Jennifer Mott Peuker, Ph.D.

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EDUCATION

Ph.D. Mechanical Engineering
University of Illinois at Urbana-Champaign, May 2012
Thesis: *Using Optical Techniques to Measure Aluminum Burning in Post-Detonation Explosive Fireballs*
Advisor: Nick Glumac
Area of Study: Combustion

M.S. Mechanical Engineering
University of Illinois at Urbana-Champaign, October 2007
Thesis: *Investigation of Options to Improve Efficiency of Transcritical R744 Two-Stage Vapor Compression Systems*
Advisor: Predrag Hrnjak
Area of Study: Air Conditioning

B.S. Mechanical Engineering
California Polytechnic State University, San Luis Obispo, June 2005
Graduated Cum Laude, EIT certified in CA

Hochschule München/Munich University of Applied Sciences
Study abroad, September 2003 to February 2004

UNIVERSITY EXPERIENCE

Cal Poly, San Luis Obispo

- **Teaching**
  Assistant Professor Sept 2019–present
  Lecturer January 2014–June 2019
  Thermal System Design, Heat Transfer, Heat Transfer Laboratory, Thermodynamics I/II, Measurements and Data Analysis Laboratory, Introduction to Mechanical Engineering I

- **Ongoing Research and Scholarship**
  - Textbook Co-author: updating and editing the 5^{th} Edition of *Studying Engineering* a text book for freshman introductory engineering courses To be published Winter 2019
  - Co-PI for "Using All My Sons to Introduce Freshmen to Engineering Ethics"
  - Co-PI for "Team Based Learning in Mechanical Engineering Courses"

- **Professional Development**
  - Implicit Bias Training Dec. 2018
  - ASHRAE Winter Conference Jan. 2016, 2017, 2018
  - Institute for Diversity in Education and Advocacy (IDEA), CTLT June–Dec 2016
  - ASHRAE Continuing Education Courses Jan 2016
    - Energy Management Best Practices
    - Complying with Standard 90.1-2013: HVAC/Mechanical
    - Exceeding Standard 90.1-2013 to Meet LEED Requirements
  - CTLT Book Groups Fall 2015, Spring 2016
  - ASEE National Conference June 2015, 2016
  - Completed training to be a Consultant-Trainer of Team Based Learning March 2015

- Annual Team Based Learning Collaborative Conference — March 2014, 2015, 2016
- Faculty Learning Community — 2014–2015
- Service Learning Fellowship — December 2014
- Camp Course Design, CTLT — December 2014

- **Service**
  - ASHRAE Club Adviser — Sept. 2015–present
  - Scholarship Committee — Sept. 2015–present
  - Building Energy Performance course development and submission for inclusion in Cal Poly catalog — 2017–2018
  - Diversity Committee — Sept. 2018–present
  - Reviewer for the Women in Engineering Division for ASEE Annual Conferences — 2015, 2016, 2017, 2018
  - Website Committee — Sept. 2016–2017
  - Course Coordinator for ME128 — Sept. 2016–2017
  - Freshman Service Project Coordinator — Sept. 2015–2017

- **Workshops Given for Team Based Learning**
  Consultant-Trainer of Team Based Learning since March 2015
  - Team Based Learning 101 at Reinventing the Large Lecture Learning Community, Cal Poly — Spring 2017, Dec 2018
  - Team Based Learning 101 at Flipped Classroom Conference, Harvey Mudd College — Jan. 2016
  - Introduction to Team Based Learning at Cal Poly — August 2015
  - Team Based Learning 101 at ASEE National Conference — June 2015, 2016
  - Team Based Learning 101 at Kettering University — March 2015
  - Team Based Learning 101 at Cal Poly — September 2014
  - Introduction to Team Based Learning at Cal Poly — June, August 2014

Hochschule München/Munich University of Applied Sciences

- **Guest Lecturer** — Winter Semester 2017-2018
  Taught two technical electives for the Building Services Department as part of the English Course offerings for MUAS: Building Energy Performance and Thermal System Design

University of Alaska Anchorage

- **Teaching**
  Adjunct Instructor — Fall 2013
  Term Assistant Professor — January–June 2013
  Adjunct Instructor — Fall 2012
  - ENGR 161: Engineering Practices II—an introduction to engineering computation course. I included in course an emphasis on written and oral communication, and engineering problem solving.

