YONG-YI WANG, Ph.D.

President and CTO

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Overview

Dr. Wang founded the Center for Reliable Energy Systems (CRES). He is a leading expert on the structural integrity of energy pipelines and piping systems, particularly welds and joints. He is recognized worldwide for his leadership in the development and implementation of fitness-for-service (FFS) assessment procedures and strain-based design and assessment (SBDA) technology. His work spans from fundamental research to code adoption of emerging technologies. He has worked extensively with pipeline operators, industry consortia such as PRCI and INGAA, standards committees, and regulators (PHMSA and CER) in the design, construction, inspection, and integrity management of pipelines.

Dr. Wang has authored nearly 200 technical papers on pipeline integrity assessment, management of geohazards, fitness-for-service (FFS) assessment of anomalies, materials, welding, and fracture mechanics. He was the principal editor of three PVP volumes on fracture, fatigue, residual stress, and structural integrity of piping systems.

Leadership and Participation of Standards Committees and Conferences

- Chair, Fracture Mechanics Subcommittee, API Standard 1104 Welding of Pipelines and Related Facilities
- Track Chair, Geohazards Management and Strain-Based Design and Assessment track, International Pipeline Conference (IPC) by ASME
- Chair, Work Group on Circumferential Cracks, API RP 1176 Management of Cracks
- Lead contributor, API RP 1187 Pipeline Integrity Management of Landslide Hazards
- Member, Joint Task Group of API 1104 and API 5L
- Member, Task Group on Welding of Hydrogen Fuel Gas Pipelines, API 1104
- Contributing member, API 579 / ASME FFS-1
- Contributor, ASME B31.8, ASME B31.4, ASME B31.12, and ASME B31.8S
- Contributor, Canadian Standard CSA Z662

Education

- Ph.D., MIT, Cambridge, Massachusetts, USA
  Major: Mechanics and Materials; Minor: Business Administration
- M.S., MIT, Cambridge, Massachusetts, USA
  Major: Computational Mechanics
- B.S., East China University of Science and Technology, Shanghai, China
  Major: Mechanical Engineering

Awards

- *Honoree of the Distinguished Lecture Series*, "to recognize the technical contributions of individuals that have stood the test of time," International Pipeline Conference, Calgary, Canada, 2018. "The goal of the Distinguished Lecture Series is to present technical content that was produced over the past several decades that have provided a foundation for modern pipeline technology," as noted by the award committee comprised of Canadian Energy Pipeline Association (CEPA) and ASME's Pipeline Systems Division.
- *Distinguished Researcher Award "*for dedicated and distinguished service and scientific achievements that have enhanced the integrity, reliability and environmental performance of energy pipelines around the world," PRCI, 2018.
- *Resolution of Appreciation* for "his leadership and technical expertise in advancing research and knowledge in welding of steel pipelines," The API/AGA Joint Committee on Oil and Gas Pipeline Field Welding Practices, 2023.
- *Session Organizer of the Year* for developing the first ISOPE Symposium on Strain-Based Design of Pipelines, 2007.
- *2nd Place in the Best Paper Competition*, International Pipeline Conference, Liu, B., Wang, Y.-Y., and Chen X., "Application of Strain based Assessment in Support of Operational and Mitigation Decisions," IPC2022-87337, September 26 – 30, 2022, Calgary, Alberta, Canada.
- *Best paper,* the International Pipeline Conference, Cheng, W., Wang, Y.-Y., W. Amend, and Swatzel, J., "Weld Microstructure and Hardness Prediction for In-Service Hot Tap Welds," Calgary, Alberta, Canada, October 4-8, 2004.

Work Experience

06/2007 − Present, President and CTO, Center for Reliable Energy Systems (CRES), Dublin, Ohio

10/1998 − 05/2007, Vice President, Engineering Mechanics Corporation of Columbus, Columbus, Ohio

08-1991 − 09/1998, Senior Research Engineer, Edison Welding Institute, Columbus, Ohio

