

**DR. PAMELA ANN EIBECK**  
Dean, College of Engineering  
Professor, Mechanical Engineering  
Texas Tech University

**EDUCATION**

- Ph.D. Mechanical Engineering (Minor, Electrical Engineering), **Stanford University**, 1986.  
MS Mechanical Engineering, **Stanford University**, 1982.  
BS Mechanical Engineering (with Distinction), **Stanford University**, 1979.

Institute for Management and Leadership in Education, Harvard University, 2002.  
Wharton Executive Education / IRHE Program in Higher Education January, 2001.

**PROFESSIONAL EXPERIENCE**

**Texas Tech University**

Lubbock, Texas

- Dean, College of Engineering (5/04 – present)
- Professor, Mechanical Engineering (5/04 – present)

**Northern Arizona University**

Flagstaff, Arizona

- Vice Provost for Undergraduate Studies (12/01 – 4/04)
- Director, Honors Program (1/01 – 12/01)
- Interim Dean, College of Engineering and Technology (9/99 – 6/00)
- Director, Master of Engineering (6/98 – 12/00)
- Chair, Mechanical Engineering (7/95 – 9/99; 7/00 – 12/00)
- Professor, Mechanical Engineering (7/95 – 4/04)

**University of California at Berkeley**

Berkeley, California

- Associate Professor with tenure (7/91 – 6/95)
- Assistant Professor (7/85 – 6/91)

**Sandia National Laboratories**

Livermore, California

- Visiting Scientist, Combustion Research Facilities (7/88 – 6/92)

**Pacific Gas and Electric**

San Francisco, California

- Staff Engineer (9/79 – 9/80)

## **HONORS AND AWARDS**

Fellow, American Society of Mechanical Engineers  
YWCA Women in Science Excellence Award, 2008  
Boeing Outstanding Educator Award (one of team of 15 faculty), 1999  
Distinguished Engineering Educator Award, Society of Women Engineers, 1996  
Prytanean Award, Special Commendation, 1990  
Ralph R. Teetor Educational Award Recipient, 1988  
Pi Tau Sigma Award for Excellence in Teaching, 1987  
IBM Young Faculty Development Award, 1986, 1987  
Exxon Teaching Fellowship, 1982-1985  
Phi Kappa Phi, member  
Tau Beta Pi, eminent engineer  
Professional Engineer, Texas PE License # 98743

## **PROFESSIONAL ACTIVITIES**

Executive Board, ASEE Engineering Deans Council, 6/08 to present  
Vice Chair, ASEE Engineering Deans Council Public Policy Committee, 6/07 to present  
Texas Emerging Technology Fund Advisory Board, 8/05 – 8/07  
ABET Engineering Accreditation Council, 7/05 - present  
ASME Committee on Engineering Accreditation, 2003 to present  
ASME Task Force on Graduate Education, 2007 to present  
Advisory Board, Young Womens' Leadership School, Lubbock Independent School District,  
2007 to present  
ABET/ASME Program Evaluator, since 7/00  
Texas Deans' representative to ASEE, TSPE, and TBPE  
Conference co-Chair, ASME International Mechanical Engineering Education Conference,  
Puerto Rico, March, 2007  
Associate Editor, *ASME Journal of Engineering Education*, 9/96 to 6/99.  
NEEDS Editor, SYNTHESIS Coalition, 1/95 to 6/99.  
Board of Directors, SYNTHESIS Coalition, 1/92 to 6/95.  
Invited Speaker, First International Conference on Engineering Education, Taipei, Taiwan, May  
25-27, 1994.  
Faculty advisor for SAE student chapter, UCB 9/91 to 6/95.  
Consultant for Energyline Corporation, Hayward, CA, 1986; ATA Industries, Inc., Oakland, CA,  
1986; Institute for Technology Development, Jackson, MS 1987; Genium Publishers,  
Schenectady, NY 1987; Control Data Corporation, MN, 1987; Applied Materials, Sunnyvale,  
CA 1991.  
Reviewer for *ASME J. of Heat Transfer*, *Intl. J. of Heat Mass Transfer*, NSF, ASME Heat  
Transfer Division.  
Member of American Society of Mechanical Engineers and American Society for Engineering  
Education.

