Kristen L. Dorsey

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EDUCATION

PhD, Electrical and Computer Engineering Carnegie Mellon University, Pittsburgh, PA Dissertation title: Dielectric Charging in CMOS MEMS	2013
MS, Electrical and Computer Engineering Carnegie Mellon University, Pittsburgh, PA	2011
BS, Electrical and Computer Engineering Olin College of Engineering, Needham, MA	2007

ACADEMIC APPOINTMENTS

Wyss Institute Visiting Scholar Harvard University, Cambridge, MA	2018– Present
Assistant Professor of Engineering Picker Engineering Program, Smith College, Northampton, MA	2015– Present
UC President's Postdoctoral Fellow PRIME Systems Laboratory University of California, San Diego, San Diego, CA	2014–2015
UC Berkeley Chancellor's Postdoctoral Fellow PRIME Systems Laboratory University of California Berkeley, Berkeley, CA	2013–2014

GRANTS AWARDED

National Science Foundation, "CAREER: Rigidity tuned elastomer origami tessellations for fast, reconfigurable, and soft mechanoreceptors," $500,404	2019–2024
Smith College, Design Thinking Curriculum Enhancement Grant, $1,225	2017–2018

FELLOWSHIPS AND HONORS

Smith College, Jean Picker Faculty Fellowship	2018–2019
Harvard University Center for Nanoscale Systems (CNS) Scholar	2018
Carnegie Mellon University, Angel G. Jordan Award for Academic Excellence and Service to the ECE Department	2014
University of California, San Diego, Univ. California President's Postdoctoral Fellowship	2014
University of California, Berkeley, Univ. California Chancellor's Postdoctoral Fellowship	2013
Carnegie Mellon University, Neil and Jo Bushnell Fellowship in Engineering	2012
GEM PhD Engineering Fellowship	2008

JOURNAL PUBLICATIONS

*denotes work with undergraduate student

K.L. Dorsey, M. Cao*, G.A. Slipher, and N. Lazarus, "Mechanical Isolation and Temperature Compensation in Soft Elastomer Components," in *IEEE J. Sensors*, vol. 18, no. 18, pp. 7505-7512, 15 Sept., 2018.

D.A. Rolfe, K.L. Dorsey, J.C. Cheng, and A.P. Pisano, "A Surface Acoustic Resonator with Template-Patterned Interdigitated Fingers," *Sensors and Actuators A: Physical*, vol. 248, 2016.

K.L. Dorsey and A.P. Pisano, "Stability and Control of a Metal Oxide Gas Sensor Under Air Flow," *IEEE J. Sensors*, vol. 16, no. 3, 2016.

K.L. Dorsey, S.S. Bedair, and G.K. Fedder, "Gas chemical sensitivity of a CMOS MEMS cantilever functionalized by evaporative assembly," *J. Micromech. Microeng*. 24 (7), 075001, 2014.

CONFERENCE PUBLICATIONS

K.L. Dorsey, "Reconfigurable Soft Capacitor with Variable Stiffness Ring," IEEE RoboSoft Conference, Seoul, South Korea, 2019. (to appear)

K.L. Dorsey, M. Cao*, and N. Lazarus, "Mechanical Isolation Structures for Soft Elastomer Components," Proc. IEEE Sensors Conf., Glasgow, UK, 2017.

D.A. Rolfe, K.L. Dorsey, and A.P. Pisano, "A model to guide template-based nanoparticle printing development," Proc. ASME Intl. Conf. on Nanochannels, Microchannels, and Minichannels, San Francisco, USA, 2015.

M.M. Makihata, B.Eovino, X. Jiang, A. Toor, K.L. Dorsey, and A.P. Pisano, "Non-invasive and remote pipeline rehabilitation technology using reactive and magnetic particles," Proc. ACSE Pipelines Conf., Baltimore, USA, 2015.

K.L. Dorsey, D.A. Rolfe, G.D. Hoople, and A.P. Pisano, "Functionalized Micromolded Nanoparticles Towards Gas Sensor Arrays," Proc. IEEE Sensors Conf., Valencia, Spain, 2014.

K.L. Dorsey, J.R. Herr, and A.P. Pisano, "Sensor selection for outdoor air quality monitoring," Proc. SPIE Sensing Technology+Applications Conf., Baltimore, USA, 2014.

K.L. Dorsey and G.K. Fedder, "A test structure to inform the effects of dielectric charging on CMOS MEMS inertial sensors," Proc. IEEE Microelectromechanical Systems Conf., Paris, France, 2012, pp. 392-395.

