

Curriculum Vitae

Dr. John C. Lippold

Welding Engineering Program
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PROFESSIONAL EXPERIENCE

3/95-present Professor, Welding Engineering Program, Department of Industrial, Welding, and Systems Engineering, The Ohio State University
3/95-present Director, National Excellence in Materials Joining Education and Training (NEMJET)
6/03-9/03 Daimler-Chrysler Summer Faculty Intern Program
Sept. 2001 Distinguished Lecturer, University of Alberta, Edmonton, Alberta, Canada
11/96-12/96 Visiting Professor, University of São Paulo, São Paulo, Brazil
12/93-3/95 Director, National Excellence in Materials Joining (NEMJ), Edison Welding Institute
9/85-3/95 Adjunct Professor, Department of Welding Engineering, The Ohio State University
1/91-11/93 Manager of Research, Edison Welding Institute
7/87-11/93 Chairman, EWI Research Committee
11/89-11/90 Visiting Scientist, Institut de Soudure (French Welding Institute) and the French Iron and Steel Research Institute, Paris, France
7/88-1/91 Manager, Materials Department, Edison Welding Institute
9/85-6/88 Manager, Nonferritic Metallurgy Section, Edison Welding Institute
10/78-8/85 Member, Technical Staff, Sandia National Laboratories, Livermore, CA
9/73-9/78 Graduate Research Assistant, Materials Engineering Department, Rensselaer Polytechnic Institute

EDUCATION

B.S., 1973 Materials Engineering, Rensselaer Polytechnic Institute
M.S., 1975 Materials Engineering, Rensselaer Polytechnic Institute
Ph.D., 1978 Materials Engineering, Rensselaer Polytechnic Institute

PROFESSIONAL EXPERTISE AND RESEARCH INTERESTS

Fundamental concepts of welding metallurgy	Weldability testing
Weld defect formation and control	Physical/welding metallurgy of Al-alloys
Weld solidification behavior	Weldability of advanced materials
Phase transformations	Corrosion of welded structures
Physical/welding metallurgy of structural steels	Failure analysis
Physical/welding metallurgy of stainless steels	Materials joining education and training
Physical/welding metallurgy of nickel-base alloys	Distance learning for welding engineering

PROFESSIONAL ACTIVITIES AND AFFILIATIONS

Professional Service

AWS Handbook Committee, 1986-1993
AWS Technical Papers Committee
 Member, 1987-2002
 Chair, 1996-2002
AWS R&D Committee, 1992-present
AWS Awards Committee, 1983-1987, 2000-present
Committee, 1989-1992
ASM Joining Council, 1991-present
The Welding Institute (TWI) Research Board, 1987-1993
American Delegation, International Institute of Welding (IIW), 1990-present
Chairman, *Welding Journal* Peer Review Committee, 1994-1996
Chairman, AWS Student Poster Committee, 1992-1996
Principal Reviewer, *Welding Journal*, 1992-present
Review Board, *Metallurgical Transactions*, 1982-present

Affiliations

American Welding Society
The Metals Society of AIME
ASM International
American Society for Engineering
 Education
Welding Research Council Handbook

HONORS AND AWARDS

Alpha Sigma Mu Metallurgical Honorary, 1974

Charles H. Jennings Award for best university paper published in the Research Supplement of the *Welding Journal*

- 1978** J.C. Lippold, W.F. Savage, E.F. Nippes. An investigation of hot cracking in 5083-O aluminum alloy weldments, *Welding Journal*, 56(6):171s-178s.
1980 J.C. Lippold and W.F. Savage. Solidification of austenitic stainless steel weldments, part 2 - the effect of alloy composition on ferrite morphology, *Welding Journal*, 59(2):48s-58s.

William Spraragen Award for the best paper published in the Research Supplement of the *Welding Journal*

- 1980** J.C. Lippold and W.F. Savage. Solidification of austenitic stainless steel weldments, part 1 - a proposed mechanism, *Welding Journal*, 58(12):362s-374s.
1993 J.C. Lippold, I. Varol and W.A. Baeslack. An investigation of heat-affected zone liquation cracking in austenitic and duplex stainless steels, *Welding Journal*, 71(1):1s-14s.

