

School of Chemical, Biological, and Environmental Engineering

OREGON STATE UNIVERSITY

College of Engineering

KORETSKY, Milo David

Professor

BIRTH DATE

July 27, 1962

DEGREES

B.S., Chemical Engineering, University of California at San Diego, 1984

M.S., Chemical Engineering, University of California at San Diego, 1985

Ph.D., Chemical Engineering, University of California at Berkeley, 1991

ACADEMIC POSITIONS

Teaching Assistant, Applied Mechanics and Engineering Sciences, University of California at San Diego, 1984-1985

Teaching Assistant, Department of Chemical Engineering, University of California at Berkeley, 1986-1987

Acting Instructor, Department of Chemical Engineering, University of California at Berkeley, 1988, 1991

Lecturer, Department of Chemical Engineering, University of California at Berkeley, 1992

Assistant Professor, Department of Chemical Engineering, Oregon State University, 1992-1998

Associate Professor, Department of Chemical Engineering, Oregon State University, 1998-2005

Associate Professor, School of Chemical, Biological, and Environmental Engineering, Oregon State University, 2005-2011

Adjunct Faculty, Department of Science and Mathematics Education, Oregon State University, 2011-present

Professor, School of Chemical, Biological, and Environmental Engineering, Oregon State University, 2011-present

FIELD OF SPECIALIZATION

Engineering Education Research

Thin Film Materials Processing

PROFESSIONAL ACTIVITIES

Professional Societies

American Institute of Chemical Engineers (AIChE)

American Society for Engineering Education (ASEE)

American Educational Research Association (AERA)

Professional Recognition

Awards

Lloyd Carter Award (OSU College of Engineering's top teaching award), 2012.

Joseph J. Martin 2012 Award, for the most outstanding Chemical Engineering Division paper presented at the 2011 ASEE Annual Meeting.

Elizabeth P. Ritchie Distinguished Professor Award (OSU's top award in teaching and educational scholarship), 2011

Pacific Northwest Section of the American Society for Engineering Education (PN-ASEE) 2009 Outstanding Teaching Award

Joseph J. Martin 2009 Award, for the most outstanding Chemical Engineering Division paper presented at the 2008 ASEE Annual Meeting.

Intel Faculty Fellow – six times (1999, 2000, 2001, 2004, 2006, 2007)

Joseph J. Martin 2007 Award, for the most outstanding Chemical Engineering Division paper presented at the 2006 ASEE Annual Meeting.

L.L. Stewart Faculty Scholar, inaugural award, 2006

Best Poster Award, ASEE ChE Faculty Summer School, 2002

Finalist, MRS Graduate Student Award, 1991

Dow Chemical Excellence in Teaching Award, 1987

Recent Professional Recognition and Service

National Effective Teaching Institute (NETI) Fellow, 2014-2015

Co-leader, ASEE *Thermodynamics Virtual Community of Practice*, 2013

Director, AIChE Education Division, 2010 – 2013

Founding Coordinator, AIChE Future Faculty Mentoring Program, 2012 - present

Publications Board, Chemical Engineering Education, 2010 - present

Consulting Editor, *College Teacher*, 2013 – present

US-Finland SAVI Workshop on Innovations in Learning and Education, participant, NSF/Academy of Finland/Tekes, Finnish Embassy, Washington, D.C., June 7-8, 2012

Mapping the Field, a Taxonomy for the Field of Engineering Education Research, participant, May 20-21, 2013, Ann Arbor, MI.

University Day, Keynote, ORT Braude College, Karmiel, Israel, October 1, 2013

Recent University Recognition and Service

OSU Faculty Senator, 2003, 2010-present

MECOP Internship Advisor, Chemical, Biological and Environmental Engineering, 2005-present

MECOP Internship Advisor, Chemical Engineering, 1992-2005

Chair, CBEE Curriculum Committee, 2005-present

Chair, Search Committee, School of Chemical, Biological and Environmental Engineering, Linus Pauling Chair, 2006-2007

Chair, Search Committee, Director for the Center for Teaching and Learning, 2011-2012

Chair, Search Committee, School of Chemical, Biological and Environmental Engineering, Chemical Engineering Program position, 2012-2013

Chair, Search Committee, School of Chemical, Biological and Environmental Engineering, Biological Engineering Program position, 2012-2013

Search Committee, member, Associate Dean, Academic and Student Affairs, College of Engineering, 2012

University Baccalaureate Core Committee Chair, 2005 – 2006

Steering Committee Member, Center for Lifelong STEM Education Research, 2010-2012

University Council on Student Engagement and Experience, member, 2010-2013

Teaching and Learning Expectations Task Force, member, 2012

Instructional Technology Crosscutting Team, member, 2010-2011

PUBLICATIONS

Books

Engineering and Chemical Thermodynamics, Milo D. Koretsky, John Wiley & Sons, (2004). 553 pages.