- **Research and Scholarship**
  - Co-PI for research project: "Enhancement of Freshman Engineering Student Success Through Implementing a Design Your Process to Success Project"
  - "To Lecture or Not to Lecture? Computer Programming for Engineers" through Making Learning Visible—Implementation, Impact & Dissemination of Scholarly Teaching Group
  - Co-authored paper "On AlO Emission Spectroscopy as a Diagnostic in Energetic Materials Testing" in Propellants, Explosives, Pyrotechnics, 2013
  - Co-authored two conference papers for the 120^{th} ASEE Annual Conference and Exposition

    - "Effect of Multiple Choice Testing on Student Performance in an Introductory Engineering Course"
    - "Incorporating Active Learning into a Thermal Systems Design Lecture"

- **Service**
  - Reviewer for the Educational Research and Methods Division, Energy Conservation and Conversion Division, and the Women in Engineering Division for the 120th ASEE Annual Conference and Exposition
  - Making Learning Visible: "To Lecture or Not to Lecture? Computer Programming for Engineers" completed research work displayed publicly on the UAA CAFE website for other faculty to use for inspiration and ideas for their own classroom practices.
  - Collaboration with the Alaska Native Science and Engineering Program to develop middle and high school summer camp engineering activities. Worked with middle school and high school students at the Alaska Native Science and Engineering Program summer camps leading engineering career exploration activities

- **Professional Development**
  - Attended workshop on Backwards Design, Anchorage, AK — August 2013
  - Attended the 120^{th} ASEE Annual Conference and Exposition, Atlanta, GA — June 2013
  - Attended 13th Annual Team Based Learning Collaborative Conference, San Diego CA — March 2013
  - Attended two day workshop on Team Based Learning, Anchorage, AK — January 2013
  - Joined CAFE book group: Making Learning Visible—Jumping into Scholarly Teaching, Anchorage, AK — Spring 2013

University of Illinois at Urbana-Champaign

- **Teaching**

  Primary Instructor — Fall 2010
  - Primary instructor for technical elective Design of Thermal Systems

  Teaching Assistant — Fall 2009
  - Led discussion sections for Calculus II course designed for engineering freshmen

  Lab Development Teaching Assistant — Spring 2008
  - Updated and improved laboratory experiment handouts
  - Revised grading rubrics for the lab reports
  - Designed three new lab experiments for future semesters

  Teaching Assistant — Spring 2007, Fall 2007, Spring 2010
  - Taught laboratory sections for introductory fluids mechanics
  - Head TA Fall 2007, Spring 2010

- **Research**

  Graduate Research Assistant — June 2008 to May 2011
  Advisors: Nick Glumac and Herman Krier
  - Investigation of combustion with aluminum in explosive fireballs using optical and non-optical measurement techniques

  Graduate Research Assistant — July 2005 to December 2006
  Advisor: Predrag Hrnjak
  - Experimentally investigated a CO_2 air conditioning system to improve its efficiency by using a split system arrangement and two-stage compression.

- **Service**

  MechSE Graduate Women: Treasurer 2008–2009; Vice-President 2007–2008 2007–2009

  – Founding member of group to connect women in the Mechanical Science and Engineering department. Activities include breakfast with visiting female speakers for the MechSE seminar series, welcome event for new students, and helping with department recruitment activities

  Discipline Specific Small Group Facilitator August 2008,09,10, January 2009

  – Team taught two 1 hour lessons to future teaching assistants in mechanical engineering as part of a two-day mandatory teaching assistant training
  – Topics taught were "Questioning Strategies" which explored how to phrase questions to students to facilitate discussion and learning; and "Planning a Class Session" in which the process of preparing for a class was shown

  Microteaching Session Facilitator August 2008

  – Supervised four 90 minute microteaching sessions in which future teaching assistants gave a mini-lecture
  – Offered constructive feedback via written comments to future teaching assistants about their teaching
  – Led group discussion about the microteaching experience

- **Professional Development**

  Teacher Scholar Certificate April 2010

  – Requirements include completing Graduate Teacher Certificate, teaching at least three semesters, submitting an example of original work that has been assessed by students or peers, exploring discipline-based pedagogy, performing and reflecting on discipline-based service, writing a teaching philosophy statement

  Graduate Teacher Certificate April 2010

  – Requirements include teaching two semesters, using early feedback and end-of-semester student feedback to improve teaching, observation of teaching by a Center for Teaching Excellence staff with discussion afterwards, and six hours of teaching development workshops

INDUSTRY EXPERIENCE

ACCO Engineered Systems June-August 2016

- Ph.D. Research Engineer

  Conducted energy building modeling projects to assist in the design of HVAC systems. Participated in extensive training to be able to design constructable HVAC systems.