Lincoln Gold Medal Award for the best single author paper published in the *Welding Journal*

- 1984** J.C. Lippold. An investigation of heat-affected zone hot cracking in alloy 800, *Welding Journal*, 62(1):1s-11s.

A.F. Davis Silver Medal from the American Welding Society for the best paper published in the *Welding Journal* on the topic of Maintenance and Surfacing.

- 2000** M.C. Balmforth and J.C. Lippold, 2000. A new ferritic-martensitic stainless steel constitution diagram, *Welding Journal*, 79(12):339s-345s.

Warren F. Savage Memorial Award for the best paper on the topic of welding metallurgy published in the *Welding Journal*

- 1994** W. Lin, J.C. Lippold, and W.A. Baeslack. An investigation of heat-affected zone liquation cracking, Part 1 - a methodology for quantification. Welding Journal, 71(4):135s-153s.
- 1999** T.W. Nelson, J.C. Lippold, and M.J. Mills. 1999. Nature and evolution of the fusion boundary in ferritic-austenitic dissimilar metal welds, Part 1-Nucleation and growth, Welding Journal, 78(10):329s-337s.

McKay-Helm Award for the best paper on the topic of welding of steels published in the *Welding Journal*

- 1995** J.C. Lippold. Solidification behavior and cracking susceptibility of pulsed-laser welds in austenitic stainless steels. Welding Journal, 73 (6):129s-140s
- 1997** J.C. Lippold, S.S. Shademan, and W.A. Baeslack. Effect of specimen strength and thickness on cracking susceptibility during the Sigmajig weldability test. Welding Journal, 75(3):81s-92s.

Buehler Technical Paper Merit Award for the best contribution to *Metallography (Materials Characterization)*

- 1985** D.E. Nelson, W.A. Baeslack III, and J.C. Lippold. Characterization of the weld microstructure in a duplex stainless steel using color metallography, Metallography, 18(3): 213-224.
- 1989** I. Varol, W.A. Baeslack, III and J.C. Lippold. Characterization of weld solidification cracking in a duplex stainless steel, Metallography, 23:1-19.

Fellow of ASM (1994). Citation: For significant contributions to the understanding of welding metallurgy and weldability, particularly of stainless steels.

Fellow of AWS (1996). Citation: For outstanding insight and contributions to the understanding of welding metallurgy and weldability.

Comfort A. Adams Lecture Award (1997). Presented by the American Welding Society for an outstanding scientist or engineer for a lecture describing a new or distinctive development in the field of welding. Lecture Title: Welding Metallurgy: Past, Present, and Future (Los Angeles, CA)

Adams Memorial Membership Award (1997). Sponsored by the American Welding Society to recognize educators for outstanding teaching activities in their undergraduate and postgraduate engineering institutions.

William Irrgang Memorial Award (2002). Sponsored by the Lincoln Electric Company to recognize 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 past 5 years.

Plummer Memorial Educational Lecture Award (2002). Sponsored by the American Welding Society, this award recognizes outstanding contributions to the national education lectures at the AWS annual meeting.

ACADEMIC ACTIVITIES

Course Development

Intro. to Welding Metallurgy. A 3-credit course offered at The Ohio State University that reviews the basic metallurgical processes associated with welding and joining. This course is the first in a series on welding metallurgy provides the fundamental “building block” instruction for courses to follow. Normal enrollment is 30-40 students. Since Spring 2001, this course has been offered via distance learning.

Welding Metallurgy I. A 4-credit course with laboratory that teaches the basic metallurgical principles associated with the welding of structural steels. This course was "re-developed" in Autumn 2001. Normal enrollment is 30-40 students. Since Autumn 2001, this course has been offered via distance learning.

Welding Metallurgy II. A 4-credit course with laboratory that addresses the basic welding metallurgy principles associated with the joining of stainless steels, nickel-, copper-, aluminum-, and titanium-base alloys. Normal enrollment is 30-40 students. Since Winter 2002, this course has been offered via distance learning.