Engineering and Chemical Thermodynamics, Milo D. Koretsky, 2nd Edition, John Wiley & Sons, (2013). 690 pages.

Technical Journals

- “Anomalous Etch Rates of Photoresist with Argon Dilution of CF_4/O_2 Plasma Afterglows,” Milo D. Koretsky and Jeffrey A. Reimer, *Applied Physics Letters* **59**, 1547 (1991).
- “A Simple Model for the Etching of Photoresist with Plasma-Generated Reactants,” Milo D. Koretsky and Jeffrey A. Reimer, *Journal of Applied Physics* **72**, 5081 (1992).
- “The Effect of Processing Conditions on Crystal Orientation and Structure in ZnS:Mn Thin Films,” Chia-Jen Chen, Sjamsie Husurianto, Xiaobin, Lu and Milo D. Koretsky, *Journal of the Electrochemical Society* **145**, 226 (1998).
- “Plasma Etching of GETek: Temporal Nonuniformities Caused by Neutral Chemistry,” Chia-Chang Hsu, Milo D. Koretsky, and Gary Long, *CicuiTree*, 134, March (1998).
- “The Effect of Concrete Pore Saturation on the Cathodic Protection of Reinforced Steel Bridges,” Milo D. Koretsky, Farid Aboomeri, and John C. Westall, *Corrosion* **55**, 52 (1999).
- “Elimination of Gate Oxide Damage During ECR Plasma Etching of the Tungsten Polycide Gate Structure,” Rui Chen and Milo D. Koretsky, *Journal of Vacuum Science and Technology B* **16**, 2720, September/October (1998).
- “Effect of Chloride on the Photoluminescence of ZnS:Mn Thin Films,” Xiaobin Lu, Chia-Jen Chen, Sjamsie Husurianto, and Milo D. Koretsky, *Journal of Applied Physics*, **85**(8), 4154-4159 (1999).
- “Etch Kinetics of Polyphenylene Oxide Laminates Using a $\text{CF}_4 / \text{O}_2 / \text{Ar}$ Downstream Microwave Plasma,” Chia-Chang Hsu and Milo D. Koretsky, in *Fundamental Gas-Phase and Surface Chemistry of Vapor-Phase Materials Synthesis*, T. J. Mountziaris, M. D. Allendorf, K. F. Jensen, R. K. Ulrich, M. R. Zachariah, and M. Meyyappan, Eds. Boston, MA, ISBN 1-56677-217-6, (1999).
- “Surface Kinetics of Polyphenylene Oxide Etching in a $\text{CF}_4 / \text{O}_2 / \text{Ar}$ Downstream Microwave Plasma,” Kevin C. Hsu and Milo D. Koretsky, *Journal of the Electrochemical Society*, **147**(5), 1818-1824 (2000).
- “Yield Analysis Based on Fault Probability and Kill Ratio-Part 1,” David Hu, Milo D. Koretsky, Manu Rehani, and David Abercrombie, *Semiconductor International* (2001).
- “Thick Metal Etch Corrosion Control,” Rui Chen, Ted Mayer, and Milo D. Koretsky, *Semiconductor Technology* (ISTC 2001, PV 2001-17) M. Yang, Editor (2001).
- “Yield Analysis Based on Fault Probability and Kill Ratio-Part 2,” David Hu, Milo D. Koretsky, Manu Rehani, and David Abercrombie, *Semiconductor International* (2001).
- “Confidence Interval Estimation Based on Bootstrapping for the Fault Probabilities of Random Defects Seen in Integrated Circuit Processing,” David T. Hu and Milo D. Koretsky, *IEEE Transactions on Semiconductor Manufacturing*, in review.
- “Lab-Based Unit Operations in Microelectronics Processing,” Chih-hung (Alex) Chang, Milo D. Koretsky, Sho Kimura, Skip Rochefort, and Cyndie Shaner, *Chemical Engineering Education*, **37**, 188 (2003).
- “Effect of Moisture on the Spatial Uniformity of Cathodic Protection of Steel in Reinforced Concrete,” Erik B. Muehlenkamp, Milo D. Koretsky and John C. Westall, *Corrosion*, **61**, 519 (2005).
- “Enhancement of Student Learning in Experimental Design using a Virtual Laboratory,” M.D. Koretsky, D. Amatore, C. Barnes, and S. Kimura, *IEEE Trans. Ed.*, Special Issue on Virtual Laboratories, **51**(1), 76-85 (2008).
- “A Nanotechnology Processes Option in Chemical Engineering,” M.D. Koretsky, A. Yokochi, and S. Kimura, *Chemical Engineering Education*, **43**, 265 (2009).
- “Elements of Student Learning in Nanotechnology,” Milo D. Koretsky, Alexandre Yokochi, Sho Kimura, and Sarah Herzog, *Int. J. Eng. Edu.*, in prep.