Major Accomplishments

1. Dr. Wang has been leading the investigation of girth weld failure incidents of newly constructed pipelines and the development of mitigation options. His work has generated significant positive impact on the industry practices and standards in the areas of linepipe specifications, welding process selection and welding procedure qualification requirements, field girth welding, and weld repair procedures.
2. Dr. Wang has led the industry in the application of strain-based design and assessment in the management of ground movement hazards.
    a. Lead author of an INGAA sponsored JIP report, "Framework for Geohazard Management," March 27, 2023.
    b. One of the lead authors of an INGAA sponsored JIP report, "Recommended Practice for Pipeline Integrity Management of Landslide Hazards," April 2023. This report has been the base document for the current drafting of API RP 1187 Pipeline Integrity Management of Landslide Hazards.
    c. One of the lead authors on an INGAA white paper on Guidelines for Management of Landslide Hazards for Pipelines published in August 2020.

d. Principal Investigator (PI) of a JIP on the Management of Ground Movement Hazards for Pipelines, completed in 2017. This JIP provides a comprehensive integrated geohazards management framework involving both geotechnical and pipeline structural integrity approaches.
e. Lead technical organizer of an ASME Symposium, Pipeline Integrity under Geohazard Conditions, 2019.
f. PI of many PRCI projects on the strain capacity of pipelines of various vintages, post-geohazard-event response plans, and mitigation options for the enhancement of pipeline strain capacity.
g. PI of many projects with pipeline operators for the development of screening criteria for mitigating geohazards, case-specific assessment of pipeline integrity after geohazard events to determine the need and timing of mitigation, development strain limit criteria for strain monitoring, etc.
h. Reviewer of PHMSA's Special Permit Conditions for Strain-Based Design.
i. Lead author of a PRCI technical bulletin on the Mitigation of Low-Strain Failures of Girth Welds in Newly Constructed Pipelines.

3. Dr. Wang was the principal investigator on the development of strain-based design and assessment models for DOT/PHMSA and industry partners for both new pipeline construction and integrity management of in-service pipelines.
4. Dr. Wang was the lead architect and developer of the Annex A alternative girth weld defect acceptance criteria of API Standard 1104.
5. Dr. Wang served as the lead organizer and chair of the first dedicated symposia on the strain-based design of pipelines under the auspices of ISOPE (International Society of Offshore and Polar Engineers).

Recent Presentations

- "Evaluation of TSC Prediction against Large-Scale Girth Weld Tests," PRCI Research Exchange 2026, March 4, 2026, Orlando, FL.
- "Screening and Mitigation Criteria of IMU Bending Strain for Geohazards Management," PPIM 2026, January 22, 2026, Houston, TX.
- "Effects of External Stresses/Strains on the Formation and Growth of C-SCC and Implications on Integrity Assessment," presentation at 4th International Pipeline Cracks Forum – Managing the Threat of Circumferential SCC, Whitehall Hotel, Houston, TX, November 13, 2025.
- "Girth Weld Failures and Industry Responses," a keynote address at the International Pipeline Geotechnical (IPG) Conference, November 7, 2025, Bogota, Colombia.
- "API RP 1187 and Integrity-Centric Geohazards Management," a tutorial at the Internation Pipeline Geotechnical (IPG) Conference, November 5, 2025, Bogota, Colombia.
- "Update on Responses of Standards Committees on Low Strain Failures of Girth Welds and Treatment/Assessment of Interacting Threats," Tech Talk at CER, April 29, 2025, Calgary, Canada.
- "Reinforcing Pipeline Segments Containing Circumferential Anomalies Subjected to High

Longitudinal Stress/Strain," PRCI Research Exchange 2025, March 4, 2025, Houston, TX.

