and advanced manufacturing of monolithic components, multi-material composites and functionally graded transition joints in parts used for fuel, aerospace and nuclear energy applications, as well as the additive repair of in-service parts used in vehicles, aircrafts, and assets for the Department of Defense. His current BP-DED

related work includes process parameter development of refractory metals as well as identifying processing windows for functionally graded materials combining high strength superalloys with high temperature refractory alloys. Brian has a Bachelor of Science in Manufacturing Engineering Technology



**DR. YOUSUB LEE** is currently a research staff scientist at Oak Ridge National Laboratory (ORNL). He joined ORNL in 2016 after receiving his Ph.D. in welding engineering from The Ohio State University in 2015. He completed a B.S. at Kyungpook National University, South Korea, in 2007, and an M.S. at Seoul National University, South Korea, in 2009. He has been working as a technical lead for large-scale and hybrid manufacturing simulations at manufacturing demonstration facility (MDF). His research interest is functional digital

manufacturing associated with welding and advanced manufacturing.



**NIYANTH SRIDHARAN** obtained his undergraduate degree in metallurgical engineering from PSG College of Technology and subsequently his PhD from University of Tennessee in Knoxville. Post PhD he then joined Oak Ridge National Laboratory and developed R&D programs around laser and ultrasound based additive manufacturing processes. During his time there he collaborated with several industries including Cummins, Delta Tech Ops, Fabrisonics, Rolls Royce Corporation, Arconic and Terra Power. Niyanth was

part of a multi-disciplinary team that demonstrated the use of ultrasonic additive manufacturing to fabricate control rods for nuclear reactors. Following his tenure at ORNL he moved to the Lincoln Electric company in Chennai, India as the Engineering Manager for R&D. He brown fielded an R&D facility for the company in the region to support the welding consumables and the automation R&D strategy. His team leverages advanced characterization, high performance computing along with data driven approaches to understand fundamental aspects of welding and manufacturing processes and translate them to products or solutions. He has authored 47 peer reviewed journals and holds two US patents



**DR. RAMESH RAMAKRISHNAN** received an M.S. and PhD from the University of Massachusetts, Amherst, MA. Ramesh is an aviation industry professional with over twenty-five total years starting in 1997 at Delta Air Lines, Inc., TechOps, Atlanta, GA, and in 2022 at GKN Aerospace, El Cajon, CA. At Delta TechOps, Ramesh initially lead teams in aircraft structural fatigue and damage tolerance analysis, statistical analysis, structural maintenance program development, failure analyses and M&P as related

to NDT processes. Ramesh later transitioned to managing the engine repair development and support teams to develop repairs to static and rotating compressor and turbine components in a variety of engine platforms. The repairs utilized advanced manufacturing methods including laser metal deposition, EB welding, plasma spray, HVOF, etc. In 2017, Ramesh lead a team to set up an Additive Manufacturing Center at Delta TechOps. The center had metal laser powder bed fusion printers as well as polymeric printers and produced parts that had tooling applications as well as installation approval in aircraft cabins. At GKN Aerospace, Ramesh is presently working as a Technical Fellow advancing directed energy deposition (DED) based repairs for military and commercial aircraft engine cases, fan blades and integrally bladed rotors all made of titanium alloys.

JOHN ROBERTSON No information provided

#### 2023 PAPER I WILLIAM SPRARAGEN MEMORIAL AWARD

This award is sponsored by the American Welding Society and honors William Spraragen, a founding member of the Society and the first Editor of the Welding Journal, serving from 1922 to 1954. It is presented for the best paper published in the Research Supplement section of the *Welding Journal* during the previous calendar year.

Recipients of award:

Aidun, D. K. (1989) Eraslan, A. H. (1989) Zacharia, T. (1989) Baeslack, III, W. A. (1990) Kelly, T. J. (1990) Mascorella, T. J. (1990) Eagar, T. W. (1991) Elmer, J. W. (1991) Fuerschbach, P. W. (1992) Knorovsky, G. A. (1992) Baeslack, III, W. A. (1993) Lippold, J. C. (1993) Varol, I. (1993) Eagar, T. W. (1994) Kim, Y-S (1994) Zacharia, T. (1995) Kivineva, E. I. (1996) Matlock, D. K. (1996) Olson, D. L. (1996) Messler, Jr., R. W. (1997) Orling, T. T. (1997) Cieslak, M. J. (1998) Robino, C. V. (1998) DuPont, J. N. (1999) Marder, A. R. (1999) Robino, C. V. (1999) DuPont, J. N. (2000) DebRoy, T. (2001) Elmer, J. W. (2001) Wong, J. (2001) Yang, Z. (2001) Landis, G. P. (2002) Maroef, I.S. (2002) Olson, D. L. (2002) Smith, II, R. D. (2002) Wildeman, T. R. (2002) Landau, A. (2003) Maroef, I.S. (2003)

