

CAROLINE R. BENNETT, PH.D., P.E.

Associate Professor
Department of Civil, Environmental, and Architectural Engineering
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EDUCATION

Ph.D., 2006 *University of Cincinnati – Cincinnati, OH*
Major: Civil and Environmental Engineering, concentrating in Structural Engineering, with an emphasis on steel design and bridge applications

B.S., 2002 *University of Cincinnati – Cincinnati, OH*
Major: Civil and Environmental Engineering, concentrating in Structural Engineering

PROFESSIONAL EXPERIENCE

- 2013 – Present Associate Professor **University of Kansas**
CEAE Department
Lawrence, KS
- 2012 – Present Faculty Fellow **University of Kansas**
Center for Teaching Excellence
Lawrence, KS
- 2006 – 2013 Assistant Professor **University of Kansas**
CEAE Department
Lawrence, KS
- 06/2002 – 12/2005 Research / Teaching Assistant **University of Cincinnati**
Cincinnati, OH
- 06/2004 – 09/2004 Visiting Researcher **University of Canterbury**
Christchurch, New Zealand
- 09/2001 – 06/2002 Student Assistant **University of Cincinnati**
Cincinnati, OH
- 03/1999 – 09/2001 Engineering Co-op
(alternating quarters) **CSX Transportation**
Ft. Wright, KY - Design and Constr.
Jacksonville, FL - Bridge Office

PROFESSIONAL REGISTRATION

- Licensed Professional Engineer in the State of Kansas.

PROFESSIONAL ORGANIZATIONS

- Transportation Research Board, Affiliate 2003 – Present
 - Transportation Research Board (TRB) Committee on Steel Bridges (AFF20). Member, 2006 – Present. Committee Communications Coordinator, 2010 – 2011; 2014 – Present
 - Transportation Research Board (TRB) Subcommittee on Steel Bridge Analysis (AFF20-1). Member 2006 – Present
- National Cooperative Highway Research Program (NCHRP) Panel for Project 10-95: *Toughness Requirements for Heat-Affected Zones of Welded Structural Steels for Highway Bridges*, Transportation Research Board (TRB). Member, 2013 – Present.
- Strategic Highway Research Program 2 (SHRP 2) Renewal Technical Expert Task Group (TETG) for Project R-19A: *Bridges for Service Life Beyond 100 Years: Innovative Systems, Subsystems, and Components*, Transportation Research Board (TRB). Member, 2010 – 2013. (Invited)
- American Iron and Steel Institute (AIS) Steel Market Development Institute (SMDI) Bridge Task Force, Participant, 2013 – 2014. (Invited)
- American Institute of Steel Construction (AISC), Member 2006 – Present
 - Selection panel for the T.R. Higgins Lectureship, 2014 – Present
- American Society of Civil Engineers (ASCE), Member 1997 – Present
 - SEI Technical Activities Division Fatigue and Fracture Committee of the Technical Administrative Committee on Metals. Member 2006 – 2013, Chair 2008 – 2011, Control Group Member 2011 – 2013
 - SEI Technical Activities Division Structural Members Committee of the Technical Administrative Committee on Metals. Member 2006 – Present, Control Group Member 2009 – 2011
 - SEI Technical Activities Division Steel Bridges Committee of the Technical Administrative Committee on Bridges. 2007 – Present, Secretary and Control Group Member 2010 – Present
 - Organized and moderated ASCE / SEI Structures Congress sessions: 2008; 2009; 2010; 2011; 2012; 2014.
 - Organizing ASCE/SEI Metals Technical Activities Committee (TAC) member for 2012 ASCE Structures Congress Pre-Conference Workshop: *Innovation in Design of Steel Structures: Research Needs for Global Competitiveness* (sponsored by ASCE, AISC, and NSF)
- American Society of Engineering Education (ASEE), Member 2005 – 2008; 2012 – Present
- International Society on the Scholarship of Teaching and Learning (ISSoTL), Member 2013 – Present
- American Railway Engineering and Maintenance-of-Way Association (AREMA), Member 1999 – 2004
- Journal and Proposal Reviewer for: *ASCE Journal of Structural Engineering*; *ASCE Journal of Bridge Engineering*; *ASCE Journal of Composites for Construction*; Elsevier's *Engineering Structures*; ASTM's *Journal of Testing and Evaluation*; Wiley's *Computer-Aided Civil and Infrastructure Engineering*;

Canadian Society for Mechanical Engineering *Transactions*; TRB *Transportation Research Record*;
Natural Sciences and Engineering Research Council of Canada (NSERC).