- "Welding Practice and Linepipe Specifications for Enhanced Resilience of Girth Welds in Traditional and Emerging New Pipelines," a half-day tutorial at the International Pipeline Conference 2024, September 25, Calgary, Alberta, Canada.
- "Management of C-SCC," PRCI Research Exchange, San Diego, CA, USA, February 28, 2024.
- "Guidance on Welding Procedure Qualifications to Prevent Low Strain Failures of Girth Welds," PRCI Research Exchange, San Diego, CA, USA, February 27, 2024.
- "Threat Prevention – Geohazards Management," PHMSA RD Forum, Washington, DC, October 31, 2023.
- "Lessons Learnt from Girth Weld Failures of Newly Constructed Pipelines and Industry Response," 2023 API Pipeline Conference and Expo, Nashville, TN, May 1-3, 2023.
- "Potential Safety and Integrity Challenges of Hydrogen Pipelines Subjected to Geohazards Loading," 2023 API Pipeline Conference and Expo, Nashville, TN, May 1-3, 2023.
- "*Considerations for Offshore Pipelines / Pipelines That Cross Navigable Waterways and Water Bodies*," DOE workshop - Roadmap for CO_2 Transport Fundamental Research, Dublin, OH, February 22, 2023.
- "Girth Weld Failures at Low Nominal Strains – Overview of Issues, Scope and Current State of Research and Knowledge," CER workshop, Calgary, AB, Canada, February 15, 2023.
- "Recommendations to API 5L and 1104 for Improved Resilience of Girth Welds in New Pipeline Construction," Joint Task Group of API 5L and 1104, January 24, 2023.
- "Enhanced Welding Practice and Linepipe Specifications to Improve Strain Resistance of Newly Constructed Pipelines," a half-day tutorial at the International Pipeline Conference 2022, September 28, Calgary, Alberta, Canada.
- "Engineering Assessment of Girth Welds to Ensure Sufficient Strain Capacity," a multi-session tutorial for an energy pipeline regulator, 2022.
- "*Vintage Girth Weld Properties and Flaw Characteristics for Tensile Strain Capacity Assessments*," PRCI REX 2022, March 2022.
- "*Girth Weld Failures of Newly Constructed Pipelines and Suggestions for Standards Revisions*," China International Pipeline Conference, March 2022.
- "*Burst Pressure Prediction of Pipes with SCC Using Intelligent Flaw Interaction Rules*," PPIM 2022, February 2022.
- "*Integrity-Focused Geohazards Management for Pipelines*," International Pipeline Geotechnical Conference, June 21-22, 2021.
- "*Hydrogen Embrittlement and Fatigue Performance of Pipeline Steels in Hydrogen Environment*," PRCI REX 2021, March 2021.
- "*Interim Recommendations for the Mitigation of Low-Strain Failures of Newly Constructed Pipelines*," PRCI REX 2021, March 2021.
- "*Guidance on Excavation and Backfill in Areas of Geohazards,"* PRCI REX 2021, March 2021.
- "*Evaluation of Self-Shielded FCAW as a Viable Option for Girth Welding*," PRCI REX 2021, March 2021.
- "*Enhancing Strain Capacity of Pipelines Subjected to Geohazards*," PRCI REX 2021, March 2021.

- "*Assessment of Interacting Threats of Metal Loss and High Axial Strain*," PRCI REX 2021, March 2021.
- "*Guidelines on Performing Tensile Strain Capacity Assessments*," PRCI REX 2021, March 2021.
- "*Life-Cycle Management of Geohazards for Pipelines*," PRCI REX 2020, March 2020.
- "*Guidance for Integrity Management of Buried Pipelines Subjected to Ground Movement*," PRCI REX 2020, March 2020.
- "Integrated Hazards Management and Fitness-for-Service Assessment for Integrity Management of Pipelines Subjected to Geohazards," Keynote Lunch Presentation, ASME Conference on Asset Integrity Management–Pipeline Integrity Management under Geohazard Conditions, March 25-28, 2019, Houston, TX, USA.

Publications

195 Jia, D., Rahman, M., **Wang, Y.-Y.**, Rahmani, M., Rapp, S., and Scoles, R., "Effects of Prior-Strain on the Tensile Properties of Girth welds and Pipes and Implications on Tensile Strain Capacity," Proceedings of the 16th International Pipeline Conference, Paper No. IPC2026-186373, September 21-25, 2026, Calgary, AB, Canada.

194 Jia, D., Warman, D., Rahmani, M., **Wang, Y.-Y.**, Vincitore, M., and Williams, E., "Determination of Flaw Growth by Simulated Hydrostatic Testing and its Potential Impact on Fatigue Life," Proceedings of the 16th International Pipeline Conference, Paper No. IPC2026-186319, September 21-25, 2026, Calgary, AB, Canada.

193 Liu, B., Jia, D., Rahman, M., **Wang, Y.-Y.**, Lu, J., and Rapp, S., "Evaluation of Tensile Strain Capacity Models for Vintage Pipelines," Proceedings of the 16th International Pipeline Conference, Paper No. IPC2026-186247, September 21-25, 2026, Calgary, AB, Canada.

192 **Wang, Y.-Y.**, Wang, J., Rahmani, M., Liu, B., Bag, D., and Vervake, G., "Accurate Burst Pressure Predictions and Implications on Using EMAT Outputs from a Vintage Pipeline Containing SCC Colonies," Proceedings of the 16th International Pipeline Conference, Paper No. IPC2026-186205, September 21-25, 2026, Calgary, AB, Canada.