Olson, D. L. (2003) Park, Y-D (2003) Matlock, D. K. (2004) Rathbun, R. W. (2004) Speer, J. G. (2004) Elmer, J. W. (2005) Palmer, T. A. (2005) Babu, S. S. (2005) Zhang, W. (2005) DebRoy, T. (2005) Marya, M. (2006) Gayden, X. Q. (2006) Cao, G. (2007) Kou, S. (2007) Anderson, T. (2008) Perricone, M. J. (2008) DuPont, J. N. (2008) Marder, A. R. (2008) Young, G. E. (2009) Capobianco, T. (2009) Penik, M. A. (2009) Morris, B. W. (2009) McGee, J. M. (2009) Noecker, II, F. F. (2010) DuPont, J. N. (2010) Tordonato, D. (2011) Madeni, J. C. (2011) Liu, S. K. (2011) Babu, S. S. (2011) Mendez, P. F. (2011) Sowards, J. W. (2012) Liang, D. (2012) Alexandrow, B. T. (2012) Frankel, G. S. (2012) Lippold, J. C. (2012) Atabaki, M. M. (2013) Chun, E. J. (2014) Hayato, B. (2014)

Terashima, K. (2014) Saida, K. (2014) Nishimoto, K. (2014) Fusner, E. W. (2015) Hope, A. T. (2015) Lippold, J. C. (2015) Amata, M. A. (2016) Babu, S. S. (2016) Bundy, J. C. (2016) Chai, X. (2016) Chen, S. (2016) Kou, S. (2016) Zhang, C. (2016) Zhang, F. (2016) Carlton, H. D. (2017) Elmer, J. W. (2017) Vaja, J. (2017) Dai, T. (2018) Lippold, J. C. (2018) Kou, S. (2019) McCarthy, J. (2019) Thompson, K. (2019) Yu, P. (2019) Tanaka, M. (2020) Tashiro, S. (2020) Nguyen, A.V. (2020) Wu, D. (2020) Ji, C. (2021) Murugan, S.P. (2021) Park, Y-D. (2021) Vijayan, V. (2021) Hintze Cesaro, A. (2022) Mendez, P. F. (2022) Lai, X. (2023) Wang, X. (2023) Wei, Z. (2023) Yong, L. (2023) Zhang, D. (2023)

#### "APPLYING IN-SITU RADIOGRAPHY TO STUDY POROSITY FORMATION IN ALUMINUM WELDS"



**DR. CARL E. CROSS, PHD PE FAWS FIIW.** Dr. Cross, a Metallurgical Engineering graduate of Colorado School of Mines '75, '79, and '86, has worked for 50 years in industry (Rockwell International-Rocky Flats, and Martin Marietta Astronautics-Waterton), academia (Guest Professor Univ. Bundeswehr-Berlin, Post Doc. NTNU-Trondheim Norway, Adjunct Prof. CSM-Golden, and Assoc. Prof. Montana Tech-Butte), and national laboratories (Senior Scientist BAM-Berlin, and Staff Scientist Los Alamos National Lab). He specialized in the

welding metallurgy of non-ferrous alloys: aluminum, magnesium, titanium, and stainless steel. In particular, he has examined and modeled the formation of welding metal defects: solidification cracks and porosity, applying modern solidification theory to welding. He has designed, built, and utilized numerous different weldability tests and has published results in over one hundred publications as co-author. He was co-editor of a popular series of four books on Hot Cracking Phenomena in Welds. He has been active as a reviewer on several journals including Metallurgical Transactions, Welding in the World, and the Welding Journal. His most recent and highly valued award was the Comfort A. Adams Lecture Award received in 2021. Now retired, he resides in the Rocky Mountains of Estes Park.



**DR.-ING. CAROLIN FINK** is Assistant Professor in the Department of Materials Science and Engineering at the Ohio State University (OSU). Prior to joining the Welding Engineering Program at OSU in 2017, she was a postdoctoral fellow in the program. Her research focuses on the fundamentals of metallurgical processes, material properties and failure mechanisms in metal joining and additive manufacturing. Dr. Fink is engaged in the NSF/IUCRC Manufacturing and Materials Joining Innovation Center (Ma2JIC) as

principal investigator and thrust area lead. She is Editorial Board member of the Welding in the World Journal, and a member of the Technical Paper Committees of the American Welding Society (AWS). She also serves as Chair of Sub-commission II II C: Testing and Measurement of Welds of the International Institute of Welding (IIW).