AWARDS AND HONORS

- University of Kansas School of Engineering Miller Scholar Recipient (2014)
- Recipient of the American Iron and Steel Institute (AISI) Steel Market Development Institute (SMDI) Robert J. Dexter Memorial Lecture (2013)
- University of Kansas School of Engineering Miller Scholar Recipient (2013)
- University of Kansas School of Engineering Bellows Scholar Recipient (2012)
- University of Kansas Center for Teaching Excellence (CTE) Faculty Fellow, 2012 - Present
- University of Kansas School of Engineering Faculty Marshal (2012)
- University of Kansas School of Engineering Miller Scholar Award Recipient (2011)
- Selected by the Kansas Department of Transportation to represent KU by presenting results of bridge fatigue research to the Kansas Secretary of Transportation and the KTRAN Research Program Council (2011)
- U.S. Department of Education Graduate Assistance in Areas of National Need (GAANN) Fellow, 2002 - 2005

PUBLICATIONS

Papers

- Lin, C., Han, J., Bennett, C., and Parsons, R. (2014). "Behavior of laterally-loaded piles under scour conditions considering stress history of undrained soft clay," Accepted for publication (Technical Note) in the *ASCE Journal of Geotechnical and Geoenvironmental Engineering*, American Society of Civil Engineers (ASCE). In Press.
- Lin, C., Han, J., Bennett, C., and Parsons, R. (2014). "Analysis of laterally-loaded piles in sand considering scour hole dimensions," Accepted for publication in the *ASCE Journal of Geotechnical and Geoenvironmental Engineering*, American Society of Civil Engineers (ASCE). In Press.
- Simmons, G., Bennett, C., Matamoros, A., Barrett-Gonzalez, R., and Rolfe, S. (2014). "Improving the Fatigue Performance of Drilled Holes in Steel Bridges through Use of Mechanical Treatments," *Proc. Annual Transportation Research Board Meeting*, Transportation Research Board, Washington, D.C.
- Hartman, A., Bennett, C., Matamoros, A., and Rolfe, S. (2013). "Innovative Retrofit Technique for Distortion-Induced Fatigue Cracks in Steel Girder Web Gaps," *Journal of Bridge Structures*, IOS Press, (9), 57-71.
- Alemdar, F., Nagati, D., Matamoros, A., Bennett, C., and Rolfe, S. (2013). "Repairing Distortion-Induced Fatigue Cracks in Steel Bridge Girders using Angles-with-Plate Retrofit Techniques, Part I: Physical Simulations." *Journal of Structural Engineering*, American Society of Civil Engineers (ASCE), 140 (5).
- Alemdar, F., Overman, T., Matamoros, A., Bennett, C., and Rolfe, S. (2013). "Repairing Distortion-Induced Fatigue Cracks in Steel Bridge Girders using Angles-with-Plate Retrofit Techniques, Part II:

Computer Simulations.” *Journal of Structural Engineering*, American Society of Civil Engineers (ASCE), 140 (5).