191 **Wang, Y.-Y.**, Kumar, A., and Poul, M., "A New Compressive Strain Capacity Model for Buried Pipelines," Proceedings of the 16th International Pipeline Conference, Paper No. IPC2026-186016, September 21-25, 2026, Calgary, AB, Canada.

190 **Wang, Y.-Y.**, Kumar, A., Chen, X., Liu, B., and Jia, D., "Evaluation of Tensile Strain Capacity Models for Modern Pipelines," Proceedings of the 16th International Pipeline Conference, Paper No. IPC2026-186004, September 21-25, 2026, Calgary, AB, Canada.

189 **Wang, Y.-Y.**, Liu, B., Wang, J. and Chen, X., "State-of-the-Art Review of Tensile Strain Capacity Models and Their Applications," Proceedings of the 16th International Pipeline Conference, Paper No. IPC2026-186000, September 21-25, 2026, Calgary, AB, Canada.

188 Wang, J., **Wang, Y.-Y.**, Miglis, Y., "Review of Current Approach to SSWC Assessment and Possible Directions for Improvement," Proceedings of the 16th International Pipeline Conference, Paper No. IPC2026-185454, September 21-25, 2026, Calgary, AB, Canada.

187 McKenzie-Johnson, A., **Wang, Y.-Y.**, "Upfront Planning and Assessment for Landslide Threats in New Pipeline Construction," Proceedings of the 16th International Pipeline Conference, Paper No. IPC2026-185314, September 21-25, 2026, Calgary, AB, Canada.

186 **Wang, Y.-Y.**, Warman, D., Liu, B., and Wang, J., "Key Elements and Best Practice in the

Management of Circumferential SCC," Paper No. IPC2024-134065, September 23 – 27, 2024, Calgary, AB, Canada.

185 **Wang, Y.-Y.**, Liu, B., Warman, D., and Jia, D., "Essential Elements of a Holistic Framework for the Management of Geohazards," Paper No. IPC2024-134064, September 23 – 27, 2024, Calgary, AB, Canada.

184 Jia, D., **Wang, Y.-Y.**, Liu, B., and Wang, J., "Welding Procedure Qualifications of Girth Welds Suitable for Actual Field Conditions," Paper No. IPC2024-134001, September 23 – 27, 2024, Calgary, AB, Canada.

183 Ishikawa, N., Imayama, H., Sakimoto, T., Jia, D., Wang, J., and **Wang, Y.-Y.**, "Toughness Evaluation and Integrity Assessment of Modern X80 Linepipe Welds for the Application of High Pressure Hydrogen Pipeline," Paper No. IPC2024-133871, September 23 – 27, 2024, Calgary, AB, Canada.

182 **Wang, Y.-Y.**, Jia, D., Liu, B., and Warman, D., "Responses of Pipelines Impacted by Geohazards and Effective Integrity Management Strategies," AIM-CI2024-119506, 2024 ASME Asset Integrity Management of Critical Infrastructure Conference, Orlando, FL, February 6, 2024.

181 **Wang, Y.-Y.**, Wang, J., Jia, D., Liu, B., and Warman, D., "Safety and Integrity Challenges of Hydrogen Pipelines Subjected to Geohazards Loading," PRCI-EFS2023-021, Emerging Fuel Symposium, Orlando, Florida, USA, June 5-8, 2023.

180 Warman, D., Jia, D., **Wang, Y.-Y.**, Bongiovi, M., and Destigter, C., "Room Temperature Time Dependent Creep Behavior of Low Frequency ERW Pipe Seams and Implications on Managing Pressure Reversals in Hydrostatic Tests," Pipeline Pigging and Integrity Management (PPIM), February 6-10, 2023, Houston, Texas, USA.

179 **Wang, Y.-Y.**, Wang, A., Leis, B., Rapp, S., and Vervake, G., "Understanding Principal Drivers to Burst Pressure and Local Deformation of Pipes with SCC Colonies," Paper No. IPC2022-87338, September 26 – 30, 2022, Calgary, AB, Canada.