## **GRANTS AND AWARDS**

“Center for Research, Assessment and Development of Learning in Electronic Environments,”  
Arizona Technology & Research Initiative Fund, July 1, 2001 – June 30, 2007, \$9.27M.  
“NAU/NSF Engineering Scholars Program,” National Science Foundation, April 1, 2000 –  
March 31, 2004, \$495,000.

- "Integrating Practice into Advanced Engineering Education," National Science Foundation, Sept 1, 1997 - August 31, 2000, \$399,720.
- "SYNTHESIS: Courseware Quality Editorial Board," subcontract with UC Berkeley, Headquarters NSF SYNTHESIS Coalition, 1997, \$4,800.
- "SYNTHESIS: Courseware Quality Editorial Board," subcontract with UC Berkeley, Headquarters NSF SYNTHESIS Coalition, 1996, \$17,875.
- "Computer/Software Replacement for the ME 107A lab, Experimentation and Measurement," funded by IBM and UCB College of Engineering, 1994, \$200,000.
- "Instrumentation Replacement for the ME107A lab, Experimentation and Measurement," funded by Hewlett-Packard, 1993, \$83,840.
- "Self-Guided Instructional Lab," Project Leader, funded by NSF SYNTHESIS Coalition, 6/30/92 - 6/30/95: \$105,000.
- "SYNTHESIS: A NSF Engineering Education Coalition: UC Berkeley Campus," Co-Principal Investigator (Co-PI since 1/93), funded by National Science Foundation), funding period: 9/30/89 - 2/29/94, funding to Berkeley campus thus far: \$1.58M.
- "Heat Transfer Augmentation Using Oscillating Impinging Jets," funded by Universitywide Energy Research Group, Principal Investigator, UCB-ENG-8210, 7/1/92 - 6/30/93, \$23,500.
- "A Flow Visualization and Heat Transfer Study of the Flow Within Tile Gaps on AFE," Principal Investigator, funded by NASA-AMES, Interchange No. NCA2-451, 10/1/89-7/31/90, \$24,950.
- "Quantifying Mixing and Its Impact on Heat Transport," Principal Investigator, funded by National Science Foundation, Grant No. CBT-8807838, 9/15/88 - 2/28/90, \$30,000.
- "Thermal Modeling of Fixed Disk Drives: Predicting Viscous Dissipation," Principal Investigator, funded by IBM Corporation, Grant No. 811412, 7/6/88 - 12/31/89, \$59,000.
- "The Turbulent Transport of Heat within a Longitudinal Vortex/Boundary Layer Interaction," Principal Investigator, funded by the Department of Energy, Grant No. DE-FG03-87ER13780, 9/1/87 - 8/31/90, \$211,000.
- "Augmentation Techniques for the Cooling of Electronic Equipment," Principal Investigator, funded by the IBM Young Faculty Development Award, 6/86 - 5/88, \$60,000.

## PUBLICATIONS

Eibeck, P.A., 2008, "Which Came First: the Professor or the Student?" invited speaker, Center for Engineering Education Outreach, Tufts University, Medford, MA, February 19..

Eibeck, P.A., 2008, "Are Disciplinary Boundaries Impeding the Education of Engineering Undergraduates?", dinner lecture at On Being an Engineer: Cognitive Underpinnings of Engineering Education Conference, Lubbock, TX, February 1.

Eibeck, P.A., 2008, "To Be or not to BS + 30", *Texas Professional Engineer Magazine*, Texas Society of Professional Engineers, January/February.

Eibeck, P.A., 2006, "Universities: Inspiring or Deterring Technology Transfer?" invited speaker, 9<sup>th</sup> World Conference on Integrated Design and Process Technology, San Diego, CA, June 25-30.

Eibeck, P.A., 2005, "Harnessing the Raw Materials of 21<sup>st</sup> Century Economic Growth," *Nanotechnology Now*, April 20, 2005 ([http://www.nanotech-now/news.cgi?story\\_id=09125](http://www.nanotech-now/news.cgi?story_id=09125))

Eibeck, P.A., 2000, "Design4Practice: Reflections of an Administrator," panel presentation at Sustaining Innovations in Engineering Education Workshop, Frontiers in Education Conference, Kansas City, MO, October 18 – 21.

