

Kee W. Scholten Curriculum Vitae

University of Southern California
Corwin D. Denney Research Center
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EDUCATION & TRAINING

University of Southern California (2015-)
Postdoctoral Scholar, Biomedical Engineering
Los Angeles, CA
Mentor: Ellis Meng

University of Michigan, Ann Arbor (2009-2015)
Ph.D., Applied Physics
Ann Arbor, MI
Advisor: Edward Zellers

California Institute of Technology (2005-2009)
B.S., Applied Physics
Pasadena, CA
Advisor: Axel Scherer

THESIS

Microfabricated Optofluidic Ring Resonators for
Sensitive, High-Speed Detection of Volatile Organic Compounds

JOURNAL PUBLICATIONS

Methods for Improving Adhesion of Parylene C Films for Dry and Wet Environments

J. Ortigoza-Diaz, K. Scholten, E. Meng
Journal of Microelectromechanical Systems (in review)

A Review of Implantable Biosensors for Closed-Loop Glucose Control and Other Drug Delivery Applications

K. Scholten, E. Meng
International Journal of Pharmaceutics (2018) [10.1016/j.ijpharm.2018.02.022](https://doi.org/10.1016/j.ijpharm.2018.02.022)

Compact Prototype Microfabricated Gas Chromatographic Analyzer for Autonomous Determinations of VOC Mixtures at Typical Workplace Concentrations

J. Wang, J. Bryant-Genevier, N. Nunovero, C. Zhan, B. Kraay, K. Scholten, C. Zhang, S. Buggaveeti, R. Nidetz, K. Kurabayashi, E.T. Zellers
Microsystems & Nanoengineering (2018) [10.1038/MICRONANO.2017.101](https://doi.org/10.1038/MICRONANO.2017.101)

Acute in vivo Testing of a Conformal Polymer Microelectrode Array for Multi-Region Hippocampal Recordings

H. Xu, A. Hirschberg, K. Scholten, T.W. Berger, D. Song, E. Meng
Journal of Neural Engineering (2017) [10.1088/1741-2552/aa9451](https://doi.org/10.1088/1741-2552/aa9451)

Passive, Wireless Transduction of Electrochemical Impedance across Thin-Film Microfabricated Coils using Reflected Impedance

A. Baldwin, L. Yu, M. Pratt, K. Scholten, E. Meng
Biomedical Microdevices (2017) 19:87 [10.1007/s10544-017-0226-8](https://doi.org/10.1007/s10544-017-0226-8)

Electron-Beam Lithography for Polymer bioMEMS with Submicron Features

K. Scholten, E. Meng
Microsystems & Nanoengineering (2016) 2:16053 [10.1038/micronano.2016.53](https://doi.org/10.1038/micronano.2016.53)

Polymer-Coated Micro-Optofluidic Ring Resonator Detector for a Comprehensive Two-Dimensional Gas Chromatographic Microsystem: $\mu\text{GC} \times \mu\text{GC} - \mu\text{OFRR}$

K. Scholten, W.R. Collins, X. Fan, D. Paul, K. Kurabayashi, E.T. Zellers
Analyst (2016) 141:261-269 [10.1039/C5AN01570G](https://doi.org/10.1039/C5AN01570G)

Materials for Microfabricated Implantable Devices: A Review

K. Scholten, E. Meng
Lab on a Chip (2015) 15:4256-4272 [10.1039/c5lc00809c](https://doi.org/10.1039/c5lc00809c)

Nanoparticle-Coated Micro-Optofluidic Ring Resonator as a Detector for Microscale Gas Chromatographic Vapor Analysis

K. Scholten, W.R. Collins, X. Fan, E.T. Zellers
Nanoscale (2015) 7:9282-9289 [10.1039/c5nr01780g](https://doi.org/10.1039/c5nr01780g)

A Microfabricated Optofluidic Ring Resonator for Sensitive, High-Speed Detection of Volatile Organic Compounds

K. Scholten, X. Fan, E.T. Zellers
Lab on a Chip (2014) 14:3873-3880 [10.1039/c5lc00809c](https://doi.org/10.1039/c5lc00809c)

Multivariate Curve Resolution of Co-Eluting Vapors from a Gas Chromatograph with Microsensor Array Detector

J. Bryant-Genevier, K. Scholten, S.K. Kim, E.T. Zellers
Sensors & Actuators: B (2014) 202:167-176 [10.1016/j.snb.2014.05.049](https://doi.org/10.1016/j.snb.2014.05.049)