178 Liu, B., **Wang, Y.-Y.**, and Chen X., "Application of Strain based Assessment in Support of Operational and Mitigation Decisions," Paper No. IPC2022-87337, September 26 – 30, 2022, Calgary, AB, Canada.

177 Quintana, M., Phillips, S., Jia, D., Wang, J., and **Wang, Y.-Y.**, "Self-Shielded Flux-Cored Arc Welding – Practical Approaches for Improved Performance of Girth Welds in High-Strength Pipelines," Paper No. IPC2022-87290, September 26 – 30, 2022, Calgary, AB, Canada.

176 Ishikawa, N., Sakimoto, T., Shimamura, J., Wang, J., and **Wang, Y.-Y.**, "Integrity Assessment of Linepipes for Transporting High Pressure Hydrogen Based on ASME B31.12," Paper No. IPC2022-87180, September 26 – 30, 2022, Calgary, AB, Canada.

175 Warman, D., Jia, D., **Wang, Y.-Y.**, Bongiovi, M., and Stigter, C., "Measurement of Flaw Growth in Electric Resistance Welded Pipe Seams from Multiple Pressure Tests and Hold Time and Implications on Managing Pressure Reversals in Hydrostatic Tests," Paper No. IPC2022-87067, September 26 – 30, 2022, Calgary, AB, Canada.

174 Leis, B., **Wang, Y.-Y.**, Eshraghi, A., Rapp, S., and Vervake, G., "The Practical Benefits of Detailed Forensic Analysis," Paper No. IPC2022-87028, September 26 – 30, 2022, Calgary, AB, Canada.

173 Wang, B., **Wang, Y.-Y.**, and Leis, B., "Incorporating Strain Hardening and 3D Shape of Metal Loss into Corrosion Assessment," Paper 24, EPRG-PRCI-APGA 23rd Joint Technical Meeting, Edinburgh, Scotland, June 6-10, 2022.

172 **Wang, Y.-Y.**, Liu, B., and Fleck, P., "Strain-Based Design and Assessment of New and Ageing Pipelines," Proceedings of Technology for Future and Ageing Pipelines, March 28-30, 2022, Gent, Belgium.

171 **Wang, Y.-Y.** and Jia, D., "Managing Standards with Evolving Industry Practice – Lessons Learned from Girth Weld Failures in Newly Constructed Pipelines," Proceedings of Technology for Future and Ageing Pipelines, March 28-30, 2022, Gent, Belgium.

170 **Wang, Y.-Y.,** Wang, B., Liu, B., and Wang, A., "Burst Pressure Prediction of Pipes with SCC Using Intelligent Flaw Interaction Rules," Paper No. 102, Pipeline Pigging and Integrity Management Conference, February 2-4, 2022, Houston, TX, USA.

169 **Wang, Y.-Y.**, Jia, D., Warman, D., Johnson, D., Rapp, S., "Improved Linepipe Specifications and Welding Practice for Resilient Pipelines," Proceedings of the 13th International Pipeline Conference, Paper No. IPC2020-9725, September 28 – October 1, 2020, Calgary, AB, Canada.

168 Wang, J., Liu, B., **Wang, Y.-Y.**, and Bruce W., and Rapp, S., "Development of Lifting and Lowering-in Plan for the Control of Construction Stresses," Proceedings of the 13th International Pipeline Conference, Paper No. IPC2020-9753, September 28 – October 1, 2020, Calgary, AB, Canada.

167 **Wang, Y.-Y.**, West, D., Dewar, D., Mckenzie-Johnson, A., Rapp, S., "Management of Ground Movement Hazards – an Overview of a JIP," Proceedings of the 13th International Pipeline Conference, Paper No. IPC2020-9739, September 28 – October 1, 2020, Calgary, AB, Canada.

166 **Wang, Y.-Y.**, Yu, D., and Cook, M., "Structured Response Plan after a Ground Movement Event," Proceedings of the 13th International Pipeline Conference, Paper No. IPC2020-9717, September 28 – October 1, 2020, Calgary, AB, Canada.

165 Wang, B., Liu, B., **Wang, Y.-Y.**, Wang, A., and Rapp, S., "Burst Pressure Prediction of Pipes with SCC Colonies – Evaluation of Intelligent Flaw Interaction Rules Using Full-Scale Burst Tests," Proceedings of the 13th International Pipeline Conference, Paper No. IPC2020-9696, September 28 – October 1, 2020, Calgary, AB, Canada.