- Alemdar, F., Gangel, R., Matamoros, A., Bennett, C., Barrett-Gonzalez, R., Rolfe, S., and Liu, H. (2013). “Use of CFRP Overlays to Repair Fatigue Damage in Steel Plates under Tension Loading,” *ASCE Journal of Composites for Construction*, American Society of Civil Engineers (ASCE), 2014.18.
- Hassel, H., Bennett, C., Matamoros, A., and Rolfe, S. (2013). “Parametric Analysis of Cross-Frame Layout on Distortion-Induced Fatigue in Skewed Steel Bridges,” *Journal of Bridge Engineering*, American Society of Civil Engineers (ASCE), 18(7), 601-611.
- Simmons, G., Bennett, C., Barrett-Gonzalez, R., Matamoros, A., and Rolfe, S. (2013). “Design, Modeling, and Testing of a Piezoelectric Impact Compressive Kinetic (PICK) Tool for Crack-Stop Hole Treatment, Proceedings of the SPIE Smart Structures / NDE Conference, SPIE, San Diego, CA, March 10-14, 2013.
- Richardson, T., Alemdar, F., Bennett, C., Matamoros, A., and Rolfe, S. “Evaluation of the Performance of Retrofit Measures for Distortion-Induced Fatigue Using Finite Element Analysis,” National Steel Bridge Alliance (NSBA) World Steel Bridge Symposium (WSBS) 2012 Proceedings, April 18-20, 2012.
- Richardson, T., Alemdar, F., Bennett, C., Matamoros, A., and Rolfe, S. (2012). “Retrofit Measures for Distortion-Induced Fatigue,” *Modern Steel Construction*, American Institute of Steel Construction (AISC), 52 (4), 32-34.
- Alemdar, F., Matamoros, A., Bennett, C., Barrett-Gonzalez, R., and Rolfe, S. (2012). “Use of CFRP Overlays to Strengthen Welded Connections under Fatigue Loading,” *Journal of Bridge Engineering*, American Society of Civil Engineers (ASCE), 17(3), 420-431.
- Kaan, B., Alemdar, F., Bennett, C., Matamoros, A., Barrett-Gonzalez, R., and Rolfe, S. (2012). “Fatigue Enhancement of Welded Details in Steel Bridges Using CFRP Overlay Elements,” *Journal of Composites for Construction*, American Society of Civil Engineers (ASCE), 16(2) 138-149.
- Lin, C., Bennett, C., Han, J., and Parsons, R. (2011). “Integrated Analysis of the Performance of Pile-Supported Bridges under Scoured Conditions,” *Engineering Structures*, Elsevier, 36, 27-38.
- Vilhauer, B., Bennett, C., Matamoros, A., and Rolfe, S. (2011). “Fatigue Behavior of Welded Coverplates Treated with Ultrasonic Impact Treatment and Bolting,” *Engineering Structures*, Elsevier, 34, 163-172.
- Alemdar, F., Matamoros, A., Bennett, C., Barrett-Gonzalez, R., and Rolfe, S. (2011). “Improved Method for Bonding CFRP Overlays to Steel for Fatigue Repair,” Proceedings of the American Society of Civil Engineers (ASCE) / Structural Engineering Institute (SEI) Structures Congress, Las Vegas, NV, April 14-16, 2011.
- Hartman, A., Hassel, H., Adams, C., Bennett, C., Matamoros, A., and Rolfe, S. (2010). “Effects of lateral bracing placement and skew on distortion-induced fatigue in steel bridges,” *Transportation Research Record: The Journal of the Transportation Research Board*, No. 2200, Dec, 62-68.
- Crain, J., Simmons, G., Bennett, C., Barrett-Gonzalez, R., Matamoros, A., and Rolfe, S. (2010). “Development of a technique to improve fatigue lives of crack-stop holes in steel bridges,” *Transportation Research Record: The Journal of the Transportation Research Board*, No. 2200, Dec, 69-77.
- Lin, C., Bennett, C., Han, J., and Parsons, R. (2010). “Scour effects on the response of laterally loaded piles considering stress history of sand,” *Computers and Geotechnics*, Elsevier, No. 37, Nov, 1008-1014.
- Lin, C., Bennett, C., Parsons, R., and Han, J. (2010) “Analysis of bridge response considering water-soil-pile-structure interaction under a scoured condition,” Geotechnical Special Publication No. 205, *Deep*

Foundations and Geotechnical in Situ Testing, American Society of Civil Engineers (ASCE), June, 73-80.

- Lin, C., Bennett, C., Han, J., and Parsons, R. “*p-y* based approach for buckling analysis of axially loaded piles under scoured conditions,” Proceedings of the American Society of Civil Engineers (ASCE) / Structural Engineering Institute (SEI) Structures Congress, Orlando, FL, May 12-15, 2010.
- Hassel, H., Hartman, A., Bennett, C., Matamoros, A., and Rolfe, S. “Distortion-induced fatigue in steel bridges: causes, parameters, and fixes,” Proceedings of the American Society of Civil Engineers (ASCE) / Structural Engineering Institute (SEI) Structures Congress, Orlando, FL, May 12-15, 2010.
- Bennett, C., Swanson, J., and Linzell, D. (2009). “Fatigue resistance of HPS-485W (70W) welded butt-splice connections,” Technical note, *Journal of Bridge Engineering*, American Society of Civil Engineers (ASCE), 14(6), Nov/Dec, 529-536.
- Alemdar, F., Kaan, B., Bennett, C., Matamoros, A., Barrett-Gonzalez, R., and Rolfe, S. “Parameters Affecting Behavior of CFRP Overlay Elements as Retrofit Measures for Fatigue Vulnerable Steel Bridge Girders,” Proceedings of the Fatigue and Fracture in the Infrastructure Conference, Philadelphia, PA, July 26-29, 2009.
- Lin, C., Bennett, C., Parsons, R., and Han, J. “Evaluation of the Group Equivalent Pile Approach for Laterally Loaded Bridge Pile Foundations,” Proceedings of the 34th Annual Conference on Deep Foundations, Deep Foundations Institute (DFI), Kansas City, MO, October 21-23, 2009.
- Bennett, C., Lin, C., Parsons, R., and Han, J. “Evaluation of Behavior of a Laterally Loaded Bridge Pile Group Under Scour Conditions,” Proceedings of the American Society of Civil Engineers (ASCE) / Structural Engineering Institute (SEI) Structures Congress, Austin, TX, April 28-May 1, 2009.
- Liang, F., Bennett, C., Parsons, R., Han, J., and Lin, C. “A Literature Review on Behavior of Scoured Piles Under Bridges,” Contemporary Topics in In-Situ Testing, Testing, Analysis, and Reliability of Foundations, Selected papers from the International Foundation Congress and Equipment Expo, Orlando, FL, March 15-19, 2009.
- Jones, J., Bennett, C., Matamoros, A., Rolfe, S., and Roddis, K. “Fighting fatigue in steel bridges,” *TR News*, Transportation Research Board (TRB), Nov/Dec, Issue 259, 2008.
- Kaan, B., Barrett, R., Bennett, C., Matamoros, A., and Rolfe, S. “Fatigue enhancement of welded coverplates using carbon-fiber composites,” Proceedings of the American Society of Civil Engineers (ASCE) / Structural Engineering Institute (SEI) Structures Congress, Vancouver, BC, April 24-26, 2008.
- Kayser (Bennett), C., Swanson, J., and Linzell, D. (2007). Closure to “Characterization of Material Properties of HPS-485W (70W) TMCP for Bridge Applications,” *Journal of Bridge Engineering*, American Society of Civil Engineers (ASCE), Jul/Aug, 12 (4).
- Bennett, C., Swanson, J., and Linzell, D. (2007). “Fatigue characteristics of HPS-485W (70W) continuous plate with punched holes,” *Journal of Bridge Engineering*, American Society of Civil Engineers (ASCE), 12(1), Jan/Feb, 98-104.
- Kayser (Bennett), C., Swanson, J., and Linzell, D. (2006). “Characterization of Material Properties of HPS-485W (70W) TMCP for Bridge Girder Applications,” *Journal of Bridge Engineering*, American Society of Civil Engineers (ASCE), 11 (1), Jan/Feb, 99-108.
- Kayser (Bennett), C., Amrine, J., and Swanson, J. “Use of In-Class Streaming of Material in Engineering,” *Proceedings of the American Society for Engineering Education (ASEE) Annual Conference and Exposition*, ASEE, June, 2005.