- “Student Learning in Industrially Situated Virtual Laboratories,” Milo D. Koretsky, Christine Kelly, and Edith Gummer, *Chemical Engineering Education*, **45**(3), 219-228 (2011). *Invited for Special Issue in Fundamental Research in Engineering Education*.
- “Factors Affecting Thickness Variation of SiO₂ Thin Films Grown by Wet Oxidation” Casey Barker, Al Badowski, Bruce Whitefield, Keith L. Levien, and Milo D. Koretsky, *IEEE Transactions on Semiconductor Manufacturing*, **24**, 348-357 (2011).
- “Student Perceptions of Learning in the Laboratory: Comparison of Industrially Situated Virtual Laboratories to Capstone Physical Laboratories,” Milo D. Koretsky, Christine Kelly, and Edith Gummer, *Journal of Engineering Education*, **100**(3), 540-573 (2011).
- “The Influence of Group Discussion on Students’ Responses and Confidence during Peer Instruction,” Bill Brooks and Milo Koretsky, *Journal of Chemical Education*, **88**(11), 1477-1484 (2011).
- “Terahertz spectroscopy of Ni-Ti alloy thin films,” A.D. Jameson, J.W. Kevek, J.L. Tomaino, M. Hemphill-Johnston, M.J. Paul, M. Koretsky, E.D. Minot, and Y.S. Lee, *Applied Physics Letters*, **98**(22), 221111-1-3, (2011).
- “A Comparison of Student Responses to Easy and Difficult Thermodynamics Conceptual Questions during Peer Instruction,” Milo Koretsky and Bill Brooks, *International Journal of Engineering Education*, **27**(4), 897-908, (2011).
- “Student Attitudes in the Transition to an Active Learning Technology,” Milo Koretsky and Bill Brooks, *Chemical Engineering Education*, **46**(1), 289-297 (2012).
- “Use of an Authentic, Industrially Situated Project to Address Engineering Design and Scientific Inquiry in High Schools,” Debra M. Gilbuena, Adam Kirsch, and Milo D. Koretsky, *Advances in Engineering Education*, invited for Special Issue on P-12 Engineering. **3**(2), P8:1-32 (2012).
- “Characterization of an Expert Solution to Inform Assessment in a Computer Simulated and Industrially Situated Experimental Design Project,” Benjamin U. Sherrett, Erick J. Nefcy, Edith S. Gummer, and Milo D. Koretsky, *Journal of Engineering Education*. *In Press*. October 2013
- “Undergraduate Student Perceptions about the Relative Value of General Education and Major Curricula,” Milo D. Koretsky, Susie J. Brubaker-Cole, William A. Bogley, and John D. Bailey, *The Journal of General Education*, *In preparation*.
- “Feedback on Professional Skills as Enculturation into Communities of Practice,” Debra M. Gilbuena, Benjamin U. Sherrett, Erick J. Nefcy, Edith S. Gummer, Audrey B. Champagne, Milo D. Koretsky, *Journal of Engineering Education*, accepted pending revision.
- “The AIChE Concept Warehouse: A Tool to Promote Conceptual Learning,” Milo D. Koretsky, John L. Falconer, Bill J. Brooks, Debra M. Gilbuena, David L. Silverstein, Christina Smith, Ronald L. Miller, and Marina Miletic, *Advances in Engineering Education*, submitted August, 2013.
- “The Influence of Written Explanations on Answer Selection on Multiple Choice Concept Questions in Introductory Thermodynamics” Bill J. Brooks, Rachel M. White, Alec S. Bowen, Adam Z. Higgins, and Milo D. Koretsky, *in preparation*.