164 Wang, B., Liu, B., **Wang, Y.-Y.**, Wang, A., and Rapp, S., "Burst Pressure Prediction of Pipes with SCC Colonies - Development of Intelligent Flaw Interaction Rules," Proceedings of the 13th International Pipeline Conference, Paper No. IPC2020-9693, September 28 – October 1, 2020, Calgary, AB, Canada.

163 Liu, B., **Wang, Y.-Y.**, Jia, D., and Rapp, S., "Rational Limits of High-Low Misalignment in Girth Welds," Proceedings of the 13th International Pipeline Conference, Paper No. IPC2020-9685, September 28 – October 1, 2020, Calgary, AB, Canada.

162 Yu, D., **Wang, Y.-Y.**, Chen, X., and Liu, B., "A Review of Pipe-Soil Interaction Models for Strain Demand Estimation," Proceedings of the 13th International Pipeline Conference, Paper No. IPC2020-9678, September 28 – October 1, 2020, Calgary, AB, Canada.

161 Wang, B., Liu, B, **Wang, Y.-Y.**, and Huising, O., "Estimation of Tensile Strain Capacity of Vintage Girth Welds," Proceedings of the 13th International Pipeline Conference, Paper No. IPC2020-9664, September 28 – October 1, 2020, Calgary, AB, Canada.

160 Liu, B, **Wang, Y.-Y.**, Chen, X., and Warman, D., "Effects of Biaxial Loading on the Tensile Strain Capacity of Girth Welds with Weld Strength Undermatching and HAZ Softening," Proceedings of the 13th International Pipeline Conference, Paper No. IPC2020-9663, September 28 – October 1, 2020, Calgary, AB, Canada.

159 Jia, D., **Wang, Y.-Y.**, and Rapp, "Material Properties and Flaw Characteristics of Vintage Girth

Welds," Proceedings of the 13th International Pipeline Conference, Paper No. IPC2020-9658, September 28 – October 1, 2020, Calgary, AB, Canada.

158 **Wang, Y.-Y.**, Jia, D., Wang. J., Dekhane, A., Quintana, M., "Application of Essential Welding Variable Methodology in Addressing Low Girth Weld Strain Capacity Issues and Path to Standard Revision," Paper No. 3, 22nd Joint Technical Meeting of APGA-EPRG-PRCI, Brisbane, Australia, April 29 – May 3, 2019 (information for PRCI/EPRG/APIA member only)

157 **Wang, Y.-Y.**, Wang, B., Liu, B., Jia, D., Rapp, S., and Huising, O., "Strain Capacity of Vintage Girth Welds and Integrity Management Process," Paper No. 2, 22nd Joint Technical Meeting of APGA-EPRG-PRCI, Brisbane, Australia, April 29 – May 3, 2019 (information for PRCI/EPRG/APIA member only)

156 **Wang, Y.-Y.**, Jia, D., Johnson, D., Rapp, S., and Horsley, D., "Low Strain Capacity Girth Welds in Newly Constructed Pipelines and Their Implications in Integrity Management," Paper No. 1, 22nd Joint Technical Meeting of APGA-EPRG-PRCI, Brisbane, Australia, April 29 – May 3, 2019 (information for PRCI/EPRG/APIA member only).

155 **Wang, Y.-Y.**, "Strain-Based Design and Assessment – Concepts and Gaps," *Pipeline Integrity Management under Geohazard Conditions*, Paper No. AIMPIMG2019-1067, M. Salama, Y.-Y. Wang, et al., Eds, ISBN: 978-07918-6199-8, ASME, New York, NY, 2020.

154 **Wang, Y.-Y.**, Liu, B., and Wang, B., "Tensile Strain Models and Their Applications," *Pipeline Integrity Management under Geohazard Conditions*, Paper No. AIMPIMG2019-1066, M. Salama, Y.-Y. Wang, et al., Eds, ISBN: 978-07918-6199-8, ASME, New York, NY, 2020.

153 **Wang, Y.-Y.**, Jia, D., Rapp, S., and Johnson, D., "Low Strain Capacity Girth Welds of Newly Constructed Pipelines and Mitigative Approaches," *Pipeline Integrity Management under Geohazard Conditions*, Paper No. AIMPIMG2019-1064, M. Salama, Y.-Y. Wang, et al., Eds, ISBN: 978-07918-6199-8, ASME, New York, NY, 2020.