Defect Formation and Control in Welds. A 3-credit course offered at The Ohio State University at the senior/graduate student level. This course consists of 30 lecture hours and over 200 pages of illustrated notes. Since Spring 1999, this course has been offered via distance learning.

Advanced Topics in Welding Metallurgy. This 3-credit course is offered at The Ohio State University at the graduate student level. It consists of 10 lecture hours and 20 discussion hours on topics of pertinent interest, including solidification and phase transformation phenomena, cracking mechanisms, and weldability testing. It is team taught with other professors.

Weldability of Steels. A two-day intensive course designed to review the metallurgical principles of joining a wide range of structural steels including C-Mn, Cr-Mo, HSLA, TMCP and stainless grades.

Weldability of Nonferrous Alloys. A three-day intensive course to review the metallurgical and joining process issues associated with aluminum-, titanium-, and nickel-based alloys.

Graduate Students

30 M.S. and 14 PhD students in the period from 1987 to present.

Graduate Student Awards

Mr. David Nelson, 1986 Buehler Technical Merit Award (IMS)

Mr. Ilhan Varol, 1989 Buehler Technical Merit Award (IMS)

Dr. Wangen Lin, 1992 Henri Granjon Award (IIW)

Dr. Ilhan Varol, 1992 Spraragen Award (AWS)

Mr. Tracy Nelson, 1992 AWS Student Poster Contest (2nd)

Dr. Wangen Lin, 1993 W.F. Savage Memorial Award (AWS)

Mr. Tracy Nelson, 1996 Henri Granjon Award

Mr. Pete Ditzel, 1996 AWS Student Poster Contest (2nd)

Mr. Qiang Lu, 1996 AWS Student Poster Contest (HM)

Mr. Sassan Shademan, 1997 McKay-Helm Award (AWS)

Ms. Ana Espinoza, 1997 AWS Student Poster Contest (2nd)
Mr. Mikal Balmforth, 1997 AWS Student Poster Contest (3rd)
Mr. Mark Rowe, 1997 AWS Student Poster Contest (HM)
Mr. Tasos Kostivas, 1997 AWS Student Poster Contest (HM)
Ms. Michele Atwell, 1997 AWS Student Poster Contest (HM)
Mr. Mikal Balmforth, 1997 AWS Fellowship Award
Mr. Tassos Kostivas, 1998 AWS Student Poster Contest (HM)
Mr. Troy Finton, 1998 AWS Student Poster Contest (HM)
Mr. Nathan Nissley, 1999 AWS Fellowship Award
Dr. Tracy Nelson, 1999 W.F. Savage Award
Mr. Ming Qian, 2000 AWS Student Poster Contest (1st)
Mr. Seth Norton, 2000 AWS Student Poster Contest (2nd)
Mr. Matthew Collins, 2001 AWS Student Poster Contest (2nd)
Mr. Mikal Balmforth, 2001, A.F. Davis Silver Medal
Mr. Nate Ames, 2002, AWS Student Poster Contest (1st)
Mr. Antonio Ramirez, 2002, AWS Student Poster Contest (2nd)
Mr. Seth Norton, 2003, AWS Student Poster Contest (2nd)
Mr. Daniel Ryan, 2003, AWS Student Poster Contest (3rd)
Mr. Nathan Nissley, 2003, AWS Student Poster Contest (HM)
Mr. Morgan Gallagher, 2004, AWS Fellowship Award

PUBLICATIONS

Over 150 publications in refereed journals, books, conference proceedings, and government (DOE) documents. Some selected recent publications are listed below.

J.C. Lippold. 1998. Recent advances in welding metallurgy. Proc. Taiwan Int. Welding Conference, 1998, Sept. 7-9, Taipei, Taiwan, pp.35-46. (Keynote Lecture).

T.W. Nelson, J.C. Lippold, and M.J. Mills. 1998. Investigation of boundaries and structures in dissimilar metal welds, **Science and Technology of Welding and Joining**, Volume 3, No.5:249-255.