Johnson, V., Eibeck, P.A., Higle, J., Jankowski, D., 2000, "A Master of Engineering Degree Designed for Distance Learning," presented at Pacific Southwest ASEE Regional Conference, Tucson, AZ, April 14-15.

Muramatsu, B., McMartin, F., Eibeck, P. A., Tront, J. G., and Anderson, A. W., 2000, "An Evaluation Process for Engineering Courseware: The Premier Award for Excellence in Engineering Education Courseware," *Proceedings of the 2000 International Conference for Engineering Education*: August 13-17, Taipei, Taiwan. ISSN: 1562-358

Eibeck, P.A., Higle, J., Jankowski, D., Johnson, V., 1999, "A Collaborative Master of Engineering Program," in *Proceedings of 1999 Frontiers in Education Conference*, Puerto Rico, November 10-13.

Eibeck, P.A., 1997, "Instructional Technology," invited lecture, Mercer University College of Engineering Faculty Forum, May 28.

Agogino, A., Muramatsu, B., Eibeck, P., Stern, J., 1997, "Effective Processes to give Engineering Educators Easy Access to Quality-Reviewed Electronic Courseware," workshop at NSF Engineering Education Innovator's Conference, April 7 - 8, Arlington, VA.

Eibeck, P.A., 1997, "To Engineer is Human...or Inhumane?" Last Lecture Series, Northern Arizona University, February 25.

Eibeck, P.A., 1996, "Criteria for Peer-Review of Engineering Courseware on the NEEDS Database," *IEEE Transactions on Education, Special Issue on the Application of Information Technologies to Engineering and Science Education*, Volume 39, Number 3, August 1996.

Boller, S.M., Eibeck, P.A., Nickerson, R.M., 1996, "Vortex Breaker Design for a Flue Stack with Swirling Flow," *Proceedings of the ASME Fluids Engineering Division*, FED-Vol. 242, pp. 369-376.

Eibeck, P.A., 1996, "Features of Quality in Instructional Courseware," lecture at Instructional Technology Fair, Northern Arizona University, October 10.

Eibeck, P.A., Ramirez, M., Muramatsu, B, 1996, "Evaluation Criteria for Engineering Instructional Courseware," NTU Faculty Forum, broadcast Sept 10, 1996.

Eibeck, P.A., 1995, "Sharing Courseware Resources Through the NEEDS Database", panel discussion at Frontiers in Education 1995, Atlanta, GA Nov 1-4, 1995.

Eibeck, P.A., 1995, "Establishing Criteria for Peer Reviewed Engineering Instructional Courseware", session 3241: Electronics Publishing, ASEE 1995 Annual Conference, Anaheim, CA, June 25-28, 1995

Eibeck, P.A., 1994, "A Quasi-Open-Ended Vibrations Experiment with Multimedia Support," poster session, presented at the ASEE Annual Conference, Edmonton, CANADA, June 26-29.

Eibeck, P.A., 1994, "SYNTHESIS: as NSF Engineering Education Coalition," invited lecture at the 1994 International Conference on Engineering Education, Taipei, Taiwan, May 25-27, 1994.

Higgins, B.S, Sgro, L.A., Lau, B.C., Lucas, D.C., Eibeck, P.A., Koshland, C.P., Sawyer, R.F., 1994, "Characterization of a Vertical Flow Reactor", work-in-progress poster at Twenty-Fifth International Symposium on Combustion, Irvine, CA, July 31 - Aug. 5, 1994.

Eibeck, P.A., 1994, "A Quasi-Open-Ended Vibrations Experiment with Multimedia Support", New and Novel Laboratory Experiments Poster Session, ASEE Annual Conference, Edmonton, CA June 26-30, 1994.

Eibeck, P.A., J.O. Keller, T.T. Bramlette and D.J. Sailor, 1993, "Pulse Combustion: Impinging Jet Heat Transfer Enhancement," *Combust. Sci. and Tech.*, 94, 1-6, 147.