Conference Proceedings

- “Enhancement of Photoresist Etch Rates by Argon Metastables in Plasma Afterglow Reactor,” Milo D. Koretsky and Jeffrey A. Reimer, *Mat. Res. Soc. Symp. Proc.* 236, 199 (1992).
- “An Interdisciplinary Program and Laboratory for Printed Circuit Board Design and Manufacturing,” Milo D. Koretsky, W.E. (Skip) Rochefort, and William F. Reiter, *Proceedings of the 1997 American Society for Engineering Education Annual Conference & Exposition*, Session 2613 (1997).
- “A Semiconductor Processing Program in Chemical Engineering at OSU,” Milo D. Koretsky, *Proc. ATE Semiconductor Manufacturing*, pp. 132-147 (1997).

- “Smear Removal and Microvia Drilling of Printed Circuit Boards by Microwave Plasma Processes,” Chia-Chang Hsu and Milo D. Koretsky, *Proc. IPC on Organic High Density Interconnect Structures*, pp. 62-75 (1997).
- “Applied *Chemical Process Statistics* – Bringing Industrial Data to the Classroom,” Milo D. Koretsky, *Proceedings of the 1998 American Society for Engineering Education Annual Conference & Exposition*, Session 2213 (1998).
- “Thick Metal Corrosion Control,” Rui Chen, Ted Mayer and Milo D. Koretsky, *Proc. 1st Int. Conf. Semiconductor Tech.* **2** 504-512 (2001).
- “Getting Students to Account for Variation in their Analysis of Real ChE Processes” Milo D. Koretsky, *Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition*, Session 3515 (2003).
- “Integration of Microelectronics-Based Unit Operations into the ChE Curriculum,” Milo D. Koretsky, Chih-hung (Alex) Chang, Sho Kimura, Skip Rochefort, and Cyndie Shaner, *Proceedings of the 2003 American Society for Engineering Education Annual Conference & Exposition*, Session 1313 (2003).
- “Getting Students to Approach Microelectronics Processing as a Chemical Engineer,” Milo D. Koretsky, Chih-hung (Alex) Chang, Sho Kimura, Skip Rochefort and David Hackleman, *Proceedings of the 2003 AIChE Annual Meeting, 3rd AIChE Topical Conference on Nanoscale Science and Engineering*, San Francisco, CA (2003).
- “Getting Students to Account for Variation in their Analysis of Real ChE Processes” Milo D. Koretsky, *CACHE Newsletter*, Fall (2003).
- “Integrating Micro and Nanoscale Materials Processing into the Core ChE Curriculum -Examples in Radiation Heat Transfer,” Milo D. Koretsky, *Proceedings of the 2005 American Society for Engineering Education Annual Conference & Exposition*, Session 1413 (2005).
- “Introducing ChE Sophomores to Measurement System Analysis and Analysis of Variance through Experiential Learning” Milo D. Koretsky, *Proceedings of the 2005 American Society for Engineering Education Annual Conference & Exposition*, Session 2513 (2005).
- “Experiential Learning of Design of Experiments Using a Virtual CVD Reactor” Milo D. Koretsky, Sho Kimura, Connelly Barnes, Derek-Meyers Graham, and Danielle Amatore, *Proceedings of the 2006 American Society for Engineering Education Annual Conference & Exposition*, Session 2613 (2006). Best Paper Award.
- “The Virtual CVD Learning Platform” Milo D. Koretsky, Danielle Amatore, Connelly Barnes and Sho Kimura, *36th ASEE/IEEE Frontiers in Education Conference Proceedings* (2006).
- “Instructional Design and Evaluation of a Virtual Laboratory in Nanoelectronics Processing,” Danielle Amatore, Edith Gummer, and Milo D. Koretsky, *Proceedings of the 2007 American Society for Engineering Education Annual Conference & Exposition*, Educational Research and Methods Division, (2007).
- “Development of a Nanotechnology Curriculum at Oregon State University,” Milo D. Koretsky, Sho Kimura, Alexandre Yokochi and Danielle Amatore, *Proceedings of the 2007 American Society for Engineering Education Annual Conference & Exposition* (2007).
- “Course Level Assessment and Improvement: Applying Educational Pedagogy to ABET Accreditation,” Kenneth J. Williamson and Milo D. Koretsky, *Proceedings of the 2007 American Society for Engineering Education Annual Conference & Exposition* (2007).
- “Work in Progress: How Real is Student Engagement in using Virtual Laboratories?” Euan Lindsay, Milo Koretsky, JJ Richardson, and Mahalinga Mahalinga-Iyer, *37th ASEE/IEEE Frontiers in Education Conference Proceedings* (2007).
- “A Web-based Interactive Science and Engineering Learning Tool that Promotes Concept-Based Instruction,” Milo D. Koretsky and Bill Brooks, *Proceedings of the 2008 American Society for Engineering Education Annual Conference & Exposition* (2008). Best Paper Award.