Book Chapters

- Barrett, Gonzalez, R., Rolfe, S., Matamoros, A., and Bennett, C. (2014). "Extending the fatigue life of steel bridges using fiber-reinforced polymer (FRP) composites." *Rehabilitation of Metallic Civil Infrastructure using Fiber-Reinforced Polymer (FRP) Composites*, 1st ed., Woodhead Publishing, Cambridge, UK, 269-319.

Patents

- Barrett, R., 25%; Bennett, C., 25%; Rolfe, S., 25%; and Matamoros, A., 25%. (2012). "Apparatus and Method for Enhancement of Connection Performance and Fatigue Detection," US Patent Application 12/687,840, Filed 1/14/2010, Issued 06/19/2012.
- Barrett, R., 25%; Bennett, C., 25%; Rolfe, S., 25%; and Matamoros, A., 25%. (2012). "Method for Enhancing the Fatigue Life of a Structure," US Patent Application 13/687524,847, Filed 06/15/2012, Issued 01/01/2013.

Reports

- Bennett, C., Matamoros, A., Barrett-Gonzalez, R., and Rolfe, S. "Enhancement of Welded Steel Bridge Girders Susceptible to Distortion-Induced Fatigue," Final Report for Transportation Pooled-Fund Study TPF-5(189), June, 2014.
- Lin, C., Bennett, C., Han, J., Parsons, R., and Parr, D. "Capacity of Scour-Damaged Bridges, Part II: Integrated Analysis Program (IAP) – A Program for the Analysis of Lateral Performance of Pile-Supported Structures under Scour Conditions," Final Report to the Kansas Department of Transportation, Project KTRAN KU-10-2, May, 2013.
- Crain, J., Simmons, G., Bennett, C., Barrett-Gonzalez, R., Matamoros, A., and Rolfe, S. "Development of a Technique to Improve Fatigue Lives of Crack-Stop Holes in Steel Bridges" Final Report to the University of Kansas Transportation Research Institute, January, 2010.
- Crain, J., Simmons, G., Bennett, C., Barrett-Gonzalez, R., Matamoros, A., and Rolfe, S. "Development of a Technique to Improve Fatigue Lives of Crack-Stop Holes in Steel Bridges" Final Report to the Kansas Department of Transportation, Project KTRAN KU-09-3, December, 2009.
- Vilhauer, B., Bennett, C., Matamoros, A., and Rolfe, S. "Fatigue Behavior of Welded Connections Enhanced with UIT and Bolting," Final Report to the Kansas Department of Transportation, Project KTRAN, KU-07-1, March, 2008.
- Anderson, B., Rolfe, S., Matamoros, A., Bennett, C., and Bonetti, S. "Post Retrofit Analysis of the Tuttle Creek Bridge, BR. NO. 16-81-2.24," Final Report to the Kansas Department of Transportation, Project KTRAN, KU-01-5, January, 2007.
- Swanson, J., Linzell, D., Bennett C., and Lin M. "Verification of Performance and Design Criteria for High Performance Steel Bridges," Final Report to the Ohio Department of Transportation, Project FHWA/OH-2006/2, January, 2006.
- Kayser (Bennett), C. "High Performance Steel Bridge Girders: Performance and Design," thesis, presented to the University of Cincinnati at Cincinnati, OH, in partial fulfillment of the requirements for the degree of Doctor of Philosophy, December, 2005.