152 Wang, B., **Wang, Y.-Y.**, Ayton, B., Stephens, M., and Nanney, S., "Assessment of Dents under High Longitudinal Strain," Proceedings of the 12th International Pipeline Conference, Paper No. IPC2018-78797, September 24-28, 2018, Calgary, AB, Canada.

151 **Wang, Y.-Y.**, Rapp, S., Horsley, D., Warman, D., and Gianetto, J., "Attributes of Modern Linepipes and Their Implications on Girth Weld Strain Capacity," Proceedings of the 12th International Pipeline Conference, Paper No. IPC2018-78809, September 24-28, 2018, Calgary, AB, Canada.

150 Zhou, H., **Wang, Y.-Y.**, Bergman, J., Stephens, M., and Nanney, S., "Tensile and Compressive Strain Capacity in the Presence of Corrosion Anomalies," Proceedings of the 12th International Pipeline Conference, Paper No. IPC2018-78802, September 24-28, 2018, Calgary, AB, Canada.

149 Zhou, H., **Wang, Y.-Y.**, Bergman, J., Stephens, M., and Nanney, S., "Burst Pressure of Pipelines with Corrosion Anomalies under High Longitudinal Strains," Proceedings of the 12th International Pipeline Conference, Paper No. IPC2018-78803, September 24-28, 2018, Calgary, AB, Canada.

148 Zhou, H., **Wang, Y.-Y.**, and Nanney, S., "Burst Pressure of Wrinkles under High Longitudinal Strain," Proceedings of the 12th International Pipeline Conference, Paper No. IPC2018-78804, September 24-28, 2018, Calgary, AB, Canada.

147 Rapp, S. and **Wang, Y.-Y.**, "Low Strain Capacity of X70 Pipeline Girth Welds and its Implications on Linepipe Steels," Proceedings of the 2nd International Symposium on the Recent Developments in Plate Steels," June 3-6, 2018, Orlando, Florida, USA.

146 **Wang, Y.-Y.**, Wang, B., Liu, B., and Rapp, S., "Implications of Linepipe Steels with Low Strain Hardening and HAZ Softening on Design, Construction, and Maintenance," 21st Joint Technical Meeting of PRCI/EPRG/APIA, Colorado Springs, Colorado, USA, May 1-5, 2017 (information for PRCI/EPRG/APIA member only).

145 **Wang, Y.-Y.**, Kotian, K., Jia, D., and Wang, A., "Essential Welding Variable Methodology for the Welding of Modern Control-Rolled Microalloyed Linepipes," 21st Joint Technical Meeting of PRCI/EPRG/APIA, Colorado Springs, Colorado, USA, May 1-5, 2017 (information for PRCI/EPRG/APIA member only).

144 **Wang, Y.-Y.**, Horsley, D., and Rapp, S., "Evolution of Linepipe Manufacturing and its Implications on Weld Properties and Pipeline Service," Proceedings of the 11th International Pipeline Conference, Paper No. IPC2016-64632, September 26-September 30, 2016, Calgary, Alberta, Canada.

143 **Wang, Y.-Y.**, Sen, M., and Song, P. "Longitudinal Stress Limits in Pipelines," Proceedings of the 11th International Pipeline Conference, Paper No. IPC2016-64533, September 26-September 30, 2016, Calgary, Alberta, Canada.

142 **Wang, Y.-Y.**, West, D., Dewar, D., McKenzie-Johnson, A., and Sen, M., "Integrity Management of Ground Movement Hazards," Proceedings of the 11th International Pipeline Conference, Paper No. IPC2016-64513, September 26-September 30, 2016, Calgary, Alberta, Canada.

141 Liu, M., **Wang, Y.-Y.**, Sen, M., and Song, P., "Integrity Assessment of Post-Peak-Moment Wrinkles," Proceedings of the 11th International Pipeline Conference, Paper No. IPC2016-64654, September 26-September 30, 2016, Calgary, Alberta, Canada.

140 Kotian, K. and **Wang, Y.-Y.**, "Mechanical Properties of Vintage Girth Welds," Proceedings of the 11th International Pipeline Conference, Paper No. IPC2016-64420, September 26-September 30, 2016, Calgary, Alberta, Canada.