- “Teaching Experimental Design using Virtual Laboratories: Development, Implementation and Assessment of the Virtual Bioreactor Laboratory,” Christine Kelly, Edith Gummer, Philip Harding and Milo Koretsky, *Proceedings of the 2008 American Society for Engineering Education Annual Conference & Exposition* (2008).
- “The Role of Virtual Laboratories in Capstone Engineering Courses,” Milo D. Koretsky and Edith Gummer, *Research in Engineering Education Symposium* (2008).
- “Incorporation of Nanotechnology into the ChE Curriculum at Oregon State University,” Milo D. Koretsky, Alexandre Yokochi, Sho Kimura, and Sarah Herzog, *Proceedings of the 2008 AIChE Annual Meeting*, Philadelphia, PA (2008).
- “Comparison of Student Perceptions of Virtual and Physical Laboratories” Milo D. Koretsky, Christine Kelly, Philip Harding, and Edith Gummer, *Proceedings of the 2009 American Society for Engineering Education Annual Conference & Exposition* (2009).
- “Engaging High School Students in Engineering, Science and Technology using Virtual Laboratories,” Milo D. Koretsky, Debra Gilbuena, and Adam Kirsch, *Proceedings of the 2009 American Society for Engineering Education Annual Conference & Exposition* (2009).
- “Enhancement of Student Learning in Experimental Design using Virtual Laboratories,” Milo D. Koretsky, *Proceedings of the 2009 American Society for Engineering Education Annual Conference & Exposition* (2009).
- “A Sophomore Level Course Based on Best Practices from the Engineering Education Literature” Milo D. Koretsky, *Proceedings of the 2010 American Society for Engineering Education Annual Conference & Exposition* (2010).
- “The effect of Peer Instruction on Students’ Construction of Conceptual Understanding in Thermodynamics” Milo D. Koretsky and Bill Brooks, *Proceedings of the 2010 American Society for Engineering Education Annual Conference & Exposition* (2010).
- “Representations of Student Model Development in Virtual Laboratories based on a Cognitive Apprenticeship Instructional Design,” Kendra Seniow, Erick Nefcy, Christine Kelly, and Milo Koretsky, *Proceedings of the 2010 American Society for Engineering Education Annual Conference & Exposition* (2010).
- “Enhancement of Student Learning in Experimental Design using Virtual Laboratories,” Milo D. Koretsky, *Proceedings of the 2010 American Society for Engineering Education Annual Conference & Exposition* (2010).
- “Episodes as a Discourse Analysis Framework to Examine Feedback in an Industrially Situated Virtual Laboratory Projects,” Debra Gilbuena, Ben Sherrett, Edith Gummer, and Milo D. Koretsky, *Proceedings of the 2011 American Society for Engineering Education Annual Conference & Exposition* (2011).
- “SPECIAL SESSION: Educational Methods and Tools to Encourage Conceptual Learning,” Milo D. Koretsky, Ronald L. Miller, John Falconer, Michael J. Prince, Margot A. Vigeant, Stephan J. Krause, and David L. Silverstein, *Proceedings of the 2011 American Society for Engineering Education Annual Conference & Exposition* (2011).
- “Adaption of a Virtual Laboratory Curriculum: A Preliminary Study of Implementation at Other Institutions,” Debra Gilbuena, Ben Sherrett, Edith Gummer, and Milo D. Koretsky, *Proceedings of the 2011 American Society for Engineering Education Annual Conference & Exposition* (2011).
- “Collaborative Research: Integration of Conceptual Learning throughout the Core Chemical Engineering Curriculum,” Milo D. Koretsky, Ronald L. Miller, John Falconer, and David L. Silverstein *Proceedings of the 2011 American Society for Engineering Education Annual Conference & Exposition* (2011).
- “Design of a Senior Laboratory Sequence to Guide Students in Multiple Academic Programs Towards Workforce Preparedness,” Philip Harding, Milo D. Koretsky, and Kenneth J. Williamson