PRESENTATIONS

- “Effects of Cross-Frame Layout on Lateral Bending Stresses and Brace Effectiveness in Skewed Steel Bridges,” 15th European Bridge Conference, London, U.K., July 8, 2014.
- “Improving the Fatigue Performance of Drilled Holes in Steel Bridges through Use of Mechanical Treatments,” Annual Transportation Research Board Meeting, Washington, D.C., January 15, 2014.
- “Innovative Retrofit Technique for Distortion-Induced Fatigue Cracks in Steel Girder Web Gaps,” 7th New York City Bridge Conference, New York, NY, August 26, 2013.
- “Robert Dexter Memorial Lecture: Advances in Repairing Distortion-Induced Fatigue Cracking in Steel Bridges,” American Iron and Steel Institute (AISI) Steel Market Development Institute (SMDI) Steel Bridge Task Force, Baltimore, MD, August 1, 2013. Invited.
- “Repairing Distortion-Induced Fatigue in Steel Bridges,” 2013 Structures Congress, American Society of Civil Engineers (ASCE), Pittsburgh, PA, Fatigue and Fracture Committee, May 3, 2013.
- “Repairing Distortion-Induced Fatigue in Steel Bridges without Disturbing Concrete Decks,” 2013 Structures Congress, American Society of Civil Engineers (ASCE), Pittsburgh, PA, Steel Bridge Committee, May 3, 2013.
- “Designing with Steel-Concrete Composite Columns,” University of Kansas Professional Development Series, Kansas City, MO, April 8, 2013.
- “Evaluation of the Performance of Retrofit Measures for Distortion-Induced Fatigue Using Finite Element Analysis,” 2012 National Steel Bridge Alliance (NSBA) World Steel Bridge Symposium (WSBS), Grapevine, TX, April 19, 2012.
- “Update on TPF-5(189), Enhancement of Welded Steel Bridge Girders Susceptible to Distortion-Induced Fatigue,” 2012 Structures Congress, American Society of Civil Engineers (ASCE), Chicago, IL. Fatigue and Fracture Committee, March 29, 2012.
- “Research: Fatigue and Fracture,” University of Kansas Structures Conference, Lawrence, KS, March 8, 2012. Invited.
- “Designing (and Redesigning) for Fatigue in Steel Structures,” University of Kansas Professional Development Series, Kansas City, MO, February 20, 2012.
- “Research: Fatigue and Fracture Control of Steel Bridges,” Presentation to University of Cincinnati Graduate Seminar, Cincinnati, OH, May 27, 2011. Invited.
- “KU/KTRAN Research: Fatigue and Fracture Control of Steel Bridges in Kansas,” Presentation to the Kansas Secretary of Transportation and KTRAN Research Council, Topeka, KS, April 1, 2011. Invited.
- “An Influence Surface Guided Approach to Understanding Steel Bridge System Behavior Under Distortion-Induced Fatigue,” Annual Transportation Research Board (TRB) meeting, Washington DC, Jan. 25, 2011.
- “Bracing for Stability in Steel Structures,” University of Kansas Professional Development Series, Kansas City, MO, April 12, 2010.
- “Development of a technique to improve fatigue lives of crack-stop holes in steel bridges,” Poster, 7th International TRB Bridge Engineering Conference, San Antonio, TX, Dec. 1-3, 2010.
- “Parameters Affecting Behavior of CFRP Overlay Elements as Retrofit Measures for Fatigue Vulnerable Steel Bridge Girders,” Fatigue and Fracture in the Infrastructure, Philadelphia, PA, July 26-29, 2009.

- “Evaluation of Behavior of a Laterally Loaded Bridge Pile Group Under Scour Conditions,” 2009 American Society of Civil Engineers (ASCE) / Structural Engineering Institute (SEI) Structures Congress, Austin, TX, May 1, 2009.
- “Development of Carbon-Fiber Overlays for Fatigue Enhancement of Steel Bridge Girders,” American Society of Civil Engineers (ASCE) / Structural Engineering Institute (SEI) Structures Congress, Vancouver, Canada, April 24, 2008.
- “Development of Carbon-Fiber Overlays for Fatigue Enhancement of Steel Bridge Girders,” Annual Transportation Research Board (TRB) Meeting, Committee on Steel Bridges (AFF20), Washington, D.C., January 14, 2008.
- “Load and Resistance Factor Design of Steel Plate Girders,” University of Kansas Professional Development Series, Kansas City, MO, March 24, 2007.
- “Fatigue Behavior of Welded Connections Enhanced with UIT and Bolting,” American Society of Civil Engineers (ASCE) / Structural Engineering Institute (SEI) Structures Congress, American Society of Civil Engineers (ASCE), Long Beach, CA. Committee on Flexural and Compression Members, 2007.
- “Live Load Distribution in Two HPS Bridges,” American Society of Civil Engineers (ASCE)/ Structural Engineering Institute (SEI) Structures Congress, St. Louis, MO, 2006.
- “Fatigue Characteristics of HPS-70W Connections,” 51st Structural Engineering Conference, University of Kansas, Lawrence, KS, March 1, 2006. Invited.
- “Use of In-Class Streaming of Material in Engineering,” *Proceedings of the American Society for Engineering Education (ASEE) Annual Conference and Exposition*, ASEE, 2005.
- “Live Load Response of a Skewed, HPS Bridge,” American Society of Civil Engineers (ASCE) / Structural Engineering Institute (SEI) Structures Congress, Nashville, TN. Committee on Flexural and Compression Members, 2004.
- “Fatigue Behavior of Welded Connections Enhanced with UIT and Bolting,” Presentation to the Kansas Section of ASCE, Topeka, KS, April 5, 2007. Invited.
- “High Performance Steel: Material Characterization and Fatigue Performance.” Presentation to KU Chapters of SEAKM and EERI, April 27, 2006. Invited.
- “Verification of Design and Performance Criteria of HPS-70W through Study of an HPS Bridge: Presentation of Findings-To-Date to ODOT.” April 12, 2004.

RESEARCH GRANTS

(Principal Investigator unless noted otherwise.)

- “Mitigation of Weldment Cracking of Highway Steel Structures Due to the Galvanizing Process,” Funded for \$499,975 by the National Cooperative Highway Research Program (NCHRP). Project Duration: 07/01/2014 – 12/31/2016. Co-PI: Jian Li; Co-PI: Adolfo Matamoros; Co-PI: Stan Rolfe
- “Development of Distortion-Induced Fatigue Retrofits for Skewed Steel Bridge Girders,” Funded for \$60,000 by the Mid America Transportation Center (MATC). Project Duration: 06/01/2013 – 12/31/2014. Co-PI: Adolfo Matamoros; Co-PI: Stan Rolfe
- “Repair of Floorbeam-to-Stringer Connections Affected by Distortion-Induced Fatigue,” Funded for \$72,884 by the Mid America Transportation Center (MATC). Matched with additional \$30,000 by KU TRI. Total Project Award \$102,884. Project Duration: 06/01/2012 – 12/31/2013. Co-PI: Adolfo Matamoros; Co-PI: Stan Rolfe

- “Skewed Steel Bridges, Part 1: Effect of Cross-Frame Layout on Lateral Flange Bending Stresses,” Funded for \$80,000 by the Kansas Department of Transportation (KDOT). Project Duration: 07/01/2012 – 01/31/2013. Co-PI: Adolfo Matamoros; Co-PI: Stan Rolfe
- “Skewed Steel Bridges, Part II: Cross-Frame and Connection Design to Ensure Brace Effectiveness,” Funded for \$64,000 by the Kansas Department of Transportation (KDOT). Project Duration: 07/01/2012 – 01/31/2013. Co-PI: Adolfo Matamoros; Co-PI: Stan Rolfe
- “Repair of Distortion-Induced Fatigue Damage in Bridge No. 135-87 (043SB and 044NB) Using Newly-Developed Strengthening Schemes,” Funded for \$122,222 by the Kansas Department of Transportation (KDOT). Project Duration: 11/01/11 – 06/30/2013. Co-PI with PI: Adolfo Matamoros; Co-PI: Stan Rolfe; Co-PI: Ron Barrett
- “Improving Infrastructure Sustainability I: Extending Useable Lives of Steel Bridges by Halting Distortion-Induced Fatigue Crack Propagation Using Fully-Tightened Bolts and Plate Washers,” Funded for \$72,000 by the Kansas Department of Transportation (KDOT). Project Duration: July, 2010 - June, 2012. Co-PI: Adolfo Matamoros; Co-PI: Stan Rolfe; Co-PI: Ron Barrett-Gonzalez
- “Improving Infrastructure Sustainability II: Repairing Existing Fatigue Cracks in Steel Bridges Using CFRP Materials,” Funded for \$72,000 by the Kansas Department of Transportation (KDOT). Project Duration: July, 2010 - June, 2012. Co-PI with PI: Adolfo Matamoros; Co-PI: Stan Rolfe; Co-PI: Ron Barrett
- “Capacity of Scour-Damaged Bridges, Part II” Funded for \$67,500 by the Kansas Department of Transportation (KDOT). Project Duration: March, 2010 - August, 2012. Co-PI: Robert Parsons; Co-PI: Jie Han; Co-PI: Alfred Parr
- “Fatigue Enhancement of Drilled, Undersized Crack-Stop Holes,” Funded for \$60,000 by the Kansas Department of Transportation (KDOT). Project Duration: July, 2008 - December, 2009. Co-PI: Ron Barrett-Gonzalez; Co-PI: Adolfo Matamoros; Co-PI: Stan Rolfe
- “Enhancement of Welded Steel Bridge Girders Susceptible to Distortion-Induced Fatigue,” Funded for \$1,040,000. Transportation Pooled Fund (TPF) Study. Matched with additional \$254,540 from KU TRI and KU SOE. Total Project Award \$1,294,540. Participating partners are: CA, FHWA, IA, IL, KS, LA, NJ, NY, OR, PA, TN, WA, WI, WYDOT. Project Duration: September, 2008 - August, 2013. Co-PI: Adolfo Matamoros; Co-PI: Stan Rolfe; Co-PI: Ron Barrett-Gonzalez
- “Capacity of Scour-Damaged Bridges,” Funded for \$94,000 by the Kansas Department of Transportation (KDOT). Project Duration: July, 2007 - March, 2010. Co-PI: Robert Parsons; Co-PI Steve McCabe; Co-PI: Jie Han; Co-PI: Alfred Parr
- “Fatigue Performance of Skewed Steel Bridge Girder Systems Treated with UIT, Bolting, and Composites,” Funded for \$75,000 by the Kansas Department of Transportation (KDOT). Project Duration: July, 2007 - October, 2009. Co-PI with PI: Stan Rolfe; Co-PI: Adolfo Matamoros; Co-PI: Ron Barrett
- “Fatigue Behavior of Welded Connections Enhanced with UIT and Bolting,” Funded for \$62,500 by the Kansas Department of Transportation (KDOT). Project Duration: July, 2006 - March, 2008. Co-PI: Stan Rolfe; Co-PI: Adolfo Matamoros
- “Fatigue Enhancement of Undersized Crack-Stop Holes Treated with Ultrasonic Impact Treatment,” Funded for \$82,090 by the University of Kansas Transportation Research Institute (TRI). Project Duration: November, 2007 - November, 2009. Co-PI: Ron Barrett-Gonzalez, Co-PI: Adolfo Matamoros, Co-PI: Stan Rolfe

