

Academic Vita

NAME: Peter M. Osterberg

EDUCATION:

Ph.D., Electrical Engineering, Massachusetts Institute of Technology, Cambridge, MA, 1995. Ph.D. thesis title: "Electrostatically Actuated Microelectromechanical Test Structures for Material Property Measurement".

https://faculty.up.edu/oster/osterberg_mit_phd_thesis.pdf

B.S. and M.S., Electrical Engineering, *ibid.*, 1980. M.S. thesis title: "Deformable Membrane Spatial Light Modulator: A Charge Coupled Approach".

ACADEMIC APPOINTMENTS:

Associate Professor, Electrical Engineering, University of Portland, Portland, OR, 2002-Present.

Assistant Professor, Electrical Engineering, *ibid.*, 1996-2002.

Post-doctoral position, Massachusetts Institute of Technology, Cambridge, MA, 1995-1996.

Graduate Research Assistant, *ibid.*, 1992-1995.

Graduate Teaching Assistant, *ibid.*, 1978-1979, 1991-1992.

COURSES TAUGHT AT UP (FALL SEMESTERS)

(Req=Required Course, TE=Technical Elective Course):

EE351 Electronic Circuits I (3 cr/Req) (F 1996-F 2004, F 2006-F 2016)

EE451 Advanced Analog Circuits (3 cr/TE) (F 1996-F 2004, F 2006-F 2016)

EGR361 Analysis of Engineering Data (3 cr/Req) (F 2015-F 2016)

EE483 Faculty Advisor for Senior Capstone Design Teams (F 1996-F 2016)

EGR360 Analysis of Engineering Data (2 cr/Req).(F 2011-F 2014)

EGR110 Introduction to Engineering (2 cr/Req) (F 1997-F 2004, F 2006-F 2010)

COURSES TAUGHT AT UP (SPRING SEMESTERS)

(Req=Required Course, TE=Technical Elective Course):

EE352 Electronic Circuits II (3 cr/Req) (Sp 1997-Sp 2017)

EE371 Electronic Circuits Lab (1 cr/Req) (Sp 1997-Sp 2017)

EE438 Intro to Digital VLSI Design (3 cr/TE) (Sp 1997-Sp 2017)

EE484 Faculty Advisor for Sr Capstone Design Teams (Sp 1997-Sp 2017)

FE Review Session: "Analog & Semiconductor Electronics" (Sp 1997-Sp 2017)

EE271 Electrical Circuits Lab (1 cr/Req) (Sp 2009-Sp 2013, Sp 2015-Sp 2016)

COURSE TAUGHT AT UP SALZBURG (SUMMER 2012 SEMESTER):
(Req=Required Course, TE=Technical Elective Course):

EGR491 Seminar: Analysis of Engineering Data (3 cr/Req)

RESEARCH FOCUS:

Micro and Nano ElectroMechanical Systems (MEMS and NEMS)
Nanotechnology, Nanoscience and Nanoelectronics
Very-Large-Scale-Integrated Circuits (VLSI)
Analytical and Numerical Methods in Electrical Engineering
ABET Accreditation Techniques and Methods

PROFESSIONAL EXPERIENCE:

Digital Equipment Corporation, Hudson, MA, 1986-1991.
VLSI product engineering manager for VAX computer-line electronics.

GTE, Inc., Needham, MA, 1980-1986.
VLSI design/test engineering manager for defense and communications electronics.

Texas Instruments, Inc., Central Research Laboratory, Dallas, TX, 1976-1979.
Co-op/Intern program between TI and MIT, completed M.S. thesis work (see above).

CONSULTING:

MaxiMEM Limited, Cambridge, MA, 1995-2002.
Engineering consultant and technical advising on various MEMS designs and projects. (Similar consulting service was provided to two other MEMS-related companies, Xenisys Engineering, Inc. and MicroSeal LLC).