Vapor Discrimination by Dual-Laser Reflectance Sensing of a Single Functionalized Nanoparticle Film

K. Scholten, K. Reddy, X. Fan, E.T. Zellers
Analytical Methods (2013) 5:4268-4272 <http://doi.org/10.1039/C3AY40952J>

Vapor Discrimination with Single- and Multitransducer Arrays of Nanoparticle-Coated Chemiresistors and Resonators

K. Scholten, L.K. Wright, E.T. Zellers
IEEE Sensors Journal (2013) 13:2146-2154 [10.1109/JSEN.2013.2251624](https://doi.org/10.1109/JSEN.2013.2251624)

Microfabricated Optofluidic Ring Resonator Structures

K. Scholten, X. Fan, E.T. Zellers
Applied Physics Letters (2011) 99:141108 [10.1063/1.3645629](https://doi.org/10.1063/1.3645629)

Organic Vapor Discrimination with Chemiresistor Arrays of Temperature Modulated Tin-Oxide Nanowires and Thiolate-Monolayer-Protected Gold Nanoparticles

K. Scholten, F.I. Bohrer, E. Dattoli, W. Lu, E.T. Zellers
Nanotechnology (2011) 22:125501 [10.1088/0957-4484/22/12/125501](https://doi.org/10.1088/0957-4484/22/12/125501)

Microfluidic Blood Filtration Device

G. Maltezos, J. Lee, A. Rajagopal, K. Scholten, E. Kartalov, A. Scherer
Biomedical Microdevices (2011) 13:143-146 [10.1007/s10544-010-9479-1](https://doi.org/10.1007/s10544-010-9479-1)

CONFERENCE PROCEEDINGS

Chronic Multi-Region Recording from the Rat hippocampus *in vivo* with a Flexible Parylene-Based Multi-Electrode Array

H. Xu, A. Weltman, K. Scholten, E. Meng, T. W. Berger, D. Song
39th IEEE Conference on Engineering in Medicine and Biology (EMBC), Jeju Island, S. Korea (2017)

Polymer Packaging for Integrated Circuitry in Neural Interfaces

J. Yoo, K. Scholten, E. Meng
39th IEEE Conference on Engineering in Medicine and Biology (EMBC), Jeju Island, S. Korea (2017)

Fabrication of Flexible Polymer Bio-MEMS with Submicron Features

K. Scholten, E. Meng
30th IEEE Conference on Micro-ElectroMechanical Systems, Las Vegas, NV (2017)

Development of an Anatomically Conformal Parylene Neural Probe Array for Multi-Region Hippocampal Recordings

A. Hirschberg, H. Xu, K. Scholten, T. Berger, D. Song, E. Meng
30th IEEE Conference on Micro-ElectroMechanical Systems, Las Vegas, NV (2017)

A Parylene Cuff electrode for Peripheral Nerve Recording and Drug Delivery

A. Cobo, B. Boyajian, C. Larson, K. Scholten, V. Pokov, E. Meng
30th IEEE Conference on Micro-ElectroMechanical Systems, Las Vegas, NV (2017)

A Flexible Parylene Probe for *in vivo* Recordings from Multiple Subregions of the Rat Hippocampus

X. Huijing, A. Weltman, M-C. Hsiao, K. Scholten, E. Meng, T.W. Berger, D. Song
38th IEEE Conference on Engineering in Medicine and Biology (EMBC), Orlando, FL (2016)

Deep Brain Targeting Strategy for Bare Parylene Neural Probe Arrays

A. Weltman, H. Xu, K. Scholten, T.W. Berger, D. Song, E. Meng
Solid-State Sensors, Actuators and Microsystems Workshop, Hilton Head Island, SC (2016)

Parylene Encapsulated Sub-Micron Structures for Implantable BioMEMS

K. Scholten, E. Meng
Solid-State Sensors, Actuators and Microsystems Workshop, Hilton Head Island, SC (2016)

A Parylene Peripheral Nerve Cuff Electrode with Integrated Microfluidics

A. Cobo, K. Scholten, J. Yoo, C. Larson, T. Hudson, V. Pikov, E. Meng
Solid-State Sensors, Actuators and Microsystems Workshop, Hilton Head Island, SC (2016)

Fabrication of Hybrid Polymer Microdevices with Thermocompressive Bonding

K. Scholten, C. Li, H. Yang, E. Meng
Microtechnologies in Medicine and Biology, Seoul, S. Korea (2016)

Design of a Flexible Parylene-Based Multi-Electrode Array for Multi-Region Recording From the Hippocampus