HONORS AND AWARDS

Learn-by-Doing Scholar Award	2015
Consultant-Trainer of Team Based Learning Certification	2015
Service Learning Fellowship	2014
Professional Development Grant	2012
ASME Graduate Teaching Fellowship	2010–2011
Teacher Scholar Certificate	April 2010
Graduate Teacher Certificate	April 2010
Outstanding (top 10%) teacher award based on student feedback	Spring 2010
Outstanding (top 10%) teacher award based on student feedback	Fall 2007
Outstanding (top 10%) teacher award based on student feedback	Spring 2007

PROFESSIONAL MEMBERSHIPS

ASEE, ASHRAE, SWE, Tau Beta Pi, Pi Tau Sigma

PEER REVIEWED PAPERS & PUBLICATIONS

Peuker, J., Peuker, S., *Ensuring Student Engagement in a Flipped Classroom Using Team Based Learning*, 19^{th} Annual California State University Teaching and Learning Symposium, San Jose, CA, October 21 & 22, 2016

Tweddell, S., Lin, A., Levine, R., Winter, L., Hyderi, A., Kubitz, K., Mott, J., *Evaluating Team-Based Learning (TBL) Modules: How to Bring Your TBL Module to the Next Level*, Workshop, 15th Annual Team Based Learning Collaborative Conference, Albuquerque, NM, USA, March 4–5, 2016

Mott, J., Peuker, S., *Achieving High Functioning Teams Using Team-Based Learning in Flipped Classrooms*, 122^{th} ASEE Annual Conference and Exposition, Seattle WA, USA, June 14–17, 2015

Mott, J., Peuker, S., *Using Team-Based Learning to Ensure Student Accountability and Engagement in Flipped Classrooms*, 122^{th} ASEE Annual Conference and Exposition, Seattle WA, USA, June 14–17, 2015

Tweddell, S., Lin, A., Levine, R., Winter, L., Sabina, R., McCarter, R., Hyderi, A., Fall, L., Kubitz, K., Mott, J., Leong, S.L., Karpa K., *Development of a Team-Based Learning Module Review Instrument*, Poster, 14th Annual Team Based Learning Collaborative Conference, St. Petersburg FL, USA, March 5–7, 2015

Peuker, J.M., Peuker, S., *Implementing Team Based Learning in First-Year Engineering Courses*, Sixth Annual First Year Engineering Experience Conference (FYEE), College Station, TX, USA, August 7-8, 2014

Peuker, J.M., Peuker, S., *Extended Abstract—Implementing Team Based Learning in Freshmen Engineering Courses*, Fifth Annual First Year Engineering Experience Conference (FYEE), Pittsburgh, PA, USA, August 8–9, 2013

Peuker, J.M., *Incorporating Active Learning into a Thermal System Design Lecture*, 120^{th} ASEE Annual Conference and Exposition, Atlanta, GA, USA, June 22–27, 2013

Peuker, J.M., Brock, J. M., Peuker, S., *Effect of Multiple Choice Testing on Student Performance in an Introductory Engineering Course*, 120^{th} ASEE Annual Conference and Exposition, Atlanta, GA , USA, June 22–27, 2013

Peuker, J.M., Lynch, P., Krier, H., Glumac, N., *On AlO Emission Spectroscopy as a Diagnostic in Energetic Materials Testing*, Propellants, Explosives, Pyrotechnics, 38, 4, 577–585, 2013

Peuker, J.M., Lynch, P., Krier, H., Glumac, N., *Particle Size and Gas Environment Effects on Blast and Overpressure Enhancement in Aluminized Explosives*, Proceedings of the Combustion Institute, 34, 2, 2205–2212, 2013

Peuker, J.M., Krier, H., Glumac, N., *Interpretations of Emission Measurements from Aluminized Explosive Fireballs*, 14th International Detonation Symposium, Coeur d'Alene, ID, USA, April 11–16, 2010

Peuker, J.M., Krier, H., Glumac, N., *AlO Emission Measurements from Aluminized Explosive Fireballs*, Central States Section of the Combustion Institute, Spring Technical Meeting, University of Illinois, Champaign, IL, USA, March 21–23, 2010

Glumac, N., Krier, H., Lynch, P., Peuker, J. M., *Optical Spectroscopy of Fireballs from Metallized Reactive Materials*, 48th AIAA Aerospace Sciences Meeting, Orlando, FL, USA, January 3-6, 2010

Peuker, J.M., Lynch, P., Krier, H., Glumac, N., *Optical measurements inside the fireballs of aluminized explosives*, U.S. National Combustion Meeting, University of Michigan, Ann Arbor, MI, USA, May 17–20, 2009

Peuker, J.M., Lynch, P., Krier, H., Glumac, N., *Optical Depth Measurements of Fireballs from Aluminized High Explosives*, Optics and Lasers in Engineering, 47, 9, 1009–1015, 2009

Peuker, J.M., Hrnjak, P. S., *Investigation to improve efficiency of transcritical R744 two-stage vapor compression systems*, 12th International Refrigeration and Air Conditioning Conference, Purdue University, West Lafayette, IN, USA July 14–17, 2008