- Proceedings of the 2011 American Society for Engineering Education Annual Conference & Exposition* (2011).
- “Interdisciplinary Course Design Opportunities for Chemical Engineers: A Material Balances course with integrated concept-based active learning pedagogy - comparison of student perception, participation, and performance with their approaches to learning,” Jeffrey A. Nason, Bill J. Brooks, and Milo D. Koretsky, *Proceedings of the 2011 American Society for Engineering Education Annual Conference & Exposition* (2011).
- “Characterization of Student Model Development in Physical and Virtual Laboratories,” Erick Nefcy, Philip Harding, and Milo D. Koretsky, *Proceedings of the 2011 American Society for Engineering Education Annual Conference & Exposition* (2011). Best Paper Award.
- “Enhancement of Student Learning in Experimental Design using Virtual Laboratories – Year 3,” Milo D. Koretsky and Christine Kelly, *Proceedings of the 2011 American Society for Engineering Education Annual Conference & Exposition* (2011).
- “Development of an Option in Nanotechnology: Elements of Student Learning,” Milo Koretsky, Alexandre Yokochi, and Stacy Harper, *Proceedings of IEEE Nano 2011*, Aug. 15-18.
- “Understanding Feedback in an Authentic, Ill-Structured Project through Discourse Analysis: Interaction between Student and Instructor Objectives,” Debra Gilbuena, Ben Sherrett, Edith Gummer, and Milo Koretsky, *Research in Engineering Education Symposium*, 2011.
- “An Expert-Novice Study of Transfer in an Ill-Structured Problem” Ben Sherrett, Debra Gilbuena, Erick Nefcy, Edith Gummer, and Milo Koretsky, *Research in Engineering Education Symposium*, 2011.
- “Collaborative Research: Integration of Conceptual Learning throughout the Core Chemical Engineering Curriculum – Year 1” Milo D. Koretsky, David L. Silverstein, John Falconer, and Ronald L. Miller, *Proceedings of the 2012 American Society for Engineering Education Annual Conference & Exposition* (2012).
- “Preliminary Development of the AIChE Concept Warehouse”, Bill J. Brooks, Debra M. Gilbuena, John Falconer, David L. Silverstein, Ronald L. Miller, and Milo D. Koretsky, *Proceedings of the 2012 American Society for Engineering Education Annual Conference & Exposition* (2012).
- “Characterization of Student Modeling in an Industrially Situated Virtual Laboratory,” Erick J. Nefcy, Edith S. Gummer, and Milo D. Koretsky, *Proceedings of the 2012 American Society for Engineering Education Annual Conference & Exposition* (2012).
- “Using Studios as a Strategy to Respond to Increasing Enrollment,” Milo D. Koretsky, Kenneth J. Williamson, Jeffrey A. Nason, Goran Jovanovic, Chih-hung Chang, Adam Z. Higgins, Craig M. Gates, Richard M. Roehner, *Proceedings of the 2012 American Society for Engineering Education Annual Conference & Exposition* (2012).
- “The Effect of Feedback on Modeling in an Authentic Process Development Project,” Debra M. Gilbuena, Erick J. Nefcy, Milo D. Koretsky, *42nd ASEE/IEEE Frontiers in Education Conference Proceedings* (2012).
- “Muddiest Point Formative Feedback in Core Materials Classes with YouTube, Blackboard, Class Warm-ups and Word Clouds,” Stephen J Krause, Dale R Baker, Adam R Carberry, Milo Koretsky, Bill Jay Brooks, Debra Gilbuena, Cindy Waters, and Casey Ankeny, *Proceedings of the 2013 American Society for Engineering Education Annual Conference & Exposition* (2013).
- “The Influence of Feedback on Teamwork and Professional Skills in an Authentic Process Development Project,” Debra M. Gilbuena, Audrey B. Champagne, and Milo D. Koretsky, *Proceedings of the 2013 American Society for Engineering Education Annual Conference & Exposition* (2013).
- “Characterization of Iterative Model Development in a Complex, Authentic Engineering Task,” Erick J. Nefcy, Audrey B. Champagne, and Milo D. Koretsky, *Proceedings of the 2013 American Society for Engineering Education Annual Conference & Exposition* (2013).