Keller, J.O., P.A. Eibeck, T.T. Bramlette, and P.K. Barr, 1993, "Pulse Combustion: Tail Pipe Exit Jet Characteristics," *Combust. Sci. and Tech.*, vol. 94, nos. 1-6, 167.

Garimella, S.V., K.A. Shollenberger, P.A. Eibeck and S. White, 1993, "Flow and Heat Transfer in Space-Vehicle Tile Gaps," *AIAA J. of Thermophysics and Heat Transfer*, vol. 7, no. 4, pp. 644-650.

Eibeck, P.A., 1993, "Multimedia Courseware Support for Instruction of Engineering Experimentation," *Proceedings of Frontiers in Education 23rd Annual Conference* (ed. L.D. Grayson), Nov 6-9, 1993, Washington, DC.

Garimella, S.V. and Eibeck, P.A., 1992, "Onset of Transition in the Flow Over a Three-Dimensional Array of Rectangular Obstacles," *ASME J. of Electronics Packaging*, Vol. 114, No. 2, pp. 251-255.

Garimella, S.V., Shollenberger, K., Eibeck, P.A., White, S., 1992, "Flow and Heat Transfer in Space Vehicle Tile Gaps," presented at 1992 National Heat Transfer Conference, Aug 19-21, San Diego, CA.

Wroblewski, D.E. and Eibeck, P.A., 1992, "Turbulent Heat Transport in a Boundary Layer Behind a Junction of a Streamlined Cylinder and a Wall," *ASME J. of Heat Transfer*, Vol. 114, No. 4, pp. 840-849.

Garimella, S.V. and Eibeck, P.A., 1992, "Fluid Dynamic Characteristics of the Flow over an Array of Large Roughness Elements," presented at the 3rd Conf. on Thermal Phenomena in Electronic Systems, Feb 5-7, Austin, Texas.

Garimella, S.V. and Eibeck, P.A., 1991, "Fluid Dynamic Characteristics of the Flow over an Array of Large Roughness Elements," *ASME J. of Electronic Packaging*, Vol. 113, No. 4, pp. 367-373.

Hudson, A.J. and Eibeck, P.A., 1991, "Torque Measurements in Co-Rotating Disks in an Axisymmetric Enclosure," *ASME J. of Fluids Engineering*, Vol. 113, No. 4, pp. 648-653.

Wroblewski, D.E. and Eibeck, P.A., 1991, "Measurements of Turbulent Heat Transport in a Boundary Layer With an Embedded Streamwise Vortex," *Int'l J. of Heat and Mass Transfer*, Vol 34, No. 7, pp. 1617-1631.

Wroblewski, D.E. and Eibeck, P.A., 1991, "A Frequency Response Compensation for Cold Wires and Its Application to a Turbulent Heat Flux Probe," *Exptl Thermal and Fluid Science*, Vol. 4, pp. 452-463.

Garimella, S.V. and Eibeck, P.A., 1991, "Effect of Spanwise Spacing on the Heat Transfer from an Array of Protruding Elements in Forced Convection," *Int'l J. of Heat and Mass Transfer*, Vol.34, No. 9, pp. 2427-2430.

Garimella, S.V. and Eibeck, P.A., 1991, "Enhancement of Single Phase Convective Heat Transfer from Protruding Elements Using Vortex Generators," *Int'l J. of Heat and Mass Transfer*, Vol. 34, No. 9, pp. 2431-2433.

Eibeck, P.A., 1990, "An Experimental Study of the Flow Downstream of a Circular and Tapered Cylinder," *ASME J. of Fluids Engineering*, Vol. 112, No. 4, pp. 393-401.

Garimella, S.V. and Eibeck, P.A., 1990, "Heat Transfer Characteristics of an Array of Protuberances in Single Phase Forced Convection," *Int'l J. of Heat and Mass Transfer*, Vol. 33, No. 12, pp. 2659-2669.

Garimella, S.V. and Eibeck, P.A., 1990, "Onset of Transition in the Flow Over a Three-Dimensional Array of Rectangular Obstacles," presented at the ASME Winter Annual Meeting, Dallas, Texas, HTD Vol. 153, pp. 1-6.