Dr. Fink holds a diploma and doctoral degree from Otto-von-Guericke University in Magdeburg, Germany. She was awarded the IIW Henry Granjon Prize, Category B: Materials Behaviour and Weldability in 2016 in recognition of her doctoral research. She received the AWS Warren F. Savage Memorial Award in 2021 and the AWS Prof. Koichi Masubuchi Award in 2022. She is a certified International Welding Engineer (IWE), and enthusiastic about empowering young females into the field of welding engineering.

#### "APPLYING IN-SITU RADIOGRAPHY TO STUDY POROSITY FORMATION IN ALUMINUM WELDS" (cont)



**ALEXYIA BARRAZA** is a Welding Engineer at Los Alamos National Laboratory in the Actinide Material Processing & Power (AMPP) Division. Alexyia has worked in automated welding process development and support for the last seven years as the lead welding engineer for several power supply products including storage and shipping containers. Driven by the spark of welding and love of forming bonds, she is dedicated to a life of learning. Alexyia values the relationships built from teamwork and is grateful to be given

the opportunity to use her detailed-oriented skills. She is an AWS CWI with a M.S. in Welding Engineering from Ohio State University, a B.S. in Mechanical Engineering from New Mexico Institute of Mining and Technology, and an A.S. in Welding Technology from Central New Mexico Community College. Alexyia and her husband have lived in northern New Mexico for the last 7 years, with their 2 children, they enjoy spending their weekends having fun outdoors.

JESSE N. MARTINEZ No Information Provided

CHRISTOPHER J. STULL No Information Provided

#### **R. D. THOMAS MEMORIAL AWARD**

This award was originally sponsored by the Arcos Co. and its president, R. D. Thomas, Jr. It honors the late R. D. Thomas, an AWS charter member and the AWS Representative to the first organization meeting of the International Institute of Welding (IIW). This award is presented to a member of the American Council of IIW or to an AWS member who has made a substantial contribution to the activities of the IIW.

Recipients of award:

Long, R. E. (1989) Edwards, G. R. (1990) Johnson, C. A. (1991) Culbertson, R. P. (1992) Ramsey, P. W. (1993) Olson, D. L. (1994) Bertossa, D. C. (1995) Siewert, T. A. (1996) Kennebeck, M. E. (1997) Brown, K. L. (1998) Fink, D. A. (1999) Rabinkin, A. (2000) Ziegenfuss, H. G. (2001) Prager, M. (2002) Dallam, C. (2003) Howden, D. G. (2004) Dong, P. (2005) Mustaleski, Jr., T. M. (2006) Shaw, Jr., R. E. (2007) Levert, Sr., E. D. (2008) Miglietti, W. A. (2009) David, S. A. (2010) Milewski, J. (2011) Elmer, J. W. (2012) Melfi, T. (2013) Lippold, J. C. (2014) Gould, J. E. (2015) Miller, D. R. (2016) Conrardy, C. (2017) Hochanadel, P. W. (2018) Tumuluru, M. (2019) Kautz, D. (2020) Grewell, D. (2021) Liu, S. (2022)



**CARL PETERS.** Carl retired in 2020 after 41 years with The Lincoln Electric Co. with his last position being Director of Global Education. He currently volunteers as the vice chair of the national AWS Education Scholarship Committee. He's been continuously involved with the International Institute of Welding since 2011. Carl is serving his 8th year as Chair of Commission XIV, Education and Training where they facilitate a forum for educators, welders, Young Professionals, NGO's, manufacturers and government officials to come

together to share concerns and best practices. He is also a member of the Technical Management Board, ensuring that technical, scientific and standardization activities of the IIW are properly operated by IIW Scientific and Technical Working Units. He is a member of the IIW editorial board.

#### ELIHU THOMSON RESISTANCE WELDING AWARD

This award is sponsored by the Resistance Welding Manufacturing Alliance and was established in conjunction with the 100th anniversary of the invention of resistance welding. This award is presented for an outstanding contribution to the technology and application of resistance welding, including equipment innovations, unique applications in production, a paper published in the Welding Journal or other prestigious publication, or other activity of merit.