- “Just-in-Time-Teaching with Interactive Frequent Formative Feedback (JITTIFFF or JTF) for Cyber Learning in Core Materials Courses,” Stephen J Krause, Dale R Baker, Adam R Carberry, Milo Koretsky, Bill Jay Brooks, Debra Gilbuena, Cindy Waters, and Casey Ankeny, *Proceedings of the 2013 American Society for Engineering Education Annual Conference & Exposition* (2013).
- “Collaborative Research: Integration of Conceptual Learning throughout the Core Chemical Engineering Curriculum – Year 2” Milo D. Koretsky, John Falconer, David L. Silverstein, Ronald L. Miller, Debra M. Gilbuena, Bill J. Brooks, and Christina Smith *Proceedings of the 2013 American Society for Engineering Education Annual Conference & Exposition* (2013).
- “Feedback in Complex, Authentic, Industrially Situated Engineering Projects using Episodes as a Discourse Analysis Framework – Year 1” Milo D. Koretsky, Audrey B. Champagne, and Debra M. Gilbuena, *Proceedings of the 2013 American Society for Engineering Education Annual Conference & Exposition* (2013).
- “Examining the Innovation-Decision Process: A Preliminary Study of the AIChE Concept Warehouse” Debra M. Gilbuena, Christina Smith Bill J. Brooks, Talia Finklestein, and Milo D. Koretsky, *Proceedings of the 2013 American Society for Engineering Education Annual Conference & Exposition* (2013).
- “Feedback Techniques for Small Teams Completing Authentic Engineering Tasks,” Debra Gilbuena, Jaynie Whinnery, and Milo Koretsky, *Research in Engineering Education Symposium* (2013).
- “A Preliminary Study of How Communication Channels Affect Awareness and Adoption of the AIChE Concept Warehouse,” Debra Gilbuena, Christina Smith, Bill Brooks, Marina Miletic, and Milo Koretsky, *Research in Engineering Education Symposium* (2013).

Software

- “ThermoSolver” Connelly Barnes and Milo D. Koretsky, John Wiley and Sons (2004).
- “Virtual CVD Laboratory” Connelly Barnes, Derek-Meyers Graham, Sho Kimura and Milo D. Koretsky (2006).
- “Web-based Interactive Science and Engineering (WISE) Learning Tool,” Bill Brooks and Milo D. Koretsky (2006).
- “Virtual BioReactor Laboratory” Christine Kelly, Bill Brooks, Keith Price and Milo D. Koretsky (2007).
- “AIChE Concept Warehouse,” Bill Brooks, Debra Gilbuena, David Silverstein, and Milo D. Koretsky (2011).

Reports and Others

- “Gas Phase Electron Resonance of Chemically Reactive Plasma Afterglows,” Ph.D. Thesis, University of California at Berkeley, 1991.
- “Evaluation of Embedded Reference Cells Performance in Reinforced Concrete,” Milo D. Koretsky, Farid Aboomeri, and John C. Westall, NCHRP Final Report, December 1994.
- “Hydrodynamic Modeling of an Atomic Layer Epitaxy Reactor,” Milo D. Koretsky, Jeffrey A. McKinnis, and Erki Soinenen, Project Report, Planar Systems, March 1995.
- “The Study of Chloride Ion Migration in Reinforced Concrete under Cathodic Protection,” Nadejda V. Orlova, John C. Westall, Manu Rehani and Milo D. Koretsky SRP 357 Final Report, September 1999.
- “Determining Localized Anode Condition to Maintain Effective Corrosion Protection” Vinh Nguyen, Josh Meuli, Bill Brooks, Henri Jansen, John Westall, and Milo Koretsky SPR 653 Final Report, January 2010.

SHORT COURSES/INDUSTRIAL TRAINING/WORKSHOPS

- “Methods and Tools to Help Students Learn Core ChE Concepts” ASEE Chemical Engineering Summer School, University of Maine, July 23, 24, and 26, 2012. (with David Silverstein, Ronald Miller, John Falconer, and Marina Miletic).
- “Workshop: Tools and Techniques for Conceptual Learning” AIChE Annual Meeting, Minneapolis, MN, October 18, 2011. (with David Silverstein, Ronald Miller, and John Falconer).
- “Virtual CVD Workshop” Oregon State University, August 18-20, 2009
- “Virtual CVD Workshop” 6th Annual Workshop on K-12 Engineering Education, Austin, TX, 13 June 2009.
- “Virtual CVD Workshop” Oregon State University, October 10, 2008
- “Virtual CVD Workshop” Oregon State University, August 5 – 7, 2008
- “LL Stewart Workshop: Concept-Based Instruction to Promote Active Learning in the Classroom” Oregon State University, 21 May 2008.
- “Using a Web-based Interactive Science and Engineering (WISE) Learning Tool to Promote Active Learning” Oregon State University, 19 October 2007.
- “Thin Film Deposition,” LSI Logic (Gresham, OR). This course consists of 28 hours in class materials and a participant workbook (approximately 350 pages). Over 1,000 participants have gone through this course.
- “Etch,” LSI Logic (Gresham, OR). The course consists of 28 hours in class materials and a participant workbook (approximately 350 pages). Over 1,000 participants have gone through this course.
- “Diffusion,” LSI Logic (Gresham, OR). This course consists of 28 hours in class materials and a participant workbook (approximately 350 pages). Over 1,000 participants have gone through this course.
- “Ion Implant,” LSI Logic (Gresham, OR). This course consists of 28 hours in class materials and a participant workbook (approximately 300 pages). Over 1,000 participants have gone through this course.
- “Plasma Etching,” one day short course delivered at various companies.