Intel, Inc., Hillsboro, OR, Summer, 2000.
Engineering consultant on signal-integrity design, modeling and simulation of high-speed interconnect on Intel's "Infiniband" microprocessor-interface printed-circuit board product.

Borealis Technical Limited, Portland, OR, 1996-1999.
Engineering consultant on MEMS design, analysis and production of prototypes for Borealis proprietary solid-state refrigeration and power generation technologies.

Microcosm Technologies, Inc., Cambridge, MA, Summer, 1997.

Engineering consultant on computer programming and simulation for their automated 3D MEMS-device solid-model construction and analysis MEMCAD software product.

GRANTS:

Awarded a total of 95 MOSIS Educational Program (MEP) funding grants (1997-2017) used to support the EE student-designed integrated circuit fabrication for 75 EE Senior Design Capstone Projects. The total value of these 95 MEP grants is approximately \$200,000. As MOSIS director within the UP EE Program, I apply for approximately 5 to 10 MEP Grants each academic year to cover all the integrated circuit fabrication and packaging costs for EE Senior Design Capstone Projects which use at least one student-designed MOSIS integrated circuit.

<https://www.mosis.com/what-is-mosis>

CONFERENCES, WORKSHOPS, PROFESSIONAL MEETINGS ATTENDED:

2016 ASEE Annual Conference and Exposition, New Orleans, LA, June 26-29, 2016.

Introduction to Nanoelectronics, Online courses, Prof. Supriyo Datta, Purdue University's Network for Computational Nanotechnology (NCN), www.nanohub.org, Fall, 2005, Summers 2013-2016.

Micro Nano Breakthrough Conference, Portland, OR, July 28-29, 2004.

Intel Science and Engineering Fair (ISEF2004), Portland, OR, May, 2004.

Nanotech2003 Conference, San Francisco, CA, Feb, 2003.

SEM Annual Conference and Exposition on Experimental and Applied Mechanics, Portland, OR, June, 2001.

Third International Conference on Modeling and Simulation of Microsystems (MSM2000), San Diego, CA, March, 2000.

Practical Aspects of Analog & Mixed-Mode IC Design, OCATE Short Course and Workshop, Portland State University, June, 1998.

Transducer's '95 Conference, Stockholm, Sweden, June, 1995.

IEEE Solid-State Sensor and Actuator Workshop, Hilton Head, SC, June, 1994.

MEMS'94 Conference, Oiso, Japan, January, 1994.

1984 Conference on Advanced Research in VLSI, MIT, Cambridge, MA, January, 1984.

PEER-REVIEWED PAPERS PRESENTED AT PROFESSIONAL CONFERENCES AND APPEARING IN CONFERENCE PROCEEDINGS:

P. M. Osterberg, A. S. Inan, "Teaching Electronic Conduction Phenomena to Undergraduate Electrical Engineering Students Using Purdue University's New "Bottom-Up" Approach", *Proceedings of 2016 ASEE Annual Conference and Exposition*, New Orleans, LA, June 26-29, 2016, #14962 CD-ROM.
<https://faculty.up.edu/oster/14962.pdf>

A. S. Inan, P. M. Osterberg, "Revisiting the One-Dimensional Elastic Collision of Rigid Bodies on a Frictionless Surface Using Singularity Functions", *Proceedings of 2016 ASEE Annual Conference and Exposition*, New Orleans, LA, June 26-29, 2016, #15311 CD-ROM.
<https://faculty.up.edu/oster/15311.pdf>

Z. A. Yamayee, P. M. Osterberg, "Annual Documentation of Assessment and Evaluation of Student Outcomes Simplifies Self-Study Preparation", *Proceedings of 2016 ASEE Annual Conference and Exposition*, New Orleans, LA, June 26-29, 2016, #14518 CD-ROM.
<https://faculty.up.edu/oster/14518.pdf>

Z. Yamayee, P. Osterberg, "Engineering Statistics as a Benchmark Course in the Context of a Sustainable Continuous Improvement Process", *Proceedings of 2015 ABET Symposium*, Atlanta, GA, April 23-24, 2015.

P. M. Osterberg, A. S. Inan, "Electrical Engineering Student Senior Capstone Project: A Mosis Fast Fourier Transform Processor Chip-Set", *Proceedings of 2011 ASEE Annual Conference and Exposition*, Vancouver, BC, Canada, June 26-29, 2011, #AC2011-1060 CD-ROM.
<https://faculty.up.edu/oster/asee2011.pdf>

P. M. Osterberg, A. S. Inan, "Calculation of the General Impedance Between Adjacent Nodes of Infinite Uniform N-Dimensional Resistive, Inductive, or Capacitive Lattices", *Proceedings of 2009 ASEE Annual Conference and Exhibition*, Texas, June 14-17, 2009, #AC2009-2517 CD-ROM.
<https://faculty.up.edu/oster/asee2009.pdf>

P. M. Osterberg, A. S. Inan, "One-Step Calculation of Translational and Rotational Kinetic Energy Stored in a Rolling Body as a Result of an Impulsive Force", *CANCAM 2009, Proceedings of 22nd Canadian Congress of Applied Mechanics*, Halifax, Canada, May 31-June 4, 2009, pp. 196-197.

P. M. Osterberg, A. S. Inan, "One-Step Calculation of Kinetic Energy Stored in a Moving Body as a Result of an Impulsive Force", *CANCAM 2007, Proceedings of 21st Canadian Congress of Applied Mechanics*, Toronto, Canada, June 3-7, 2007, pp. 107-108.

A. S. Inan, P. M. Osterberg, "Special Singularity Integrals Encountered in Electric Circuits", *ISCAS 2005, Conference Proceedings of IEEE International Symposium on Circuits and Systems*, Kobe, Japan, May 23-26, 2005, pp. 976-979.

A. S. Inan, P. M. Osterberg, "Calculating the Per-Unit-Length Circuit Parameters of a Coaxial Transmission Line using Singularity Functions", *2004 IEEE Antennas and Propagation Society International Symposium Digest*, Monterey, CA, June 20-25, 2004, pp. 2067-2070.

A. S. Inan, P. M. Osterberg, "Calculating Electromagnetic Force and Energy using Singularity Functions", *2002 IEEE Antennas and Propagation Society International Symposium Digest*, San Antonio, TX, June 16-21, 2002, pp. 680-683.

A. S. Inan, P. M. Osterberg, "Revisiting the Sifting Integral: An Interesting Special Case", *ISCAS 2002, Conference Proceedings of IEEE International Symposium on Circuits and Systems*, Scottsdale, AZ, May 26-29, 2002, pp. 547-550.

A. S. Inan, P.M. Osterberg, "A Special Missing Singularity Integral and its Applications in Electromagnetic Education", *2001 IEEE Antennas and Propagation Society International Symposium Digest*, Boston, MA, July 8-13, 2001, Vol. 1, pp. 396-399.

A. S. Inan, P. M. Osterberg, "Revisiting the Calculus of Singularity Functions", *Proceedings of the IDPT-2001 Workshop on Transdisciplinary Education Research and Training*, Pasadena, CA, June 11-13, 2001, pp. 57-63.

P. M. Osterberg, A. S. Inan, "Calculation of the Electroquasistatic Sinusoidal Steady-State Coulomb Force on a Conductor Coated with a Lossy Dielectric", *Technical Proceedings of the Third International Conference on Modeling and Simulation of Microsystems (MSM2000)*, March 27-29, 2000, San Diego, CA, pp. 277-280. <https://faculty.up.edu/oster/msm2000.pdf>

R. K. Gupta, P. M. Osterberg, S. D. Senturia, "Material Property Measurements of Micromechanical Polysilicon Beams", *Proceedings of SPIE 1996 Conference: Microlithography and Metrology in Micromachining II*, October 14-15, 1996, SPIE Vol. 2880, pp. 1-8.