#### Recipients of award:

Cooper, J. H. (1989) Schueler, A. W. (1990) Deffenbaugh, J. F. (1991) Murto, L. J. (1992) Collom, C. J. (1993) Thorne, J. P. (1994) Beneteau, D. J. (1995) Roth, D. K. (1996) Nichols, J. (1997) Green, E. A. (1998) Simmons, W. P. (1999) Cuff, R. G. (2000) Morrissey, J. P. (2001) Sant, J. M. (2002) Snow, Sr., T. J. (2003) Matteson, R. B. (2004) Hofman, Jr. R. S. (2005) Lee, S. L. (2006) Johnston, H. D. (2007) White, Sr., R. (2008-(Posthumous Recognition) Moss, L. E. (2009) Beneteau, D. M. (2010) Brafford, W. (2011) Tumuluru, M. (2012) Hirsch, R. B. (2013) Gould, J. E. (2014) DeCorte, D. B. (2015) Maatz, Jr. D. F. (2016) Siehling, M. (2017) Karagoulis, M. J. (2018) Cohen, R. (2019) Wei, P.S. (2020) Snow, Jr., T. (2021) Kimchi, M. (2022)



**DR. HONGYAN ZHANG** began his distinguished career in welding in the early 1990s at Ohio State University, focusing on modeling creep damage of 316 stainless steel weldments. In 1993, he joined the University of Michigan as a research fellow, later becoming an assistant research scientist. In 2000, he moved to the University of Toledo, where he established the Materials Joining Research Laboratory. Dr. Zhang's work has centered on welding challenging materials for automotive weight reduction, particularly

aluminum and advanced high-strength steels. He co-authored the widely acclaimed book "Resistance Welding: Fundamentals and Applications," with three editions published. His research has produced 14 papers in the Welding Journal and 47 in other peer-reviewed journals, contributing significantly to the understanding and advancement of resistance welding. He invented a novel impact tester for evaluating the impact strength of various welds, which has been used in numerous high-profile research projects. Dr. Zhang's contributions have earned him recognition as a fellow of the American Welding Society in 2016 and an Honorary Member in 2023. Dr. Zhang has also been deeply involved in the welding community, serving as a principal reviewer for the Welding Journal, organizing sessions for conferences, and contributing to the drafting of national standards. His dedication to education and knowledge dissemination is reflected in his numerous seminars and presentations worldwide.

### **GEORGE E. WILLIS AWARD**

This award is sponsored by The Lincoln Electric Company to honor George E. Willis. It is presented to an individual for promoting the advancement of welding internationally, by fostering cooperative participation in areas such as technology transfer, standards rationalization, and promotion of industrial good will.

#### Recipients of award:

Thomas, Jr., R. D. (1992) Ziegenfuss, H. G. (1993) Timerman, R. (1994) Kotecki, D. J. (1995) Bertossa, D. C. (1996) Kvidahl, L. G. (1997) Siewert, T. (1998) Ramsey, P. W. (1999) Howden, D. G. (2000) Bohnart, E. R. (2001) Long, R. E. (2002)

- Sperko, W. J. (2003) Cable, Sr., H. E. (2004) Horikawa, K. (2005) Fink, D. A. (2006) Quintino, L (2007) Tsai, C-L (2008) Mustaleski, Jr. T. M. (2009) Scotchmer, N. (2010) Sindel, A. W. (2011) Chin, B. A. (2012) Miller, D. K. (2013)
- Bernasek, M. (2014) Shaw, Jr. R. J. (2015) Rager, D. D. (2016) Perdomo, J. J. (2017) Davis, A. (2018) No presentation (2019) Melfi, T. (2020) Henson, R. M. (2021) Decorte, D. (2022) Flohn, T. A. (2023)



**NANCY PORTER** is a PMP certified Project Manager managing a wide-ranging portfolio of research and development (R&D) programs for EWI's Navy customers. For more than 30 years, for the Office of Naval Research's Navy ManTech Program, Nancy has managed large R&D projects with multi-organization integrated project teams for the shipyards that produce submarines, aircraft carriers, and destroyers. Ms. Porter currently manages EWI's Navy ManTech and BlueForge Alliance program portfolios. Other experience

includes managing projects for the National Shipbuilding Research Program (NSRP) and DOT Pipeline and Hazardous Materials Safety Administration. Author and technical presenter for numerous conferences including AWS Technical Program (FABTECH), AWS Welding Summit, ShipTech, NSRP All Panel Meeting, Society of Naval Architects and Marine Engineers, Defense Manufacturing Conference, etc. Before joining EWI, Nancy worked in design and manufacturing engineering roles at Komatsu Dresser and various manufacturing engineering positions at United Technologies' Pratt & Whitney, Rocky Flats - Martin Marietta North American Space Operations, and the Department of Energy's Piketon Uranium Enrichment Facility. Ms. Porter has a B.S. in Welding Engineering from The Ohio State University and is a graduate of the Pratt & Whitney Manufacturing Engineering Development Program. She has a passion for mentoring welding engineering students and junior engineers.

## About AWS

The American Welding Society is the worldwide authority in the development of standards, certifications and educational programming for the welding community. We are committed to connecting the welding industry to our extensive collection of resources, informing our members of technological advancements, and developing the next generation of welding professionals.

For more information, visit:



