Dr. Karim Heinz Muci-Kuchler

EDUCATION

Ph.D., Major in Engineering Mechanics. (January 1989 to December 1992).
Iowa State University, Ames, Iowa, USA.

- Honors: Tau Beta Pi, Phi Kappa Phi, and Sigma Xi
- Grade point average: 4.00 on the scale from 0 to 4.
- Dissertation: Use of the Conventional and Tangent Derivative Boundary Integral Equations for the Solution of Problems in Linear Elasticity. (Advisor: Professor Thomas J. Rudolphi).

M.E., Major in Mechanical Engineering. (January 1987 to December 1988).
Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), Monterrey Campus, Monterrey, Nuevo Leon, Mexico.

- Grade point average: 9.92 in the scale from 0 to 10.
- Thesis: Analysis of Thin Flat Plates Using Conforming, Non-Conforming and Nodal Finite Element Methods. (Advisor: Professor Daniel Meade Monteverde).

Bachelor's Degree in Mechanical-Electrical Engineering. (January 1982 to December 1985).
Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), Monterrey Campus, Monterrey, Nuevo Leon, Mexico.

- Graduated with Honorific Mention and the highest grade point average of a graduating class of 57 students.
- Grade point average: 9.70 in the scale from 0 to 10.
- Senior Design Project: Design of the Feedback Transducers for a Robotic Manipulator with Three Degrees of Freedom.

INTEREST AREAS

- STEM Education.
- Computational Mechanics.
- Solid Mechanics.
- Product Development.
- Biomechanics.

COURSES PREVIOUSLY TAUGHT AT THE GRADUATE LEVEL

- Continuum Mechanics.
- Theory of Elasticity.
- Advanced Strength of Materials.
- Applied Engineering Analysis (Numerical Methods).
- Finite Element Method in Engineering.
- Introduction to the Boundary Element Method.

- Product Planning and Development.
- Systems Architecture.

COURSES PREVIOUSLY TAUGHT AT THE UNDERGRADUATE LEVEL

- Introduction to Mechanical Engineering.
- Statics.
- Dynamics.
- Introduction to Solid Mechanics.
- Introduction to Fluid Mechanics.
- Mechanics of Materials.
- Design of Machine Elements.
- Numerical Methods for Mechanical Engineers.
- Introduction to the Finite Element Method.
- Applied Finite Element Analysis.
- Computer Aided Design.
- Mechanical Vibrations.
- Product Design and Development.
- Senior Design.

WORK EXPERIENCE

Texas State University, Ingram School of Engineering, San Marcos, Texas, USA. (January 2022 until present).

- Professor with tenure (January 2022 until present).
- Mechanical Engineering Academic Program Coordinator (January 2022 until present).

South Dakota School of Mines and Technology, Mechanical Engineering Department, Rapid City, South Dakota, USA. (August 2002 to December 2021).

- Professor (July 2009 to December 2021).
- Tenured (Tenure granted in July 2008).
- Associate Professor (August 2002 to June 2009).
- Director, Experimental and Computational Mechanics Laboratory (August 2017 to December 2021)
- Co-Director, Experimental and Computational Mechanics Laboratory (August 2011 to August 2017).
- Co-Director, Computational Mechanics Laboratory (September 2005 to August 2011).
- Interim Co-Director, Computational Mechanics Laboratory (August 2004 to September 2005).

University of Detroit Mercy, Mechanical Engineering Department, Detroit, Michigan, USA. (January 1999 to August 2002).

- Associate Professor (January 1999 to August 2002).

- Associate Director for Academic Programs of the Mexican American Partnership (MAP) Program in the College of Engineering and Science (January to December 1999).

Ford Motor Co., Dearborn, Michigan, USA.

- Ford Design Institute (FDI).
  Course Development (June and July 2002).
- Automotive Consumer Services Group (ACSG), C3P, PIM Systems.
  Consultant (December 2000).
- C3P Education and Training.
  Instructor, ACSG C3P Orientation Session. (September and October, 2000).

Mechatronics Inc, Novi, Michigan, USA. (May 2000 to May 2001).
Senior Consultant, Mechanical Engineering.

Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), Monterrey Campus, Mechanical Engineering Department, Monterrey, Nuevo Leon, Mexico. (January 1993 to December 1998).

- Associate Professor (December 1996 to December 1998).
- Assistant Professor (January 1993 to December 1996).

Iowa State University, Center for Non-Destructive Evaluations, Ames, Iowa, USA. (August 1989 to November 1992).
Research Assistant: Integrated Design, NDE, and the Manufacturing Sciences Project.
Responsibilities: Perform stress analysis of mechanical components using the Finite Element Method.

Iowa State University, Aerospace Engineering and Engineering Mechanics Department, Ames, Iowa, USA. (January to June 1989).
Teaching Assistant: Strength of Materials undergraduate courses.

Iowa State University, University Student Apartment Community, Ames, Iowa, USA. (August 1989 to July 1992).
Parking and Security Officer. Part time job.

Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), Monterrey Campus, Mechanical Engineering Department, Monterrey, Nuevo Leon, Mexico. (August to December 1988).
Course Instructor: Applied Dynamics (Mechanical Vibrations) undergraduate course.

Altos Hornos de México S.A., Planta Siderúrgica No. 2, Departamento de Aceración B.O.F. y Colada Continua, Monclova, Coahuila, Mexico. (April to December 1986).
Analyst of Mechanical Maintenance Weak Points (troubleshooter) at the Continuous Casting Plant. Achievements: Implementation of a predictive maintenance program based on the periodic inspection of the condition of the equipment.

Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), Monterrey Campus, Mechanical Engineering Department, Monterrey, Nuevo Leon, Mexico. (August 1984 to December 1985).
Undergraduate teaching assistant, Physical Metallurgy Laboratory.

METALSA, Monterrey, Nuevo Leon, Mexico. (June and July 1984).
Internship: Selection of tool steels and specification of heat treatments for punching tools.

VOLUNTEER WORK

Pennington County Search and Rescue (PCSAR), Rapid City, South Dakota, USA. (January 2010 until May 2020)

- Team Member: January 2011 until May 2020.
- Probationary Member: October to December 2010.
- Trainee: January to September 2010.

GRANTS AND SPONSORED PROJECTS

- ***Scholars of Excellence in Engineering Design***
  K.H. Muci-Küchler (PI), D. Valles-Molina, M. Londa, J.S. Tate, and K.H. Collins. Sponsor: NSF Scholarships in Science, Technology, Engineering, and Mathematics (NSF S-STEM). Amount: $2,499,310. Period: 01/01/2024 – 12/31/2029.
- ***A Flipped Classroom Strategy to Teach Systems Thinking to Engineering Students***
  K.H. Muci-Küchler (PI), M.D. Bedillion, C.M. Degen, M.C. Lovett, L. Pottmeyer, A. Emami, and M. Lande. Sponsor: Office of Naval Research (ONR). Amount: $592,121. Period: 6/1/2023 – 5/31/2026.
- ***Incorporating Systems Thinking and Systems Engineering Concepts in Undergraduate Engineering Courses***
  K.H. Muci-Küchler (PI), M.D. Bedillion, C.M. Degen, C.A. Whitcomb and M.C. Lovett. Sponsor: Office of Naval Research (ONR). Amount: $246,708. Period: 8/1/2018 – 10/31/2020.
- ***Promoting System-Level Thinking in Undergraduate Engineering Courses***
  K.H. Muci-Küchler (PI), M.D. Bedillion, C.M. Degen, M.D. Ellingsen and S. Huang. Sponsor: Office of Naval Research (ONR). Amount: $303,224. Period: 10/1/2015 – 9/30/2017.
- ***Multifunctional Protective Armor for the Extremities.***
  K.H. Muci-Küchler (PI) and D. Salem. Sponsor: Army Research Laboratory (ARL). Amount: $350,000 for FY 2015.
- ***Submersible Vehicles and Submarines Teaching Module***
  K.H. Muci-Küchler, M.D. Bedillion, M.D. Ellingsen and C.M. Degen. Sponsor: UNITE 2014 Program, South Dakota GEAR UP 2014 Summer Honors Program at SDSM&T. Amount: $10,500. Period: June 2014.
- ***Submersible Vehicles and Submarines Teaching Module***
  K.H. Muci-Küchler, M.D. Bedillion, M.D. Ellingsen and C.M. Kingsbury. Sponsor: UNITE 2013 Program, South Dakota GEAR UP 2013 Summer Honors Program at SDSM&T. Amount: $3,240. Period: 6/2013 - 7/2013.

- ***Submersible Vehicles and Submarines Teaching Module - Development and Implementation***
  C.M. Kingsbury, K.H. Muci-Küchler, M.D. Bedillion and M.D. Ellingsen. Sponsor: South Dakota EPSCoR Funding Opportunity for Diversity in Science, Technology, Engineering, and Mathematics. Amount: $4,910. Period: July 2013.
- ***Basic Small-Scale Submarine for Educational and Outreach Activities***
  M.D. Bedillion, C.M. Kingsbury and K.H. Muci-Küchler. Sponsor: South Dakota Space Grant Consortium, Project Innovation Grants. Amount: $20,000. Period: 8/2013 - 5/2015.
- ***Individual Soldier Protection Technologies.***
  K.H. Muci-Küchler (PI) and B. Hinz. Sponsor: Army Research Laboratory (ARL). Amount: $321,000 for FY 2010.
- ***Novel Extremity Body Armor.***
  K.H. Muci-Küchler (PI), G.A. Buck, L. Kjerengtroen and W. Cross. Sponsor: Army Research Laboratory (ARL). Amount: $412,500 for FY 2009.
- ***Improvised Explosive Device Simulation in Different Soils.***
  K.H. Muci-Küchler (PI), G.A. Buck and M.A. Langerman. Partner Institution: RESPEC, Rapid City, South Dakota. Sponsor: Army Research Laboratory (ARL). Amount: $305,000 for FY 2008 and $337,500 for FY 2009.
- ***Model Driven Feed-Forward Control of Laser Powder Deposition.***
  M.A. Langerman (PI), G.A. Buck, U.A. Korde and K.H. Muci-Küchler. Partner Institution: RPM & Associates, Rapid City, South Dakota. Sponsor: Army Research Laboratory (ARL). Amount: $220,000 for FY 2007, $300,000 for FY 2008 and $337,500 for FY 2009.
- ***Novel Extremity Body Armor.***
  K.H. Muci-Küchler (PI), D.F. Dolan, L. Kjerengtroen, W. Cross and J.J. Kellar. Sponsor: Army Research Laboratory (ARL). Amount: $384,000 for FY 2008.
- ***Advanced Combat Helmet Blast Wave Testing.***
  G.A. Buck (PI) and K.H. Muci-Küchler. Sponsor: Army Research Laboratory (ARL). Amount: $100,000 for FY 2008.
- ***Simulation of Shallow Buried Blasts in Different Types of Soils.***
  K.H. Muci-Küchler (PI), G.A. Buck and M.A. Langerman. Partner Institution: RESPEC, Rapid City, South Dakota. Sponsor: Army Research Laboratory (ARL). Amount: $381,000 for FY 2007.
- ***Simulation of Shallow Buried Blasts in Different Types of Soils.***
  K.H. Muci-Küchler (PI) and G.A. Buck. Partner Institutions: RESPEC, Rapid City, South Dakota. Sponsor: Army Research Laboratory (ARL). Amount: $169,000 for FY 2006.
- ***Conceptual Development of a Lower Extremity Protective Armor for US Ground Troops.***
  K.H. Muci-Küchler (PI), D. Skillman, D. Dolan, M. Yoon and V. Kalanovic. Sponsor: Army Research Laboratory (ARL). Amount: $141,000 for FY 2006.
- ***Friction Stir Joining of Advanced Aerospace Materials and Structures.***
  W.J. Arbegast (PI), M. Langerman, K.H. Muci-Küchler, A. Patnaik and U. Korde. Sponsor: Air Force Research Laboratory (AFRL). Amount requested for the time period of June 1, 2005 to May 31, 2008: $747,000 ($282,766 for Year 1, $290,801 for Year 2, $173,433 for Year 3).
- ***Computational Mechanics Laboratory (CML).***
  K.H. Muci-Küchler (PI), M. Langerman, L. Kjerengtroen and G. Buck. Sponsor: Army Research Laboratory (ARL). Amount: $1,450,000 for FY 2004 and $1,071,000 for FY 2005.
- ***Center for Accelerated Applications at the Nanoscale (CAAN).***

J.J. Kellar (PI), D. Galipeau, K. Whites, K. Han, J. Puszynski, D. Boyles, R. Winter, K.H. Muci-Küchler, H. Fong and S. Palakurthi. Sopnsor: South Dakota 2010 Initiative, Research Centers Program. Amount requested for the time period of July 1, 2004 to June 30, 2009: $3,229,955.

- ***Project Related to the Numerical Simulation of the Friction Stir Welding (FSW) Process.*** K.H. Muci-Küchler (PI), M. Langerman and R. Pendleton. SDSM&T-EPSCoR GRA support to attract new MES graduate students. Amount: $12,500. Period: August 2003 – July 2004.
- ***Design for Durability and Serviceability in the Auto Industry. (January to December 2001).*** University of Detroit Mercy, College of Engineering and Science, Detroit, Michigan, USA. Sponsor: Faculty Grant Incentive Program (FGIP). Amount: $4,000.00
- ***Redesign of the "Design Methodologies" Course According to the New Educational Paradigm. (August 1997 to May 1998).***
  ITESM, Monterrey Campus, Monterrey, Nuevo Leon, Mexico.
  Sponsor: Fund for the Redesign of Courses According to ITESM's Mission for the Year 2005.
- ***North American Design Institute (NADI). (October 1995 to December 1998)***
  ITESM, Monterrey Campus, Monterrey, Nuevo Leon, Mexico.
  Trilateral cooperation project among the US, Canada and Mexico aimed to promote the mobility of higher education students in North America. In Mexico, the initial stages of the project were funded by the Secretaría de Educación Pública (SEP). The project was carried out by a consortium of higher education institutions: Ryerson Politechnic University and Simon Fraser University in Canada, University of Detroit Mercy and Santa Clara University in the US, and Universidad de Guadalajara and ITESM, Monterrey Campus, in Mexico.
- ***Numerical Simulation of the Trajectory of a Moving Object. (February to December 1998).*** Confidential.
- ***Redesign of the "Design Methodologies" Course According to the New Educational Paradigm. (August 1997 to May 1998).***
  ITESM, Monterrey Campus, Monterrey, Nuevo Leon, Mexico.
  Sponsor: Fund for the Redesign of Courses According to ITESM's Mission for the Year 2005.
- ***Fundamental Concepts of the Finite Element Method: Preparation of Lecture Notes. (August to December 1994).***
  ITESM, Monterrey Campus, Monterrey, Nuevo Leon, Mexico.
  Sponsor: Fund for Research in Didactics and Teaching Methodologies.

BOOKS

- Miranda-Valenzuela, J.C. and Muci-Küchler, K.H. Adaptive Meshing with Boundary Elements. Topics in Engineering Vol. 41 WIT Press, Southampton, UK, 2002. 293 pp. ISBN: 1-85312-888-0, ISSN: 0952-5300

EDITORIAL WORK

- Associate Editor. American Society of Mechanical Engineers (ASME) Journal of Engineering and Science in Medical Diagnostics and Therapy. (July 2017 – July 2024)

- Engineering Analysis with Boundary Elements, Vol. 25, No. 7, July 2001, ISSN 0955-7997. Special Issue: Adaptive Meshing and Error Estimation. Guest editors: Muci-Küchler, K.H. and Miranda-Valenzuela, J.C.
- Muci-Küchler, K.H. and Miranda-Valenzuela, J.C. Guest editorial, Engineering Analysis with Boundary Elements, Vol. 25 (7) (Special Issue: Adaptive Meshing and Error Estimation), pp. 477-478, 2001.

LIST OF PUBLICATIONS

1. Mahmud, SM T. and Muci-Küchler, K.H. "Integrating Digital Twin Technology During the Concept Development Phase of the Product Development Process". 2024 ASME International Mechanical Engineering Congress & Exposition (IMECE 2024), Portland, Oregon, November 17 to 21, 2024. ASME Paper IMECE2024-146078. Accepted.
2. Muci-Küchler, K.H.; Pottmeyer, L.O.; Bedillion, M.D.; Birrenkott, C.M. and Melville, M. "Assessment of Sense of Belonging and Systems Thinking Skills in Introduction to Mechanical Engineering Courses at Three Academic Institutions". 2024 ASME International Mechanical Engineering Congress & Exposition (IMECE 2024), Portland, Oregon, November 17 to 21, 2024. ASME Paper IMECE2024-141518. Accepted.
3. Birrenkott, C.M.; Lande, M.; Benes, H.L.; Muci-Küchler, K.H. and Bedillion, M.D. "Developing Hands-On Class Activities to Enhance Systems-Thinking and Systems-Engineering Course Material". 2024 ASME International Mechanical Engineering Congress & Exposition (IMECE 2024), Portland, Oregon, November 17 to 21, 2024. ASME Paper IMECE2024-145657. Accepted.
4. Bedillion, M.D.; Muci-Küchler, K.H.; Emami, A.; Kojtek, L.; Pottmeyer, L.O. and Birrenkott, C.M. "Developing Online Learning Modules on Systems Concepts for First Year Mechanical Engineering Students". 2024 ASME International Mechanical Engineering Congress & Exposition (IMECE 2024), Portland, Oregon, November 17 to 21, 2024. ASME Paper IMECE2024-144881. Accepted.
5. Kay, D.; Koenig, Z. and Muci-Küchler, K.H. "Development and Implementation of an Augmented Reality Introductory Experience for Mechanical Engineering Freshman Students". 2023 ASME International Mechanical Engineering Congress & Exposition (IMECE 2023), New Orleans, Louisiana, October 29 to November 2, 2023. ASME Paper IMECE2023-112770.
6. Mathieu, K.; Lande, M. and Muci-Küchler, K.H. "Adopting a Common Product Design Process across the Undergraduate Mechanical Engineering Curriculum." 2023 ASEE Annual Conference and Exposition, Baltimore, Maryland, June 25 to 28, 2023. ASEE Paper ID # 38870.
   https://peer.asee.org/42583
7. Muci-Küchler, K.H.; Emami, A. and Jimenez, J. "Selection of Industry 4.0 Competencies for Implementation in a New Mechanical Engineering Undergraduate Program". 2022 ASME International Mechanical Engineering Congress & Exposition (IMECE 2022), Columbus, Ohio, October 30 to November 3, 2022. ASME Paper IMECE2022-94456.
8. Lovett, M.C.; Bedillion, M.D.; Birrenkott, C.M.; Muci-Küchler, K.H. and Pottmeyer, L.O. "Building and Revising an Assessment to Measure Students' Self-Efficacy in Systems Thinking". 2021 ASEE Annual Conference and Exposition, Virtual Conference, July 26 to

29, 2021. Selected as the ASEE Systems Engineering Division's (SED) Best Paper for the 2021 Conference.
https://doi.org/10.18260/1-2--36766, https://peer.asee.org/36766

9. Bedillion, M.D.; Muci-Küchler, K.H.; Birrenkott, C.M.; Lovett, M.C. and Pottmeyer, L.O. "A Combined Online Learning / In-Class Activity Approach to Teach Systems Thinking and Systems Engineering Skills to Freshman Engineering Students". 2021 ASEE Annual Conference and Exposition, Virtual Conference, July 26 to 29, 2021.
https://doi.org/10.18260/1-2--36562, https://peer.asee.org/36562
10. Birrenkott, C.M.; Muci-Küchler, K.H.; Bedillion, M.D.; Lovett, M.C. and Pottmeyer, L.O. "Evaluation of Targeted Systems Thinking and Systems Engineering Assessments in a Freshmen-Level Mechanical Engineering Course". 2021 ASEE Annual Conference and Exposition, Virtual Conference, July 26 to 29, 2021.
https://peer.asee.org/37110
11. Frybarger, M.R. and Muci-Küchler, K.H. "Distribution of Bacterial Contamination in Partial Penetration Surrogate Ballistic Wounds". 2020 ASME International Mechanical Engineering Congress & Exposition (IMECE 2020), Virtual Conference, November 16-19, 2020. ASME Paper IMECE2020-23897.
https://doi.org/10.1115/IMECE2020-23897
12. Muci-Küchler, K.H.; Birrenkott, C.M.; Bedillion, M.D.; Lovett, M. and Whitcomb, C.A. "Incorporating Systems Thinking and Systems Engineering Concepts in a Freshman-Level Mechanical Engineering Course". 2020 ASEE Virtual Conference, June 22 to 26, 2020. Selected as the ASEE Systems Engineering Division's (SED) Best Paper for the 2020 Conference.
13. Muci-Küchler, K.H.; Degen, C.M.; Bedillion, M.D. and Lovett, M. "Extending Systems Thinking Skills to an Introductory Mechanical Engineering Course". 2019 ASEE Annual Conference and Exposition, Tampa, Florida, June 15 to 19, 2019. ASEE Paper ID # 25669.
14. Bedillion, M.D.; Lovett, M.; Muci-Küchler, K.H. and Degen, C.M. "Teaching Systems Thinking in a Capstone Mechatronic Design Course". 2019 ASEE Annual Conference and Exposition, Tampa, Florida, June 15 to 19, 2019. ASEE Paper ID # 25664.
15. Evans, J.J.; Bost, A.; Muci-Küchler, K.H. and DeVeaux, L.C. "Factors Affecting Use of Ballistics Gelatin in Laboratory Studies of Bacterial Contamination in Projectile Wounds," Military Medical Research, 5(16), 2018. https://doi.org/10.1186/s40779-018-0164-7
16. Degen, C.M.; Muci-Küchler, K.H.; Bedillion, M.D.; Huang, S. and Ellingsen, M.D. "Measuring the Impact of a New Mechanical Engineering Sophomore Design Course on Students' Systems Thinking Skills". 2018 ASME International Mechanical Engineering Congress & Exposition (IMECE 2018), Pittsburgh, Pennsylvania, November 9 to 15, 2018. ASME Paper IMECE2018-87624.
17. Bedillion, M.D.; Muci-Küchler, K.H. and Nikshi, W.M. "An Arduino-Based Hardware Platform for a Mechanical Engineering Sophomore Design Course". 2018 ASEE Annual Conference and Exposition, Salt Lake City, Utah, June 24 to 27, 2018. ASEE Paper ID # 21221.
18. Ziadat, J. and Muci-Küchler, K.H. "Development of a Computational Model to Visualize Air Flow Into Surrogate Ballistic Wounds". 2017 ASME International Mechanical Engineering Congress & Exposition (IMECE 2017), Tampa, Florida, November 3-9, 2017. ASME Paper IMECE2017-70650.

19. Aguirre-Rivas, D.A. and Muci-Küchler, K.H. "Formulation of a Higher Order Finite Element for Two-Dimensional Heat Conduction Problems". 2017 ASME International Mechanical Engineering Congress & Exposition (IMECE 2017), Tampa, Florida, November 3-9, 2017. ASME Paper IMECE2017-71201.
20. Muci-Küchler, K.H.; Bedillion, M.D.; Huang, S.; Degen, C.M.; Ellingsen, M.D.; Nikshi, W.M. and Ziadat, J. "Incorporating Basic Systems Thinking and Systems Engineering Concepts in a Mechanical Engineering Sophomore Design Course". 2017 ASEE Annual Conference and Exposition, Columbus, Ohio, June 25 to 28, 2017. ASEE Paper ID #18819.
21. Degen, C.M.; Huang, S.; Ellingsen, M.D.; Muci-Küchler, K.H.; Bedillion, M.D. and Ziadat, J. "Leveraging a Newly Developed Sophomore Design Course to Increase Students' Career Awareness". 2017 ASEE Annual Conference and Exposition, Columbus, Ohio, June 25 to 28, 2017. ASEE Paper ID # 19056.
22. Muci-Küchler, K.H.; Bedillion, M.D.; Degen, C.M.; Ellingsen, M.D. and Huang, S. "Incorporating Basic Systems Thinking and Systems Engineering Concepts in a Sophomore-Level Product Design and Development Course". 2016 ASME International Mechanical Engineering Congress & Exposition (IMECE 2016), Phoenix, Arizona, November 11-17, 2016. ASME Paper IMECE2016-65852.
23. Ziadat, J.; Ellingsen, M.D.; Muci-Küchler, K.H.; Huang, S. and Degen, C.M. "Using Practical Examples to Motivate the Study of Product Development and Systems Engineering Topics". 2016 ASME International Mechanical Engineering Congress & Exposition (IMECE 2016), Phoenix, Arizona, November 11-17, 2016. ASME Paper IMECE2016-66764.
24. Huang, S.; Degen, C.M.; Muci-Küchler, K.H. and Ellingsen, M.D. "Increasing Student Awareness of Non-Traditional Career Paths in Mechanical Engineering". 2016 ASME International Mechanical Engineering Congress & Exposition (IMECE 2016), Phoenix, Arizona, November 11-17, 2016. ASME Paper IMECE2016-66986.
25. Aguirre-Rivas, D.A. and Muci-Küchler, K.H. "Accurate Prediction of Strains and Stresses in 2-D Elasticity Using Adini's Finite Element". 2015 ASME International Mechanical Engineering Congress & Exposition (IMECE 2015), Houston, Texas, November 13 to 19, 2015. ASME Paper IMECE2015-51647.
26. Huang, S.; Muci-Küchler, K.H.; Bedillion, M.D.; Ellingsen, M.D. and Degen, C.M. "Systems Thinking Skills of Undergraduate Engineering Students" (Work in Progress). Proceedings of the 2015 IEEE Frontiers in Education (FIE) Conference, El Paso, Texas, October 21 to 24, 2015, pp. 1943-1947.
27. Huang, S.; Degen, C.M.; Ellingsen, M.D.; Bedillion, M.D. and Muci-Küchler, K.H. "Investigating the Impact of an Outreach Activity on High School Students' Attitudes toward STEM Disciplines". 2015 ASEE Annual Conference and Exposition, Seattle, Washington, June 14 to 17, 2015. ASEE Paper ID # 13035.
28. Aguirre-Rivas, D.A. and Muci-Küchler, K.H. "Higher Order Finite Elements for the Accurate Prediction of Temperature Gradients in Heat Conduction Problems". 2014 ASME International Mechanical Engineering Congress & Exposition (IMECE 2014), Montreal, Quebec, Canada, November 14 to 20, 2014. ASME Paper IMECE2014-39948.
29. Ellingsen, M.D.; Degen, C.M.; Bedillion, M.D. and Muci-Küchler, K.H. "Effective Strategies for Generating Awareness and Interest in Science and Engineering among Underrepresented Youth". 2014 ASEE Annual Conference and Exposition, Indianapolis, Indiana, June 15 to 18, 2014. Session T652A, ASEE Paper AC 2014-9226.

30. Hinz, B.J.; Muci-Küchler, K.H. and Smith, P. "Distribution of Bacteria in Simplified Surrogate Extremities Shot with Small Caliber Projectiles". 2013 ASME International Mechanical Engineering Congress & Exposition (IMECE 2013), San Diego, California, USA, November 15 to 21, 2013. ASME Paper IMECE2013-64803.
31. Krebsbach, M.A.; Muci-Küchler, K.H. and Hinz, B.J. "Effect of Initial Projectile Speed on Contamination Distribution in a Lower Extremity Surrogate "Wound Track"," Military Medicine (International Journal of AMSUS), 177(5), 573-582, 2012. https://doi.org/10.7205/MILMED-D-11-00383
32. Hinz, B.J. and Muci-Küchler, K.H. "Study of Air Flow Into Ballistic Wounds Using Flow Visualization Experiments and Numerical Simulations". 2012 ASME International Mechanical Engineering Congress & Exposition (IMECE 2012), Houston, Texas, USA, November 9 to 15, 2012. ASME Paper IMECE2012-88106.
33. Amborn, E.K.; Muci-Küchler, K.H. and Hinz, B.J. "Experimental and Numerical Study of Soft Tissue Surrogate Behavior Under Ballistic Loading". 2012 ASME International Mechanical Engineering Congress & Exposition (IMECE 2012), Houston, Texas, USA, November 9 to 15, 2012. ASME Paper IMECE2012-85724.
34. Krebsbach, M.A.; Muci-Küchler, K.H. and Hinz, B.J. "Influence of Projectile Momentum and Kinetic Energy on Bacterial Distribution in an Extremity Surrogate "Wound Track"". 2012 ASME International Mechanical Engineering Congress & Exposition (IMECE 2012), Houston, Texas, USA, November 9 to 15, 2012. ASME Paper IMECE2012-89142.
35. Grimm, M.V.; Muci-Küchler, K.H.; Hinz, B.J. and Walsh, S.M. "Comparison of Numerical and Experimental Results of Small Scale Compressed Gas Blast Experiments Involving a Surrogate Head Form". 2012 ASME International Mechanical Engineering Congress & Exposition (IMECE 2012), Houston, Texas, USA, November 9 to 15, 2012. ASME Paper IMECE2012-87663.
36. Hinz, B.J.; Grimm, M.V.; Muci-Küchler, K.H. and Walsh, S.M. "Comparative Study of the Dynamic Response of Different Materials Subjected to Compressed Gas Blast Loading". 2011 ASME International Mechanical Engineering Congress & Exposition (IMECE 2011), Denver, Colorado, USA, November 11 to 17, 2011. ASME Paper IMECE2011-64395.
37. Krebsbach, M.A. and Muci-Küchler, K.H. "Effect of Initial Surface Concentration on Bacterial Distribution in a Surrogate Ballistic Wound". 2011 ASME International Mechanical Engineering Congress & Exposition (IMECE 2011), Denver, Colorado, USA, November 11 to 17, 2011. ASME Paper IMECE2011-64243.
38. Krebsbach, M.A.; Muci-Küchler, K.H. and Hinz, B.J. "Development of Visualization Methods of Air Flow Into Perforating Projectile Wounds". 2011 ASME International Mechanical Engineering Congress & Exposition (IMECE 2011), Denver, Colorado, USA, November 11 to 17, 2011. ASME Paper IMECE2011-64240.
39. Hinz, B.J. and Muci-Küchler, K.H. "Visualization of Air Flow in Perforating Projectile Wounds in Surrogate Extremities". Unlimited Distribution Proceedings of the 82nd Shock and Vibration Symposium, Baltimore, Maryland, October 30 to November 3, 2011.
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SEMINARS AND PRESENTATIONS AT WORKSHOPS

- K.H. Muci-Küchler and B.J. Hinz. "Individual Soldier Protection Technologies." Rodman Materials Research Laboratory, Building 4600, US Army Research Laboratory, Aberdeen Proving Ground, Aberdeen, Maryland, May 24, 2011.
- K.H. Muci-Küchler, G. Buck, B. Hinz, M. Muci and B. Cheeseman. "Development of a Small-Scale Experiment to Study SBE Blasts." Shallow Buried Explosive (SBE) Workshop organized by the ARMY Research Laboratory (ARL), Aberdeen, Maryland, August 5 – 7, 2008.
- K.H. Muci-Küchler, G. Buck, S. Buchholz, K. Mellegard and B. Cheeseman. "Numerical Simulation of Experiments Involving Shallow Buried Blasts." Shallow Buried Explosive (SBE) Workshop organized by the ARMY Research Laboratory (ARL), Aberdeen, Maryland, August 5 – 7, 2008.

PRESENTATIONS IN ACADEMIC FORUMS

- Muci-Küchler, K.H.; Bedillion, M.D.; Degen, C.M.; Ellingsen, M.D. and Huang, S. "Incorporating Systems Thinking and Systems Engineering Concepts in Mechanical Engineering Undergraduate Courses". Systems Engineering Knowledge & Skills in the Education of All Engineers Academic Forum. Forum Sponsors: International Council on Systems Engineering (INCOSE), Systems Engineering Research Center (SERC), and American Society for Engineering Education (ASEE). George Mason University, Arlington Campus, Arlington, Virginia, May 2 and 3, 2016. ***(Invited)***

TECHNICAL REPORTS

- Muci-Küchler, K.H. "Modeling of the Friction Stir Welding Process: Initial Report about the State of the Art." Technical report prepared for the Advanced Materials Processing Center of South Dakota School of Mines and Technology. August 2003.

SERVICE ACTIVITIES IN INTERNATIONAL CONFERENCES

- 2024 ASME International Mechanical Engineering Congress & Exposition (IMECE 2024), Portland, Oregon, November 17 to 21, 2024. Co-Organizer of the Injury and Damage Biomechanics topic in the Biomedical and Biotechnology Engineering track. In progress.
- 2024 ASME International Mechanical Engineering Education Leadership Summit (MEED 2024), Atlanta, Georgia, March 18 to 21, 2024. Member of the Organizing Committee. In progress.
- 2023 ASME International Mechanical Engineering Congress & Exposition (IMECE 2023), New Orleans, Louisiana, October 29 to November 2, 2023. Co-Organizer of the Injury and Damage Biomechanics topic in the Biomedical and Biotechnology Engineering track.
- 2023 ASME International Mechanical Engineering Education Leadership Summit (MEED 2023), San Juan, Puerto Rico, March 23 to 25, 2023. Member of the Organizing Committee.
- 2022 ASME International Mechanical Engineering Congress & Exposition (IMECE 2022), Columbus, Ohio, October 30 to November 3, 2022. Co-Organizer of the Injury and Damage Biomechanics topic in the Biomedical and Biotechnology Engineering track.
- 2021 ASME International Mechanical Engineering Congress & Exposition (IMECE 2021), Virtual Conference, November 1-4, 2021. Co-Organizer of the Injury and Damage Biomechanics topic in the Biomedical and Biotechnology Engineering track.
- 2021 ASEE Annual Conference and Exposition, Virtual Conference, July 26 to 29, 2021. Moderator of the Systems Engineering Division Technical Session 2
- 2020 ASME International Mechanical Engineering Congress & Exposition (IMECE 2020), Virtual Conference, November 16-19, 2020. Co-Organizer of the Injury and Damage Biomechanics topic in the Biomedical and Biotechnology Engineering track.
- 2019 ASME International Mechanical Engineering Congress & Exposition (IMECE 2019), Salt Lake City, Utah, November 11-14, 2019. Co-Organizer of the Injury and Damage Biomechanics topic in the Biomedical and Biotechnology Engineering track. The topic consisted of five technical sessions and twenty-four technical presentations.
- 2018 ASME International Mechanical Engineering Congress & Exposition (IMECE 2018), Pittsburgh, Pennsylvania, November 9-15, 2018. Co-Organizer of the Damage Biomechanics topic in the Biomedical and Biotechnology Engineering track. The topic consisted of four technical sessions and twenty-three technical presentations.
- 2017 ASME International Mechanical Engineering Congress & Exposition (IMECE 2017), Tampa, Florida, November 3-9, 2017. Co-Organizer of the Damage Biomechanics topic in the Biomedical and Biotechnology Engineering track. The topic consisted of five technical sessions and twenty-five technical presentations.
- 2017 ASEE Annual Conference and Exposition, Columbus, Ohio, June 25 to 28, 2017. Co-Moderator of the Systems Engineering Division Technical Session 2.

- 2016 ASME International Mechanical Engineering Congress & Exposition (IMECE 2016), Phoenix, Arizona, November 11-17, 2016. Co-Organizer of the Damage Biomechanics topic in the Biomedical and Biotechnology Engineering track. The topic consisted of five technical sessions and twenty-four technical presentations.
- 2016 ASME International Mechanical Engineering Congress & Exposition (IMECE 2016), Phoenix, Arizona, November 11-17, 2016. Co-Organizer of the Systems Engineering and Sustainable Engineering Education topic in the Education and Globalization track. The topic consisted of two technical sessions and ten technical presentations.
- 2015 ASME International Mechanical Engineering Congress & Exposition (IMECE 2015), Houston, Texas, November 13 to 19, 2015. Co-Organizer of the Damage Biomechanics Symposium (Topic) in the Biomedical and Biotechnology Engineering Track. The topic consisted of five technical sessions and twenty-two technical presentations.
- 2014 ASME International Mechanical Engineering Congress & Exposition (IMECE 2014), Montreal, Canada, November 14 to 20, 2014. Co-Organizer of the Biomechanics of the Trauma due to Accident, Surgery or Weapons Symposium (Topic) in the Biomedical and Biotechnology Engineering Track. The topic consisted of three technical sessions and seventeen technical presentations.
- 2013 ASME International Mechanical Engineering Congress & Exposition (IMECE 2013), San Diego, California, USA, November 15 to 21, 2013. Co-Organizer of the Biomechanics of Trauma due to Accidents, Surgery or Weapons Symposium (Topic) in the Biomedical and Biotechnology Engineering Track. The topic consisted of five technical sessions and twenty-eight technical presentations.
- 2012 ASME International Mechanical Engineering Congress & Exposition (IMECE 2012), Houston, Texas, USA, November 9 to 15, 2012. Co-Organizer of the Trauma Analysis Symposium (Topic) in the Biomedical and Biotechnology Engineering Track. The topic consisted of consisted of four technical sessions and nineteen technical presentations.
- 2011 ASME International Mechanical Engineering Congress & Exposition (IMECE 2011), Denver, Colorado, USA, November 11 to 17, 2011. Biomedical and Biotechnology Engineering Track, Analysis of Trauma Due to Blast, Ballistics, and Impacts Topic, Experimental Assessment of Biomechanical Response to Ballistics and Impact Technical Session. Session Chair.
- 2011 ASME International Mechanical Engineering Congress & Exposition (IMECE 2011), Denver, Colorado, USA, November 11 to 17, 2011. Biomedical and Biotechnology Engineering Track, Computational Modeling and Device Design Topic, Computational Modeling III Technical Session. Session Chair.
- 2010 ASME International Mechanical Engineering Congress & Exposition (IMECE 2010), Vancouver, British Columbia, Canada, November 12 to 18, 2010. Technical Session Bioengineering and Medical Applications: Medical Applications. Session Co-Chair.
- 28th World Conference on Boundary Elements and Other Mesh Reduction Methods (BEM/MRM 28), Skiathos, Greece, May 10 to 12, 2006. Member of the International Scientific Advisory Committee.
- Sixth International Conference on Boundary Element Techniques (BeTeq 2005), McGill University, Montreal, Canada, July 26 to 28, 2005. Member of the International Scientific Advisory Committee.

- 27th World Conference on Boundary Elements and Other Mesh Reduction Methods (BEM/MRM 27), University of Central Florida, Florida, USA, March 15 to 17, 2005. Member of the International Scientific Advisory Committee.
- Integrating Practice into Engineering Education Conference, Center for Engineering Education and Practice (CEEP), University of Michigan – Dearborn, Dearborn, Michigan, October 3 to 5, 2004. Invited panelist. Special panel session to address the following topics: What are the different approaches employed to Integrate Practice into Engineering Education? What approaches are faculty finding effective? How can Industry help Universities in their efforts to accomplish the task?
- Fifth International Conference on Boundary Element Techniques (BeTeq 2004), Lisbon, Portugal, July 21 to 23, 2004. Member of the International Scientific Advisory Committee.
- Fourth International Conference on Boundary Element Techniques (BeTeq 2003), University of Granada, Granada, Spain, July 15 to 17, 2003. Member of the International Scientific Advisory Committee.
- Third International Conference on Boundary Element Techniques (BeTeq 2002), Tsinghua University, Beijing, China, September 10 to 12, 2002. Member of the International Scientific Advisory Committee.
- Joint Meeting of the International Conference on Boundary Element Techniques and the International Association for Boundary Element Methods (BeTeq 2001), Rutgers University, New Jersey, USA, July 16 to 18, 2001. Special Session on Adaptive Formulations organized by K.H. Muci-Küchler and J.C. Miranda-Valenzuela.
- Twenty-Fourth Midwestern Mechanics Conference, Iowa State University, Ames, Iowa, USA, October 1 to 4, 1995. Chair of the session "Boundary Elements – Applications."

REVIEWER WORK

- National Science Foundation (NSF), Panelist: 2008, 2009, 2010, 2011, 2012, and 2013.
- 2016 ASME International Mechanical Engineering Congress & Exposition (IMECE 2016). Reviewed one paper.
- Naval Research Laboratory (NRL), Postdoctoral Fellowship Program. Reviewed one application in 2015.
- 2014 ASME International Mechanical Engineering Congress & Exposition (IMECE 2014). Reviewed one paper.
- 2011 ASME International Mechanical Engineering Congress & Exposition (IMECE 2011). Reviewed five papers.
- 2010 ASME International Mechanical Engineering Congress & Exposition (IMECE 2010). Reviewed four papers.
- ASME Journal of Manufacturing Science and Engineering. Reviewed one paper in 2010.
- ARMY Research Office (ARO). Reviewed two research proposals (one in June of 2009 and one in March of 2008).
- Georgian National Science Foundation. Reviewed one research proposal in 2009.
- American Society for Engineering Education (ASEE), 2008 ASEE Annual Conference and Exposition. Reviewed one paper.
- American Society for Engineering Education (ASEE), 2007 ASEE Annual Conference and Exposition. Reviewed four papers.

- American Society for Engineering Education (ASEE), 2005 ASEE Annual Conference and Exposition. Reviewed three papers.
- American Society for Engineering Education (ASEE), Army Research Laboratory (ARL), Postdoctoral Fellowship Program. Reviewed one application in 2004.
- SME, Mineral and Metallurgical Processing Division – Crushing and Grinding. Reviewed one research paper in 2004.
- Engineering Analysis with Boundary Elements (EABE) Journal.

BOOKS TRANSLATED FROM ENGLISH INTO SPANISH

- Ferdinand P. Beer y E. Russell Johnston Jr. Mecánica Vectorial para Ingenieros: Estática. Sexta Edición. Traducido por: Dr. Karim Heinz Muci Küchler y Dr. Alex Elías Zúñiga. McGraw-Hill, 1997. ISBN: 970-10-1021-3.
  Translation into Spanish of the book:
  Ferdinand P. Beer and E. Russell Johnston Jr. Vector Mechanics for Engineers: Statics. Sixth Edition. McGraw-Hill, 1996. ISBN: 0-07-005367-7.

INVITED LECTURES AND PRESENTATIONS

- US Army Research Laboratory (ARL), Rodman Materials Research Laboratory, Aberdeen Proving Ground, Maryland, USA, May 24, 2011.
  Individual Soldier Protection Technologies (Karim H. Muci-Küchler and Brandon J. Hinz).
- Wessex Institute of Technology, Ashurst Lodge, Ashurst, Southampton, UK, August 24, 1999.
  A New Error Indicator for Adaptive Meshing with Hermite Boundary Elements.
- First Mechanical Engineering Symposium. Instituto Tecnológico de Saltillo, Saltillo, Coahuila, Mexico, August 29, 1996.
  The Boundary Element Method and its Applications in Engineering.
- V Engineering Week. Instituto Tecnológico de la Laguna, Torreon, Coahuila, Mexico, November 17, 1994.
  The Finite Element Method: Its Applications in Engineering.
- III Mechanical Engineering Graduate Students National Conference. Universidad de Guanajuato, Facultad de Ingeniería Mecánica, Eléctrica y Electrónica, Salamanca, Guanajuato, Mexico, April 30, 1994.
  Participation in the Round Table: The Free Trade Agreement in Engineering from the United States, European and Mexican Points of View.
- V Mechanical Engineering Conference. ITESM, Monterrey Campus, Monterrey, Nuevo Leon, Mexico, October 1992.
  The Boundary Element Method: A New Alternative for the Solution of Engineering Problems.
- X Science and Technology Week. Instituto Tecnológico de Saltillo, Saltillo, Coahuila, Mexico, May 6, 1988.
  Analysis of Thin Flat Plates Using the Finite Element Method.
- V Engineering International Symposium. ITESM, Morelos Campus, Cuernavaca, Morelos, Mexico, October 16, 1987.
  Analysis of Thin Flat Plates Using the Finite Element Method.

SUPERVISED THESIS

1. Investigating Bacterial Distribution in a Partial Penetration Lower Extremity Surrogate Wound Model. Michelle R. Frybarger. M.S. in Biomedical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. May 2020.
2. Computational Modeling of Penetrating Ballistic Impact on Translucent Soft Tissue Simulants. John L. Ziadat. M.S. in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. May 2017.
3. Higher Order Elements for the Accurate Prediction of Stresses in 2-D Elastostatic Problems and Temperature Gradients in 2-D Heat Transfer Problems. Donovan A. Aguirre-Rivas. M.S. in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. December 2015.
4. Development of an Experiment to Evaluate the Blast Mitigation Performance of Different Materials. Matthew V. Grimm. M.S. in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. December 2012.
5. Constitutive Model Validation Technique for Soft Tissue Surrogates Under Ballistic Loading. Ericka Amborn. M.S. in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. December 2011.
6. The Effect of Projectile Weight and Speed on Bacterial Distribution in an Extremity Surrogate "Wound Track". Meaghen Krebsbach. M.S. in Biomedical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. August 2011.
7. Numerical Simulation of the Plunging Phase of a Modified Refill Friction Stir Spot Welding Process Using a Thermo-Mechanical FEM Model. Sindhura Kalagara. M.S. in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. December 2008.
8. Numerical Simulation of the Static and Dynamic Response of Corrugated Sandwich Structures Made with Friction Stir Welding and Superplastic Forming. Sajith K. Annamaneni. M.S. in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. May 2008.
9. Prediction of Residual Stresses in Laser Glazing and Laser Powder Deposition Processes Using FEM. Prashanth Kumar Tirukovelluri. M.S. in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. May 2007.
10. Numerical Simulation of Modified Refill Friction Stir Spot Welding Using FEM. Sai Krishna Itapu. M.S. in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. December 2006.
11. Simulation of the Initial Plunging Phase of the Friction Stir Spot Welding Process Using FEM. Sri Satya Teja Kakarla. M.S. in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. May 2005.
12. Capacity Planning Software System. Wuinnie Jiménez and Sergio Muñoz. M.S. in Product Development. University of Detroit Mercy, Detroit, Michigan, USA. January 2002.
13. A Comparison of Multi-Criteria Decision Analysis Methods Applied to a Concept Selection Problem. Phil Fabien, Ilze Liepa and Joel Simmermon. M.S. in Product Development. University of Detroit Mercy, Detroit, Michigan, USA. December 2001.
14. Improved Product Planning and Development Process for the Implementation of Independent Rear Suspension. Terese Bertcher, Lawrence Brod, Pamela Lee and Michael

Wehr. M.S. in Product Development. University of Detroit Mercy, Detroit, Michigan, USA. December 2000.

15. Improving the Vehicle Durability Attribute Verification Process. Jeffrey Dumler, David McCreadie and David Tao. M.S. in Product Development. University of Detroit Mercy, Detroit, Michigan, USA. December 2000.
16. Proposal of a New Prosthesis Design for Surface Hip Replacement. Edgar Fernando Beltrán-Robledo. M.S., Major in Mechanical Engineering. ITESM, Monterrey Campus, Monterrey, Nuevo Leon, Mexico. August 2000.
17. Application of the Tangent Derivative Boundary Integral Equations for Adaptive Meshing with Higher Order Boundary Elements. José Carlos Miranda-Valenzuela. Ph.D. Thesis. Wessex Institute of Technology, Ashurst, Southampton, UK. July 2000.
18. A New Alternative for the Computation of the Stress Tensor Using the Tangent Derivative Boundary Integral Equation. Sergio Soriano-Soriano. M.S., Major in Mechanical Engineering. ITESM, Monterrey Campus, Monterrey, Nuevo Leon, Mexico. July 1997.
19. Formulation of a New Error Indicator for Adaptive Meshing using Hermite Boundary Elements. José Carlos Miranda-Valenzuela. M.S., Major in Mechanical Engineering. ITESM, Monterrey Campus, Monterrey, Nuevo Leon, Mexico. June 1997.
20. Analysis of Steady-State, Non-Viscous, Subsonic, Compressible Flows using the Finite Element Method. Ernesto Felipe Villacorta-Olivares. M.S., Major in Chemical Engineering. ITESM, Monterrey Campus, Monterrey, Nuevo Leon, Mexico. December 1995.
21. Application of the Boundary Element Method for the Solution of Steady-State Thermoelastic Problems. José Alberto Hernández-Luna. M.S., Major in Mechanical Engineering. ITESM, Monterrey Campus, Monterrey, Nuevo Leon, Mexico. August 1995.
22. Simulation of Brain Tumor Growth using the Boundary Element Method. Candelario Bolaina-Torres. M.S., Major in Mechanical Engineering. ITESM, Monterrey Campus, Monterrey, Nuevo Leon, Mexico. May 1995.

SUPERVISED M.S. NON-THESIS RESEARCH PROJECTS

1. Laser Clad Composite Toughness Evaluation by C-Ring Diametral Compression Testing. Joshua J. Hammell. MS in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. May 2019.
2. Development of Experimental System to Characterize the Surrogate Brain Response to Evaluate Impact Attenuation Performance of Different Padding Materials for Football Helmets. Miho Soma. M.S. in Biomedical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. May 2015.
3. Characterization of Dry Silica Sand for Use in Numerical Simulations Involving Shallow Buried Explosives. Stuart A. Buchholz. M.S. in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. May 2010.
4. Preliminary Stress Analysis of a New Surface Hip Replacement. Cassidy K. Fitzpatrick. M.S. in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. December 2006.
5. Modeling a Laser Glazing Process using Finite Element Analysis. Magne Habbestad. M.S. in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. May 2005.

6. A Study of the Changes in Stress Pattern in a Human Femur with a Dynamic Hip Screw using the Finite Element Method. Magne Ingvaldsen. M.S. in Mechanical Engineering. South Dakota School of Mines and Technology, Rapid City, South Dakota, USA. May 2005.

EXAMPLES OF ACADEMIC SERVICE ACTIVITIES

ABET.
ASME/ABET Mechanical Engineering Program Evaluator (PEV). (May 2021 until present).

South Dakota School of Mines and Technology, Rapid City, South Dakota, USA.
- Co-Faculty Advisor of the SAE Mini Baja Team. (September 2006 to December 2021).
- Member of the Council on Graduate Education representing the Mechanical Engineering Department. (November 2012 until May 2020).
- Member of the committee that reviews the applications of students seeking admission into the Mechanical Engineering graduate programs. (August 2002 to December 2021).
- Temporary advisor of new graduate students in the Mechanical Engineering Department. (January 2003 until May 2020).
- Member of the Faculty Senate. (August 2006 until August 2008).
- Co-Faculty Advisor of the Student Chapter of the American Society of Mechanical Engineers (ASME). (August 2002 to August 2006).
- Member of one search and screen committee for the position of Dean of the College of Engineering.
- Member of several search and screen committees for open faculty positions.
- Chair of a search and screen committee for an open faculty position. (2012 – 2013 academic year).
- Chair of a search and screen committee for three tenure track faculty positions, three non-tenure track faculty positions, and one endowed chair position. (2016 – 2017 academic year).

University of Detroit Mercy, Detroit, Michigan, USA.
- Faculty Advisor of the Student Chapter of the Society of Hispanic Professional Engineers (SHPE). (September 1999 to May 2002).
- Faculty Advisor of the Student Chapter of the Society of Automotive Engineers (SAE). (January 1999 to October 2001).
- Faculty Advisor of the Mini Baja Team. (January 1999 to October 2001).

Grupo CYDSA, Mexico: "1998 CYDSA Innovation Prize".
Participation as judge in the category of "Technological Development of Manufacturing Processes". (September 1998).

ITESM Faculty Association
President of the ITESM Faculty Association for the 1997 – 1999 period.

ITESM, Monterrey Campus, Monterrey, Nuevo Leon, Mexico.
- Member of the Mechanical Engineering Graduate Program Committee. (January 1993 to December 1998).

- Representative of the Engineering and Architecture Division in the Fund for Research in Didactics and Teaching Methodologies. (August 1994 to December 1996).

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

- American Society of Mechanical Engineers (ASME). (1989 until present).
- American Society for Engineering Education (ASEE). (2001 until 2014, 2016 until present).
- Society of Automotive Engineers (SAE). (1999 until 2011).
- International Association for Computational Mechanics (IACM). (2006 to 2008).
- US Association for Computational Mechanics (USACM). (2006 to 2008).
- The Minerals, Metals and Materials Society (TMS). (2005 and 2007).
- International Society for Boundary Elements (ISBE). Member. (1992 to 1994).
- Sigma Xi: The Scientific Research Society. Associate Member (1992).
- The Honor Society of Phi Kappa Phi. Member (1991).
- The Honor Society of Tau Beta Pi. Member (1990).

DISTINCTIONS AND AWARDS

American Society of Mechanical Engineers (ASME)
Donald N. Zwiep Innovation in Education Award, March 2023. Awarded to South Dakota Mines' Department of Mechanical Engineering for "introducing a rigorous program on project-based product development that couples across several courses and all four years of the undergraduate curriculum. It is a vertically integrated curriculum that has led to faculty culture change, best paper award and adoption (2020 ASEE best paper award). The application offers impressive broad changes made with great focus on higher order learning, and significant investments in the proposed initiatives, industry, and faculty buy-ins." I was one of the faculty members that proposed, developed, and lead this effort.

American Society of Mechanical Engineers (ASME)
Elected as ASME Fellow in August 2020.

South Dakota School of Mines and Technology, Rapid City, SD
Recipient of the 2016 James and Connie Green CAMP (Center for Advanced Manufacturing and Production) Award.

South Dakota School of Mines and Technology, Rapid City, SD
Recipient of the 2014 James and Connie Green CAMP (Center for Advanced Manufacturing and Production) Award.

ITESM Alumni Association, Mexico
In 2013 I received a recognition ("Profesores que Dejan Huella") from the Alumni Association of the Instituto Tecnologico y de Estudios Superiores de Monterrey (ITESM) for the positive impact that I had on students during the time I was a faculty member at the Monterrey Campus of ITESM.

Wessex Institute of Technology (WIT), Ashurst, Southampton, UK.
Fellow of the Wessex Institute of Technology of Great Britain (Given on August 1999).

National Researchers System of Mexico (Sistema Nacional de Investigadores, SNI).
National Council of Science and Technology of Mexico (Concejo Nacional de Ciencia y Tecnología, CONACyT).
National Researcher, Level 1. (July 1, 1998 to June 30, 2001).

ITESM – Campus Monterrey, Mexico.
Winner of the 1998 Teaching and Research Award of the Engineering and Architecture Division in the category of associate and full professors. (May 1998).

Wessex Institute of Technology (WIT), Ashurst, Southampton, UK.
Visiting Faculty Status (October 1997 to July 2000).

National Researchers System of Mexico (Sistema Nacional de Investigadores, SNI).
National Council of Science and Technology of Mexico (Concejo Nacional de Ciencia y Tecnología, CONACyT).
Candidate to National Researcher. (July 1, 1997 to June 30, 1998).

American Society of Mechanical Engineers (ASME).
Certificate awarded by the Operating Board of Region X for the support given to the ITESM, Monterrey Campus, ASME student chapter. (March 1996).

ITESM System, Mexico.
Winner of the 1995 "Asociación de Egresados del ITESM, A.C." award for Research and Technological Development. (January 1996).

ITESM System, Mexico.
Winner of the Third Place of the 1995 "Rómulo Garza" award for Research and Technological Development. (January 1996).

National Researchers System of Mexico (Sistema Nacional de Investigadores, SNI)
National Council of Science and Technology of Mexico (Concejo Nacional de Ciencia y Tecnología, CONACyT)
Candidate to National Researcher. (July 1, 1994 to June 30, 1997).

FOREIGN LANGUAGES

- Spanish (100%).