Eibeck, P.A., 1990, "An Experimental Study of the Flow Downstream of a Circular and Tapered Cylinder," presented at the ASME Winter Annual Meeting, Dallas, Texas.

Fisher, E.M. and Eibeck, P.A., 1990, "The Influence of a Horseshoe Vortex on Local Convective Heat Transfer," *ASME J. of Heat Transfer*, Vol. 112, No. 2, pp. 329-335.

Eibeck, P.A., Clauss, N.S. and Cohen, D.J., 1989, "Prediction of Temperature Distributions and Thermal Expansions Within a Fixed Disk-Drive Storage System," *ASME J. of Electronics Packaging*, Vol. 111, No. 3, pp. 220-227.

Eibeck, P.A. and Cohen, D.J., 1989, "Modeling Thermal Characteristics of a Fixed Disk Drive," *IEEE Trans. Components, Hybrids, and Manufacturing Technology*, Vol. 11, No. 4, pp. 566-570.

Eibeck, P.A., 1988, "Book Review: Thermometry," *Experimental Thermal and Fluid Science*, Vol. 1, p. 225.

Eibeck, P.A., Shaler, N.J. and Trezek, G.J., 1988, "Thermal Expansion Model of Fixed Disk-Drive Storage Systems," *Cooling Technology for Electronic Equipment*, (W. Aung, editor), Hemisphere Publishing Corporation.

Eibeck, P.A. and Eaton, J.K., 1987, "Heat Transfer Effects of a Longitudinal Vortex Embedded in a Turbulent Boundary Layer," *ASME J. of Heat Transfer*, Vol 109, No. 1, pp. 16-24.

Fisher, E.M. and Eibeck, P.A., 1987, "The Influence of a Horseshoe Vortex on Local Convective Heat Transfer Rates," *Heat Transfer in Gas Turbine Engines*, HTD-Vol. 87, pp. 57-66.

Eibeck, P.A. and Eaton, J.K., 1986, "The Effects of Longitudinal Vortices Embedded in a Turbulent Boundary Layer on Momentum and Thermal Transport," *Heat Transfer 1986*, (Tien, Carey & Ferrell, editors), Vol. 3, pp. 1115-1120.

Eibeck, P.A. and Eaton, J.K., 1984, "Heat Transfer Effects of Longitudinal Vortices Embedded in a Turbulent Boundary Layer," ASME publication 84-HT-21.

## **ADMINISTRATIVE ACCOMPLISHMENTS**

**Dean, College of Engineering, Texas Tech University.** As dean of engineering, I am responsible for eight academic departments, a \$55 million annual budget, 4400 students, 156 faculty, and five research centers. My primary goal has been to improve the quality of research in the college, increase private donations, and enhance the college's national reputation.

Accomplishments include:

- Increased research funding in the college by nearly 40% in the last three years.
- Obtained a \$9 million funding package from the state, the university and private donations to recruit a faculty research team in nanophotonics to the College of Engineering.
- Tripled annual external donations to the college. The petroleum engineering department was recently named through a \$15 million gift. The engineering college endowment grew by \$35 million in four years, more than doubling in size.
- Enhanced student services, first year academic support and recruiting, leading to an increase in enrollments of 22% over the past four years.
- Introduced new capabilities in bioengineering and initiating a nuclear engineering program.
- Appointed by the Governor to serve on the Texas Emerging Technology Fund Committee, responsible for recommending the distribution of \$200M in funds to encourage start up companies in Texas based on emerging technologies.
- Completed a space use study, initiated \$10 million in renovations, and began an expansion initiative for the college which includes two new buildings.
- Texas Tech engineering appeared in the top 100 undergraduate and graduate programs in the US News and World Report ranking, with steadily increasing rankings.
- Worked closely with faculty over two years to develop a strategic plan with strong faculty buy-in and clear metrics that are assessed annually.