E.J. Barnhouse and J.C. Lippold. 1998. Microstructure/property relationships in dissimilar welds between duplex stainless steels and carbon steels, **Welding Journal**, 77(12): 477s-487s.

M.D. Rowe, T.W. Nelson, and J.C. Lippold. 1999. Hydrogen-induced cracking along the fusion boundary of dissimilar metal welds. **Welding Journal**, 78(2):31s-37s.

T.W. Nelson, J.C. Lippold, and M.J. Mills. 1999. Nature and evolution of the fusion boundary in ferritic-austenitic dissimilar metal welds, Part 1-Nucleation and growth, **Welding Journal**, 78(10):329s-337s. (Paper won W.F Savage Memorial Award from American Welding Society)

Kostrivas and J.C. Lippold. 1999. A review of the weldability of Li-bearing aluminum alloys. **International Materials Reviews**, December 1999.

A. Kostivas and J.C. Lippold, 2000. A method for studying weld fusion boundary microstructure evolution in aluminum alloys, **Welding Journal** 79(1):1s-8s.

T.W. Nelson, J.C. Lippold, and M.J. Mills. 2000. Nature and evolution of the fusion boundary in ferritic-austenitic dissimilar metal welds, Part 2 – On-cooling transformations. **Welding Journal**, 79(10):267s-277s.

M.C. Balmforth and J.C. Lippold, 2000. A new ferritic-martensitic stainless steel constitution diagram. **Welding Journal**, 79(12):339s-345s. (Paper won the A.F. Davis Silver Medal from the American Welding Society)

- M. Atwell and J.C. Lippold, 2002. Weldability of dissimilar 5000- and 6000-series aluminum alloy combinations, **Welding Journal**, **81**(9):188s-194s.
- M. Qian and J.C. Lippold, 2002. Effect of Multiple Postweld Heat Treatment Cycles on the Weldability of Waspaloy, **Welding Journal**, **81**(11): 233s-238s.
- N. Noolu, M. Klossner, K. Ely, W.A. Baeslack, and J.C. Lippold, 2002. Elevated temperature failure of Au-Al Ball Bonds, 35th International Symposium on Microelectronics, Denver, CO, September 3-6, 2002.
- M. Qian and J.C. Lippold, 2003. "The Effect of Rejuvenation Heat Treatments on the Repair Weldability of Wrought Alloy 718", **Materials Science and Engineering A**, **340**(1-2):225-231.
- J.C. Lippold. 2003. Recent Developments in the Understanding of Stainless Steel Welding Metallurgy, Keynote address, **Trends in Welding Research**, Proc. of the 6th International Conference, ASM International, pp. 1-10.
- M.G. Collins, J.C. Lippold and J.M. Kikel, 2003. Quantifying Ductility-Dip Cracking Susceptibility in Nickel-base Weld Metals using the Strain-to-Fracture Test", **Trends in Welding Research**, Proc. of the 6th International Conference, ASM International, pp. 586-590.
- N.D. Ames, M. Johnson, and J.C. Lippold. 2003. Effect of GTAW Flux on the Microstructure and Properties of Austenitic, Super Austenitic and Super Duplex Stainless Steel Welds, **Trends in Welding Research**, Proc. of the 6th International Conference, ASM International, pp. 29-34.
- N.E. Nissley and J.C. Lippold, 2003. Ductility-Dip Cracking Susceptibility of Austenitic Alloys, **Trends in Welding Research**, Proc. of the 6th International Conference, ASM International, pp. 64-69.
- M. Qian and J.C. Lippold, 2003. The Effect of Grain Boundary Character Distribution on the Repair Weldability of Waspaloy, **Trends in Welding Research**, Proc. of the 6th International Conference, ASM International, pp. 603-608.
- S.J. Norton and J.C. Lippold, 2003. Development of a Gleeble-based Test for Postweld Heat Treatment Cracking Susceptibility, **Trends in Welding Research**, Proc. of the 6th International Conference, ASM International, pp. 609-614.
- M. Robinson, D. Harwig, J. Lawmon, and J.C. Lippold, 2003. Thermal Cycle Effects on Alpha Case Characteristics in Titanium Welds, **Trends in Welding Research**, Proc. of the 6th International Conference, ASM International, pp. 768-772.
- T.J. Lienert and J.C. Lippold. 2003. Weldability and Solidification Mode Diagrams for Pulsed-Laser Welds in Austenitic Stainless Steels, **Science and Technology of Welding and Joining**, **8**(1):1-9.
- J.C. Lippold, 2003. Welding Engineering Education at a Distance, **Welding Journal**, April 2003.
- M. Qian and J.C. Lippold, 2003. Liquation Phenomena in the Simulated HAZ of Alloy 718 after Multiple Postweld Heat Treatment Cycles, **Welding Journal**, **82**(6):145s-150s, <http://www.aws.org/wj/supplement/06-2003-QIAN-s.pdf>
- M. Qian and J.C. Lippold, 2003. The Effect of Annealing Twin-Generated Special Grain Boundaries on HAZ Liquation Cracking of Nickel-base Superalloys, **Acta Materialia**, **51**(12):3351-3361.
- J.C. Lippold and P. Ditzel, 2003. Friction Stir Welding of Aluminum Alloys, **Materials Science Forum**, **Vols. 426-432**, pp. 4597-4602, Proc. of Thermec 2003, Leganes, Spain, July 2003, Trans Tech Publications.
- A. Ramirez, S. Brandi, and J.C. Lippold, 2003. The Relationship between Chromium Nitride and Secondary Austenite Precipitation in Duplex Stainless Steels, **Metallurgical Trans. A**, **34A**(8):1575-1597 .
- N.E. Nissley, M.G. Collins, G. Guaytima, and J.C. Lippold. 2003. Development of the Strain-to-Fracture Test for Evaluating Ductility-Dip Cracking in Austenitic Stainless Steels and Ni-base Alloys, submitted for publication in **Welding the World**, (IIW Doc. IX-2050-02)
- M.G. Collins and J.C. Lippold. 2003. An investigation of ductility-dip cracking in Ni-base filler metals-Part 1, **Welding Journal**, **82**(10):288s-295s. <http://www.aws.org/wj/supplement/10-2003-COLLINS-s.pdf>