- “Composite Material Systems for Use in Bridge Applications,” Funded for \$225,000 by the University of Kansas Transportation Research Institute (TRI). August, 2006 - August, 2008. Co-PI with PI: Ron Barrett; Co-PI: Adolfo Matamoros; Co-PI: Stan Rolfe

CHAIRPERSON ON EXAMINATIONS

Ph.D. Students

| Student Name | Thesis | Graduated |
|---------------------|-------------------------------------------------------------------------------------------|------------------|
| Gary Simmons | Fatigue enhancement of undersized, drilled crack-arrest holes | Fa 2013 |
| Amanda Hartman | Analytical and experimental investigation for distortion-induced fatigue in steel bridges | Sp 2013 |
| Cheng Lin | Evaluation of lateral behavior of pile-supported bridges under scour conditions | Sp 2012 |

M.S. Students

| Student Name | Thesis | Graduated |
|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| Eric Bonet | Using fiber reinforced polymers to retrofit steel bridge girders damaged by fatigue loading | Sp 2014 |
| Say Hak Bun | Retrofit techniques for distortion-induced fatigue damage in steel bridge girders | Sp 2014 |
| Jack Przywara | Applications of the extended finite element method (XFEM) for the analysis of distortion-induced fatigue cracking in highway bridge girders | Sp 2013 |
| Jeff Wheeler | Use of bolted CFRP overlay elements for fatigue enhancement of welded coverplates in steel bridge girders | Sp 2013 |
| Regan Gangel | Use of CFRP overlays to repair fatigue damage in steel bridge girders and components | Sp 2012 |
| Temple Overman | Analytical investigation of repair methods for fatigue cracks in steel bridges | Sp 2012 |
| Daniel Nagati | Repair of steel bridge girders damaged by distortion-induced fatigue | Sp 2012 |
| Heidi Hassel | An analytical investigation of distortion-induced fatigue in steel bridges | Sp 2011 |
| Josh Crain | Fatigue enhancement of undersized, drilled crack-stop holes | Sp 2010 |
| Ben Kaan | Fatigue enhancement of Category E' details in steel bridge girders using CFRP materials | Su 2008 |
| Ismael Saifan | Fatigue life evaluation and increasing fatigue resistance: the study of the fatigue life of structural steel | Sp 2008 |
| Brian Vilhauer | Fatigue behavior of welded connections enhanced with UIT and bolting | Sp 2007 |