**Vice Provost for Undergraduate Studies, Northern Arizona University.** Responsibilities included general education program; academic assessment; Center for Research, Assessment and Development of Learning in Electronic Environments; academic advising; institutional accreditation (NCA); academic program review; and distinctive interdisciplinary programs (Honors Program, Grand Canyon Semester, 3-Year Program). As Vice Provost, I served on key leadership committees, including the President's Cabinet, the Strategic Planning Committee, and the Council of Deans. Accomplishments include:

- Assured excellence in the liberal studies (general education) program, incorporating a new diversity requirement and recasting the foundational freshman course. Initiated an assessment of the liberal studies program with a focus on fully defining the desired student learning outcomes and creating a set of workable assessment measures for the program.
- Established the Center for Research, Assessment and Development of Learning in Electronic Environments with a 5-year, \$9.3M state grant to assure technological literacy of students, faculty development, and research in best practices for pedagogical applications of information technology;
- Transformed campus-wide academic advising from college-based to centralized freshman advising, including design and implementation of a \$3 million student academic services center.
- Led academic-based student retention initiatives, including introduction of early enrollment of freshman, Freshman Interest Groups, and revision of the freshman seminar program.
- Prepared the self-study and coordinated a successful North Central Association Interim Visit in Fall of '02.

- Appointed by the President to chair a committee to revise affirmative action programs on campus.

**Director, University Honors Program, NAU.** My responsibilities were to promote academic excellence throughout the campus by increasing the visibility and sustained academic excellence of the Honors Program. Accomplishments included:

- Developed distinctive programs in leadership and international study to prepare honors graduates for their responsibilities as leaders within their communities and in their professions.
- Improved the quality of the Honors curriculum by defining educational objectives appropriate to highly-motivated, academically superior students, assuring these objectives were met within the honors courses, and providing coherence to the coursework offered.
- Increased student retention through enhancing the students' sense of community and providing improved advising and student support.
- Increased campus-wide participation and buy-in to the honors program through financial incentives, recognition of departmental contributions, and shared governance.

**Department Chair, Mechanical Engineering, NAU:** Led the mechanical engineering department as it became a vibrant, aggressive academic department with a national niche. Specific accomplishments included:

- Developed an aggressive vision and strategic plan with constituents, including industry representatives, alumni, faculty and students.
- Increased quality while also streamlining the curriculum by focusing curricular offerings on educational objectives, enforcing academic policies on prerequisites and grade replacements, and promoting an atmosphere of high expectations for student performance.
- Increased scholarly activity of faculty by hiring outstanding faculty with research expectations, providing release time to enable research productivity, and mentoring faculty in research program development and funding strategies. External grants to the department increased by a factor of eight during my leadership.
- Increased ME department enrollments by 35% during a period when enrollments decreased on the rest of campus due to the increased vitality and quality of the program.
- Vitalized the Departmental Advisory Council by recruiting strong engineering managers representing state and national corporations and small companies. This resulted in increased corporate scholarships, in-kind donations, industry-sponsored research activities, and industry-feedback on program and course content.
- Administratively implemented, as well as instructed in, the Design4Practice sequence. This college-wide curriculum was recognized with the Boeing Outstanding Educator Award in 1999.
- Led the development of a sustainable assessment plan to meet the new engineering accreditation criteria.

**Director of Master of Engineering, NAU.** Led the cross-campus negotiations, Board of Regents proposal development, and initial implementation of the Tri-University Master of Engineering program, a graduate program offered collaboratively by the three Arizona state universities to serve practicing professionals. The universities coordinate in admissions, registration and tuition/fee payments and curriculum development. Courses are offered in both residential and in distance modes. Specific contributions include:

- Facilitated the long and sometimes contentious negotiations between representatives of the three colleges to define a program that serves the students effectively, recognizes the

academic integrity and autonomy of individual units while promoting collaboration, and responds efficiently to the need for distance-offered professional programs.

- Conducted market surveys and focus sessions to define needs of potential students in terms of content areas, mode of course delivery, and student characteristics;
- Obtained NSF funding (\$400,000) to support faculty development of practice-oriented coursework to be offered at a distance;
- Developed distance course delivery strategies, addressing delivery technology (video, Web streaming, satellite, IITV), fee structuring, student support, and faculty support issues;