

PINGSHA DONG

Professor, Department of Naval Architecture and Marine Engineering
Professor, Department of Mechanical Engineering
Director, Welded Structures Laboratory
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EDUCATION

Ph.D. Mechanical Engineering, University of Michigan, Ann Arbor, 1989
M.S. Mechanical Engineering, University of Michigan, Ann Arbor, 1984
M.S. Welding Engineering, Harbin Institute of Technology, Harbin China, 1982
B.S. Welding Engineering, Harbin Institute of Technology, Harbin, China, 1980

POSITIONS HELD

Professor, Department of Naval Architecture and Marine Engineering, 2013 – present
Professor, Department of Mechanical Engineering, 2015 - present
Professor and Northrop Grumman Chair, Naval Architecture and Marine Engineering, The University of New Orleans, New Orleans, LA, 2009 - 2012
Technical Director, Center for Welded Structures Research, Battelle Memorial Institute, 2006-2009
Senior Research Leader, Battelle Memorial Institute, 2006-2009
Research Leader, Battelle Memorial Institute, 1998-2005
Senior Research Scientist, Battelle Memorial Institute, 1995-1998
Principal Research Scientist, Battelle Memorial Institute, 1994-1995
Section Manager, Edison Welding Institute, 1991-1993
Principal Research Engineer, Edison Welding Institute, 1991-1993
Senior Research Engineer, Edison Welding Institute, 1990-1991
Post-Doctoral Research Fellow, University of Michigan Ann Arbor, 1989-1990

PROFESSIONAL ACTIVITIES AND MAJOR AWARDS

AWS 2015 Fellow Award
IIW (International Institute of Welding) 2014 Fellow Award
SNAME's Elmer L. Hann Award (2012)
IIW (International Institute of Welding) 2008 Evgenij Paton Prize
SNAME's Elmer L. Hann Award (2007)
R&D Magazine's 2006 R&D 100 Award for Verity™ development
TIME Magazine's Math Innovator (2005)
Aviation Week & Space Technology Magazine's 2004 Aerospace Laurels Award
AWS 2004 R. D. Thomas Memorial Award (2004)
SAE Henry Ford II Distinguished Award for Excellence in Automotive Engineering, 2003
ASME G.E.O. Widera Literature Award (2002)
AWS 1998 Rene Wasserman Best Paper Award, 1998
Editorial Board Member, Int. J. of Science and Technology of Welding and Joining (2002-2010)
Associate Editor, Journal of Offshore Mechanics and Arctic Engineering (2003-2014)
Editorial Board Member, International Journal of Pressure Vessel and Piping (2006-2015)
Associate Editor, International Journal of Pressure Vessel and Piping (2015-present)
Editorial Board Member, International Journal of Naval Architecture and Ocean Engineering (2014-present)

RESEARCH INTERESTS

Math-based design-for-productibility evaluation methods for lightweight metallic structures; advanced design and analysis techniques for welded structures; fatigue and fracture assessment of FPSOs (Floating Production, Storage and Offloading units); fitness-for-Service (FFS) or Engineering Critical Assessment

(ECA) methods and structural health monitoring for life extension of aging structures; mesh-insensitive structural stress method; mechanics of residual stresses and distortions and mitigation techniques; computational methods for manufacturing process simulation: welding, joining, and allied processes; novel joining methods for dissimilar materials assemblies.

RESEARCH ACTIVITIES

Prof. Dong has conducted research supported by the Office of Naval Research (ONR), the Naval Surface Warfare Center (NSWC), ONR ManTech Program, Department of Energy, Nuclear Regulatory Commission (NRC), Department of Commerce (through ATP Programs), Department of Energy (DoE), Federal Emergency Management Administration (FEMA), various industrial funding agencies (American Petroleum Institute - API, Welding Research Council – WRC, Pressure Vessel Research Council – PVRC, Auto Steel Partnership – A/SP), and major companies in automotive, oil/offshore, shipbuilding, earthmoving equipment, petrochemical industrial sectors. He has also served as a consultant to industry and government agencies.

RECENT PUBLICATIONS

1. Mei, J., & Dong, P. (2017). Modeling of path-dependent multi-axial fatigue damage in aluminum alloys. *International Journal of Fatigue*, 95, 252-263.
2. Mei, J., & Dong, P. (2016). A new path-dependent fatigue damage model for non-proportional multi-axial loading. *International Journal of Fatigue*, 90, 210-221.
3. Xing, S., & Dong, P. (2016). An analytical SCF solution method for joint misalignments and application in fatigue test data interpretation. *Marine Structures*, 50, 143-161.
4. Xing, S., Dong, P. and Threstha, A., (2016). Analysis of fatigue failure mode transition in load-carrying fillet-welded connections. *Marine Structures*, 46, pp.102-126.
5. Dong, P., Song, S. and Pei, X., 2016. An IIW residual stress profile estimation scheme for girth welds in pressure vessel and piping components. *Welding in the World*, 60(2), pp.283-298
6. Song, S., & Dong, P. (2016). Residual stresses at weld repairs and effects of repair geometry. *Science and technology of welding and Joining*, DOI:10.1080/13621718.2016.1224544
7. Song, S., & Dong, P. (2016). A framework for estimating residual stress profile in seam-welded pipe and vessel components part I: Weld region. *International Journal of Pressure Vessels and Piping*, 146, 74-86.
8. Song, S., & Dong, P. (2016). A framework for estimating residual stress profile in seam welded pipe and vessel components Part II: Outside of weld region. *International Journal of Pressure Vessels and Piping*, 146, 65-73.
9. Pei, Xianjun; Dong, Pingsha; Modeling of banded structure in friction stir weld in strain rate–hardening materials of Zener–Hollomon type; 2015/1/29, *Journal of Strain Analysis for Engineering Design*, April 2015 vol. 50 no. 3 175-189
10. Pingsha Dong, Shaopin Song, Jinmiao Zhang, Myung H. Kim, On residual stress prescriptions for fitness for service assessment of pipe girth welds, *International Journal of Pressure Vessels and Piping*, Volumes 123–124, November–December 2014, Pages 19-29
11. Pingsha Dong, Shaopin Song, Jinmiao Zhang, Analysis of residual stress relief mechanisms in post-weld heat treatment, *International Journal of Pressure Vessels and Piping*, Volume 122, October 2014, Pages 6-14
12. P. Dong, X. Pei, S. Xing, M.H. Kim, A structural strain method for low-cycle fatigue evaluation of welded components, *International Journal of Pressure Vessels and Piping*, Volume 119, July 2014, Pages 39-51
13. X. Pei and P. Dong. "Shear localization modelling of friction stir weld formation process." *Science and Technology of Welding and Joining*, 2014; 19(5), 416-426.
14. Zhigang Wei and Pingsha Dong, A generalized cycle counting criterion for arbitrary multi-axial fatigue loading conditions, July 2014, *The Journal of Strain Analysis for Engineering Design*, 49: 325-341
15. Nie C, Dong P. A thermal stress mitigation technique for local postweld heat treatment of welds in pressure vessels. *ASME. J. Pressure Vessel Technology*. 2015;137(5):051404-051404-9. doi:10.1115/1.4029097