P. M. Osterberg, J. R. Gilbert, S. D. Senturia, "MemBuilder: An Automated 3D Solid Model Construction Program for Microelectromechanical Structures",

Proceedings of Transducer's '95, Stockholm, Sweden, June 1995, Vol. 2, pp. 21-24. <https://faculty.up.edu/oster/membuilder.pdf>

P. M. Osterberg, R. K. Gupta, J. R. Gilbert, S. D. Senturia, "Quantitative Models for the Measurement of Residual Stress, Poisson Ratio and Young's Modulus using Electrostatic Pull-in of Beams and Diaphragms", *Proceedings of 1994 Solid-State Sensor and Actuator Workshop*, Hilton Head, SC, June 13-16, 1994, pp. 184-188. https://faculty.up.edu/oster/hilton_head.pdf

P. M. Osterberg, H. Yie, X. Cai, J. R. White, S. D. Senturia, "Self-Consistent Simulation and Modeling of Electrostatically Deformed Diaphragms", *Proceedings of MEMS '94*, Oiso, Japan, January 1994, pp. 28-32.

J. R. Gilbert, P. M. Osterberg, R. M. Harris, D. O. Ouma, X. Cai, A. Pfajfer, J. R. White, S. D. Senturia, "Implementation of a MEMCAD System for Electrostatic and Mechanical Analysis of Complex Structures from Mask Descriptions", *Proceedings of MEMS '93*, Ft. Lauderdale, FL, February, 1993.

P. M. Osterberg, C. Groves, L. A. Laws., "A 250 MHz Dynamic CMOS Dual Modulus ($\div 8/9$) Prescaler", *Proceedings of 1984 Conference on Advanced Research in VLSI*, MIT, January 24, 1984, pp. 110-116.

PEER-REVIEWED PUBLICATIONS:

A. S. Inan and P. M. Osterberg, "Do You Know What's Hidden Inside That There Pi?", *The Bent*, Tau Beta Pi, The Engineering Honor Society, Vol. CVII, No.1, pp.23-24, Winter 2016.
https://faculty.up.edu/oster/BENTW16_p23_Pi%20Feature_Mon11.pdf

N. Tuttle, Z. Zhang, S. Pellecer, P. Osterberg, A. Inan, "A MOSIS CMOS 4-bit, 8-sample Fast Fourier Transform Chip Set", *University of Southern California MOSIS Educational Program (MEP) Final Report*, April 30, 2008.
www.mosis.com/products/mep/research/2008/up_78879_and_78880_ins.pdf

H. Sadeghian, G. Rezazadeh, P. Osterberg, "Application of the Generalized Differential Quadrature Method to the Study of Pull-In Phenomena of MEMS Switches", *IEEE Journal of Microelectromechanical Systems (JMEMS)*, Vol. 16, No. 6, December, 2007, pp. 1334-1340.
<https://faculty.up.edu/oster/JMEMS.pdf>

P. M. Osterberg, A. S. Inan, "Impedance between adjacent nodes of infinite uniform D -dimensional resistive lattices", *Am. J. Phys.*, Vol. 72, No. 7, July, 2004, p. 973. <https://faculty.up.edu/oster/ajp.pdf>

A. S. Inan, P. M. Osterberg, "A new technique to calculate the electrostatic Coulomb force on a conductor coated with a lossless dielectric", *International*

Journal of Applied Electromagnetics and Mechanics, Vol. 11, No. 2, December, 2000, pp. 127-130.