TEACHING EXPERIENCE

Classroom Experience

| Course Title | Semester(s) Taught | |
|----------------------------------------------|------------------------------------------------------------------|---------------|
| CE 461, Structural Analysis | Sp 06, Fa 06, Fa 09, Fa 10, Fa 11, Fa 12, | U. Kansas |
| CE 562, Structural Design I | Sp 07, Fa 07, Sp 08, Sp 09, Sp 10, Sp 11, Sp 12, Sp 13, Sp 14 | U. Kansas |
| CE 765, Advanced Steel Design I | Fa 09, Fa 10, Fa 12 | U. Kansas |
| CE 766, Advanced Steel Design II | Fa 07, Fa 11, Fa 13 | U. Kansas |
| CE 810, Theory of Elastic Stability | Fa 13 | |
| LA&S 792, Being an Effective College Teacher | Sp 13, Sp 14 | U. Kansas |
| CEE 381, Structures I | Sp 05 | U. Cincinnati |
| CEE 375, Basic Strengths of Materials | Fa 05 | U. Cincinnati |

Teaching Improvement Activities

- Organizer and leader for the 2014 Center for Teaching Excellence (CTE) Best Practices Institute (BPI) Workshop
- Peer Triad Program – a structured year-long teaching inquiry and peer review program, with three colleagues from across KU’s campus; 2012-2013
- 2013 International Society for the Scholarship of Teaching and Learning (ISOTTL) meeting, Raleigh, NC, October 2-5, 2013
- Organizer and leader for the 2013 Center for Teaching Excellence (CTE) Best Practices Institute (BPI) Workshop
- Leader for 2013 New Graduate Teaching Assistant (GTA) Conference, University of Kansas, Follow-up Session: “Designing a Course for Engaged Learning.”
- Leader for New Graduate Teaching Assistant (GTA) Conference, University of Kansas, Session: “Young Age as an Asset,” 2007-2012
- KU School of Engineering 2012 Teaching Workshop: “SCALE-UP: Student Centered Active Learning Environment for Undergraduate Programs,” Robert Beichner and Lisa Benson.
- National Effective Teaching Institute (NETI) three-day focused teaching workshop; Vancouver, BC, Canada; June 23-25, 2011
- KU School of Engineering 2011 Teaching Workshop: “Active Learning,” Richard Felder and Rebecca Brent
- 2007 Faculty Seminar (KU Center for Teaching Excellence) – a semester-long structured inquiry into teaching practices, with four other KU faculty members.
- Leader and organizer for KU Center for Teaching Excellence (CTE) 2007 Best Practice Institute (BPI) Workshop

- Center for Teaching Excellence (CTE) 2006 Best Practice Institute (BPI) Workshop, and developing an online teaching portfolio with the assistance of CTE
- KU School of Engineering 2006 Teaching Workshop: “Teaching for Learning: Student Misconceptions and How to Address Them.”
- Benefited from a structured, positive teaching mentorship at the University of Cincinnati
- Participant in Preparing Future Faculty (PFF) course sequence at the University of Cincinnati
- Participated in advanced teaching courses in the College of Education at the University of Cincinnati

UNIVERSITY SERVICE

University

- KU University Committee on Promotion and Tenure (UCPT) (2014 – Present)
- KU Center for Teaching Excellence (CTE) Faculty Fellow (2012 – Present)
- KU University Planning and Resource Committee (2013 – Present)
- KU Center for Teaching Excellence (CTE) Associate Director Search Committee (2014)
- Ambassador to the KU Center for Teaching Excellence (CTE) (2006 – 2013)
- Session Leader for Annual KU Graduate Teaching Assistant (GTA) Conference; Four occasions annually

School of Engineering

- School of Engineering SELF Fellowship Faculty Committee (2007 – Present)
- School of Engineering SELF Fellowship Director Search Committee (2012)
- School of Engineering SELF Fellowship Senior Coordinator Search Committee (2012)
- School of Engineering LEEP2 Classroom Design Committee (2012 – Present)
- School of Engineering LEEP2 Advisory Group – Design of High Bay Facility (2012 – Present)
- School of Engineering Senate Engineering Library Committee (2006 – 2008)

Department of Civil, Environmental, and Architectural Engineering

- CEAE Retention Committee (2013 – Present)
- CEAE ABET Committee (2013 – Present)
- CEAE Faculty Search Committee – Four structures positions (2013)
- CEAE Faculty Search Committee – Department Chair (2013)
- Professional Development Series Presentations (2007, 2010, 2012, 2013)
- Faculty Advisor to the ASCE student Steel Bridge Competition (2006 – Present)
- KU Structural Engineering Conference Planning Committee
 - Conference Co-chair (2012-Present)

- Committee Member (2006 – Present)
- Session Moderator (2006 – Present)
- CEAE Computing Committee (2013-Present)
- CEAE Scholarship Committee (2007-2009)
- CEAE Graduate Studies Committee (2007-2009)
- CEAE ABET PLAN Ad Hoc Committee (2006)

LAST REVISION DATE

August 18, 2014