CURRENT FUNDING

- Principal Investigator Milo D. Koretsky, “Feedback in Complex, Authentic, Industrially Situated Engineering Projects using Episodes as a Discourse Analysis Framework,” NSF 1160353, 06/01/12-05/31/15.
- Principal Investigator Milo D. Koretsky, “Collaborative Research: Integration of Conceptual Learning throughout the Core Chemical Engineering Curriculum” NSF 1023099, 10/01/10 – 09/30/14. (OSU is the lead institution on this collaborative project which includes University of Colorado, Colorado School of Mines, and University of Kentucky.)
- Principal Investigator Milo D. Koretsky, Co-Principal Investigator Jon Dorbolo, “Pilot Study of the OSU Concept Warehouse to Promote Active Learning,” OSU TRF #931 & TRF 1056, 07/01/12-06/30/14.
- Principal Investigator Milo D. Koretsky, “Collaborative Research: Design for Impact - Creating Effective Student Activities that Faculty Will Use” NSF 1225221, 09/01/12 – 08/31/16. (Bucknell University is the lead institution on this collaborative project.)
- Principal Investigator Milo D. Koretsky, Co-Principal Investigator Brady Gibbons, “Collaborative Research: Just-in-Time-Teaching with Interactive Frequent Formative Feedback (JiTTIFFF) for Cyber Learning in Core Materials Courses” NSF 1225456, 09/01/12 – 08/31/15. (Arizona State University is the lead institution on this collaborative project.)
- Principal Investigator Milo D. Koretsky, “Development and Implementation of Interactive Virtual Laboratories to Help Students Learn Threshold Concepts in Thermodynamics” NSF 1245482, 04/01/13 – 03/31/16.

Principal Investigator Milo D. Koretsky, “Collaborative Research: Studying and Supporting Productive Disciplinary Engagement in Demanding STEM Learning Environments across Cultures and Settings” NSF 1261930, 02/01/13 – 01/31/15. (An EAGER project that is part of an NSF SAVI – joint with University of Washington and University of Turku). <http://www.innovationsforlearning.net/>

Principal Investigator Milo D. Koretsky, “Collaborative Research: Fire: Productive Disciplinary Engagement in a Complex Virtual Engineering Task; Authenticity, Rolls, and Activity” NSF 1251866, 09/15/13 – 09/14/15 (recommended), (with Susan Nolen, University of Washington).

Principal Investigator Milo D. Koretsky, Co-Principal Investigators, Susan Brubaker-Cole, Jana Bouwma-Gearhart, Shane Brown, Thomas Dick, NSF 1347817, 01/01/14 – 12/31/16 (recommended).

CURRENT RESEARCH GROUP MEMBERS (2013-2014)

Debra Gilbuena, Post-Doctoral Scholar

Laura Hirschfield, Post-Doctoral Scholar

Bill Brooks, CBEE, PhD

Erick Nefcy, CBEE, PhD

Christina Smith, CBEE, PhD

Kritsa Chinandon, MIME, PhD

Jaynie Winnery, CBEE, MS

Alec Bowen, CBEE, HBS

Kyle Thompson, EECS, HBS

Davis Weymann, CBEE, HBS

Samual Mihelic, CBEE, BS

Rachel White, CBEE, BS

Talia Finkelstein, Bio, BS

Professional Service - Reviewer (last 5 years)

Journals

Advances in Engineering Education

Chemical Engineering Education

Chemistry Education Research and Practice

Computer Methods and Programs in Biomedicine

IEEE Transactions on Systems, Man, and Cybernetics Part C

International Journal of Engineering Education

Journal of Chemical Education

Journal of Engineering Education

Journal of Professional Issues in Engineering Education and Practice

Conferences

American Society of Engineering Education, Chemical Engineering Division

American Society of Engineering Education, Educational Research & Methods Division

Frontiers in Education

IEEE NANO

Proposals

National Science Foundation, CCLI Program

National Science Foundation, EHR Core Research Program

National Science Foundation, NUE Program

National Science Foundation, TUES Program

Other

John Wiley & Sons, Textbook Proposals
P&T, External Evaluator