P. M. Osterberg, A. S. Inan, "A Special Integral Identity and its Applications in Electrical Circuits", *IEE Electronics Letters*, Vol. 35, No. 16, August 5, 1999, pp. 1300-1301. https://faculty.up.edu/oster/electronic_letters.pdf

P. M. Osterberg, S. D. Senturia, "M-Test: A Test Chip for MEMS Material Property Measurement using Electrostatically Actuated Test Structures", *IEEE Journal of Microelectromechanical Systems (JMEMS)*, Vol. 6, No. 2, pp. 107-118, June 1997. <https://faculty.up.edu/oster/mtest97.pdf>

UNIVERSITY SERVICE:

Member, University Rank and Tenure Committee, 2013-2017

Member, Presidential Advisory Committee on Information Technology (PACIT), 2011-2013

Member, University Faculty Welfare Committee, 2007-2010

Member, University Committee on Information Technology, 2006-2007

Member, Academic Senate, Fall, 1999-Spring, 2001; Fall, 2004-Spring, 2007

Member and Secretary, Academic Senate, Fall, 2004-Spring, 2005

Member, University Computing and Telecommunications Committee, 1999-2000

Member, University Dedicatory Topic Committee, 1998-1999

Member, University Health and Safety Committee, 1997-1998

SHILEY SCHOOL OF ENGINEERING SERVICE:

Chair, School of Engineering Computer Committee, Fall, 2017-present

Faculty Advisor Chair, Tau Beta Pi Engineering Honor Society (OR Gamma Chapter), 1997-present

Faculty leader of EE Electronics Lab (Shiley 309) and EE Senior Projects Lab (Shiley 306), 2002-present

Faculty coordinator of annual EE Senior Comprehensive Exam, 2007-present

Chair, School of Engineering Computer Committee, 2008-2013

Member, School of Engineering Computer Committee, 2006-2008

Member, School of Engineering Graduate School Committee, 1999-2005

Member, School of Engineering Space Utilization Committee, 2000-2004

Member, School of Engineering Recruitment Committee, 2000-2004

Served on Freshmen Orientation Faculty Panel, August, 1999 and August, 2000

IEEE Faculty Advisor, 1997-1999

PROFESSIONAL SERVICE:

Served as peer-reviewer and referee for submitted manuscripts to the following scholarly technical journals in engineering, 1997-2017:

IEEE/ASME Journal of Microelectromechanical Systems (JMEMS)
Journal of Computers and Mathematics with Applications
IEEE Transactions on Antennas and Propagation
International Journal of Modeling and Simulation
IEE Letters Technical Journal
EPJAP Technical Journal
Sensors and Actuators: A. Physical
The Arabian Journal for Science and Engineering (AJSE)
The Journal of the International Measurement Confederation (IMEKO)
Proceedings of IMECE2009 (2009 ASME Intl M Eng Congress and Exposition)
Physica E: Low-dimensional Systems and Nanostructures
International Journal of Non-Linear Mechanics
Proceedings of ASEE 2013 (2013 ASEE Annual Conference)
Mathematical Problems in Engineering

COMMUNITY SERVICE:

Active member of Westminster Presbyterian Church, Portland, OR, 2002-present

Volunteer member of the Architectural Heritage Center, Bosco-Milligan Foundation, Portland, OR which is a non-profit organization dedicated to the preservation and restoration of historically significant residential and commercial buildings and artifacts in the metropolitan Portland area to be enjoyed by future generations, 2002-present.

AWARDS AND HONORS:

Featured in July 2012 Donald P. Shiley School of Engineering Newsletter for leadership in running the MOSIS Educational Program (MEP) used to support EE Senior Design Capstone Projects.

Nominated for ASEE's Excellence in Teaching Award, March, 2007.

Sabbatical, Fall 2005.

Nominated for University of Portland's Faculty Award for Excellence, April, 2001.

Subject of University of Portland Magazine article, On the Bluff section, "Fire & Ice, A New World Order?: engineering professor Peter Osterberg", Summer, 2000, p. 7.

Tau Beta Pi National Engineering Honor Society (MIT MA Beta '77).

Eta Kappa Nu National Electrical Engineering Honor Society (MIT '77).

High School Valedictorian, 1974.

Eagle Scout, Boy Scouts of America, 1971.

MEMBERSHIP IN PROFESSIONAL SOCIETIES:

IEEE (M'97), ASEE (M'01)