K.L. Dorsey and G.K. Fedder, "A Frenkel-Poole model of dielectric charging in CMOS MEMS," Proc. Solid State Sensors, Actuators, and Microsystems Conf., Beijing, China, 2011, pp. 823-826.

K.L. Dorsey and G.K. Fedder, "Dielectric charging effects in electrostatically actuated CMOS MEMS resonators," Proc. IEEE Sensors Conf., Kona, USA, 2010, pp. 197-200.

Conference and Workshop Presentations

"Reconfigurable Soft Capacitor," Southwestern Robotics Symposium, Tempe, AZ, USA.	2019
"A strain isolated capacitor in a hyper-elastic substrate," Academic and Research Leadership Network Faculty Development Symposium, Pittsburgh, PA, USA	2018
"Mechanical Isolation Structures for Soft Elastomer Components," IEEE Sensors Conf., Glasgow, UK	2017
"A strain isolated capacitor in a hyper-elastic substrate," Material Robotics Workshop, Robotics: Science and Systems Conference, Cambridge, MA	2017
"The effect of airflow on metal oxide gas chemical sensor stability," Academic and Research Leadership Network Faculty Development Symposium, Boston, MA, USA	2016
"Functionalized Micromolded Nanoparticles Towards Gas Sensor Arrays," IEEE Sensors Conf., Valencia, Spain	2014
"Sensor selection for outdoor air quality monitoring," SPIE Sensing Technology and Applications Conference, Baltimore, USA	2014
"A test structure to inform the effects of dielectric charging on CMOS MEMS inertial sensors," IEEE MEMS, Paris, France	2012
"A Frenkel-Poole model of dielectric charging in CMOS MEMS," Solid State Sensors, Actuators, and Microsystems Conference (TRANSDUCERS), Beijing, China	2011
"Dielectric charging effects in electrostatically actuated CMOS MEMS resonators," IEEE Sensors, Kona, USA	2010

Invited Seminars and Talks

MOSIS Distinguished Lecturer Seminar, University of Connecticut, Storrs, CT	2019
Valve, L.L.C., Bellevue, WA	2019
Sigma Xi, Smith College, Northampton, MA	2018
National Institute of Standards and Technology, Gaithersburg, MD	2018
Army Research Laboratory, Adelphi, MD	2017
Materials Science and Engineering and Mechanical Engineering Seminar Series, Boston University, Boston, MA	2016

Patents

US 9,150,402, "MEMS Devices Utilizing a Thick Metal Layer of an Interconnect Metal Film Stack," R. Mahameed, K.L. Dorsey, M.O. Abdelmejeed, M. Abdelmoneum	2015

Research Experience

Graduate Research Assistant, Microelectromechanical Systems (MEMS) Laboratory, Carnegie Mellon University, Pittsburgh, PA	2008−2013

COURSE TEACHING

EGR 324: Fundamentals of Microelectronics, Smith College

EGR 323: Introduction to MEMS, Smith College

EGR 220: Electric Circuit Theory and Lab, Smith College

EGR 100: Engineering for Everyone, Smith College

HONORS THESIS COMMITTEES

Senior Thesis, Alysha de Silva (advisor)	2018
Honors Thesis, Sara Kacmoli (advisor)	2017
Honors Thesis Extension, Sara Loric (second reader)	2016
Honors Thesis, Xi (Wendy) Jiang (second reader)	2016

UGRAD SPECIAL STUDIES DIRECTED

Meng Cao, Mariel Jones, Becky Shen, Yuhan Wen	2018−2019
Elizabeth Boahen, Meng Cao, Jody Huang, Dan Lin, Jiaao Lu, Becky Shen, Yuhan Wen	2017−2018
Sara Kacmoli, Dan Lin, Jiaao Lu	2016−2017
Dan Lin	2015−2016

INDUSTRY EXPERIENCE

Graduate Intern Technical, Intel Corporation, Hillsboro, OR	2012
Engineering Intern, Lexmark, Inc., Lexington, KY	2007

PROFESSIONAL SERVICE

Ad-hoc reviewer, IEEE RoboSoft	2019
Ad-hoc reviewer, IEEE Sensors Conference, *IEEE J Sensors*	2018
Panel reviewer for NSF proposals	2016, 2018

OUTREACH TALKS

SciTech Café, Northampton MA, "What's hard about soft sensors?"	2018
Smith College Summer Science and Engineering Program, "Tactile sensors on people and robots"	2017
Celebration of American Science and Engineering, University of Maryland, College Park, "Skin-worn sensors: Why can't I buy one yet?"	2017
Smith College Alumnae Club of Pittsburgh, "What is Engineering for Everyone?"	2017

PROFESSIONAL MEMBERSHIPS

Member, IEEE

Member, National Society of Black Engineers