M.G. Collins, A. Ramirez, and J.C. Lippold. 2003. An investigation of ductility-dip cracking in Ni-base filler metals-Part 2, **Welding Journal**, 82(12):348s-354s.

N.E. Nissley and J.C. Lippold. 2003. Development of the strain-to-fracture test for evaluating ductility-dip cracking in austenitic alloys, **Welding Journal**, 82(12): 355s-364s.

M.G. Collins, A. Ramirez, and J.C. Lippold. 2004. An investigation of ductility-dip cracking in Ni-base filler metals-Part 3, **Welding Journal**, 83(2):39s-49s.

A. Kostrivas and J.C. Lippold, 2004. Simulation of Weld Fusion Boundary Microstructures in Aluminum Alloys, **Journal of Metals**, 56(2):65-72.

TECHNICAL SERVICE and CONSULTING

Consultant for over 100 organizations worldwide. The following is a selected list of these organizations.

General Electric	US Navy	Wyeth Nutritionals
Pratt & Whitney	US Army	Willamette Industries
Allegheny Ludlum	US Air Force	Thermo-King Corp.
Armco	US Dept. of Energy	Hamilton-Standard
BWX Technologies	US NRC	Siemens-Westinghouse
Lockheed-Martin	NASA	Edison Welding Institute
Allied Signal	TransAmerica Leasing	Scot Forge
Foster Wheeler	ExxonMobil Research	A.O. Smith
BF Goodrich Aerospace	Hosemaster, Inc.	Advanced Steel Technology
Weatherford USA	Constellation Energy	Conoco Phillips

PERSONAL

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Hilliard, OH 43026
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Date of Birth: 9 August 1951
Marital Status: Married