139 Dekhane, A., Wang, A., **Wang, Y.-Y.**, and Quintana, M., "Application of Thermal Analysis Tool for Girth Welding Procedure Qualification," Proceedings of the 11th International Pipeline Conference, Paper No. IPC2016-64629, September 26-September 30, 2016, Calgary, Alberta, Canada.

138 Liu, M., Degen, C., and **Wang, Y.-Y.**, Ota, S., Shimamura, J., Yasuda, K., Ishikawa, N., "Multi-scale ductile fracture modeling for dual-phase high strength steel - Part 2: damage mechanics analysis of Charpy impact toughness of dual-phase high strength steel," Proceedings of Materials Science & Technology Conference, October 4-8, 2015, Columbus, OH, USA.

137 Ota, S., Shimamura, J., Yasuda, K., Ishikawa, N., Liu, M., Degen, C., and **Wang, Y.-Y.**, "Multi-scale ductile fracture modeling for dual-phase high strength steel - Part 1: characterization of dual-phase high strength steel for improved toughness and deformability," Proceedings of Materials Science & Technology Conference, October 4-8, 2015, Columbus, OH, USA.

136 Quintana, M., **Wang, Y.-Y.**, and Dekhane, A., "Essential Welding Variable Methodology and its Application," 20th Joint Technical Meeting of PRCI/EPRG/APIA, Paris, France, May 3-8, 2015 (information for PRCI/EPRG/APIA member only).

135 **Wang, Y.-Y.**, Liu, M., Dekhane, A., Horsley, D., and Sen, M., "Integrity Management of Pipelines Subjected to Ground Movement Hazards," 20th Joint Technical Meeting of PRCI/EPRG/APIA, Paris, France, May 3-8, 2015 (information for PRCI/EPRG/APIA member only).

134 Bruce, B., **Wang, Y.-Y.**, and et al "Guidelines for Interpretation and Application of API Standard 1104," Proceedings of the 10th International Pipeline Conference, Paper No. IPC2014-33207,

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A Few Past Invited Presentations

9. **Wang, Y.-Y.**, "Use of High Strength Steels and Strain-Based Design," Pipeline Opportunities Conference, Houston, TX, March 11, 2009.

8. **Wang, Y.-Y.**, "High Strength Linepipe and Welding Requirements for High Pressure Transmission Pipelines, Second Panel Forum on Hydrogen Pipeline Transmission: Updates and Opportunities, September 25, 2006, Calgary, Alberta, Canada.

7. **Wang, Y.-Y.**, "Optimizing Welding Integrity for High-Strength Steels," Advanced Welding and Joining Workshop," hosted by NIST and DOT, Boulder, Colorado, January 25-26, 2006.

6. **Wang, Y.-Y.**, "Size Requirements in ASTM E740," ASTM E740 Sub-committee meeting, May 17-18, 1999, Seattle, Washington.

5. **Wang, Y.-Y.**, Z. Feng, W. Cheng, and S. Liu, "Residual Stress Effects on Fracture in Multipass Welds: An Elastic-Plastic Perspective," *McNU97, The 1997 Joint ASME, ASCE, SES Summer Meeting*, Northwestern University, Evanston, IL, June 29-July 2, 1997.

4. **Wang, Y.-Y.**, "High Strength Steels and Undermatched Welds: How to Live with the Reality," *78th Annual AWS Convention,* Los Angeles, CA, April 14-17, 1997.

3. Mohr, W. and **Wang, Y.-Y.**, "Hermeticity Modeling of Electronic Packaging," *1996 ASME Mechanics and Materials Conference*, The Johns Hopkins University, June 12-14, 1996.

2. **Wang, Y.-Y.**, M. T. Kirk, and J. R. Gordon, "Incorporating Weld Strength Mismatch into Structural Integrity Assessment of Surface-Cracked Plates," *ASTM Workshop on Fracture Behavior of Surface Cracks*, Denver, CO, May 15, 1996.

1. **Wang, Y.-Y.**, J. R. Gordon, and M. T. Kirk, and J. R. Gordon, "Fracture Testing Procedure and Crack-Tip Fields of HAZ Cracks," *26th National Symposium on Fracture Mechanics*, Shilo Inn, Idaho Falls, ID, June 1994.

Other Research Experience

- Development of material constitutive models for polymeric materials
- Static and dynamic testing of modern plastics
- Modeling of crack propagation and brittle-to-ductile transition in single crystalline metals