H. Xu, A. Weltman, M.C. Hsiao, K. Scholten, E. Meng, T.W. Berger, D. Song
37th IEEE Conference on Engineering in Medicine and Biology (EMBC), Milan, Italy (2015)

μ GC \times μ GC Microsystem with Resistive and Optical Detection

W. Collin, K. Scholten, D. Paul, K. Kurabayashi, X. Fan, E.T. Zellers
Transducers & Euroensors XXVIII, Anchorage, AK, (2015)

Multi-Variable Micro Opto-Fluidic Ring Resonator Sensing with Plasmonic Nanoparticle Films

C. Zhang, L.K. Wright, K. Scholten, X. Fan, E.T. Zellers
Transducers & Euroensors XXVIII, Anchorage, AK, (2015)

On-Chip Optofluidic Ring Resonator Sensor for Micro-Scale Gas Chromatography

K. Scholten, X. Fan, E.T. Zellers
Solid-State Sensors, Actuators and Microsystems Workshop, Hilton Head Island, SC (2014)

Micro-Optofluidic Ring Resonator Structures for Selective Detection of Organic Vapors

K. Scholten, X. Fan, E.T. Zellers
Transducers & Euroensors XXVII, Barcelona, Spain, (2013)

CONFERENCE ABSTRACTS

Immunohistological Image Analysis of Microprobe Array Targeting Hippocampus

M. Combs, A. Weltman, H. Xu, K. Scholten, D. Song, E. Meng

BMES Annual Meeting, Phoenix, AZ (2017)

Improvement of Dry and Wet Adhesion in Parylene C Microdevices

J. Ortigoza-Diaz, K. Scholten, E. Meng

BMES Annual Meeting, Phoenix, AZ (2017)

A Parylene Cuff Electrode for Peripheral Nerve Recording and Stimulation

A. Cobo, K. Scholten, J. Yoo, C. Larson, T. Hudson, V. Pikov, E. Meng

42nd Annual Neural Interface Conference, Baltimore, MD (2016)

A Parylene-based Peripheral Nerve Cuff Electrode

A. Cobo, K. Scholten, V. Pikov, E. Meng

BMES Annual Meeting, Minneapolis, MN (2016)

CONFERENCE PRESENTATIONS

IEEE International Conference on MEMS: Las Vegas, NV	2017
BRAIN Initiative Investigators Meeting: Bethesda, MD	2016
Solid-State Sensors, Actuators and Microsystems Workshop: Hilton Head Island, SC	2016
USC Postdoctoral Symposium	2016, 2017
Microtechnologies in Medicine and Biology: Seoul, Korea	2016
Solid-State Sensors, Actuators and Microsystems Workshop: Hilton Head Island, SC	2014
Transducers: Barcelona, Spain	2013
Gordon Conference Nanostructure Fabrication: Biddeford, ME	2012
NIH Training Grant Meeting: Bethesda, MA	2012
MBSTP Symposium: Ann Arbor, MI	2011-2014
Vaughan Symposium: Ann Arbor, MI	2010
MiCRO Alliance Symposium (Michigan-Freiburg-Kyoto Consortium): Kyoto, Japan	2010
WIMS Center Industrial Advisory Board Meeting: Ann Arbor, MI	2010-2014

GRANTS

USC Postdoctoral Scholar Research Grant	(Awarded) 2015
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AWARDS AND FELLOWSHIPS

USC Postdoctoral Symposium – Speaker Award	2017
Bridge Innovation Retreat – 2 nd Place Speaker Award	2016
Best Poster Award – MBSTP Symposium	2014
Best Poster Award – WIMS ² Meeting	2013
Microfluidic Biomedical Sciences Training Program (MBSTP) Fellowship	2010 - 2011
Vaughan Symposium Poster Award	2010
Regents Fellowship – University of Michigan	2009

TEACHING EXPERIENCE

Fundamentals of Biomedical Devices (BME 451) University of Southern California	Lecturer 2018
Fundamentals of Biomedical Devices (BME 451) University of Southern California	Guest Lectures 2017
General Chemistry – Inorganic Laboratory (Ch 125/126) University of Michigan, Ann Arbor	Teaching Assistant 2012
Solid-State Electronics for Integrated Circuits (APH/EE 9a/b) California Institute of Technology	Teaching Assistant 2006-2009

SERVICE AND OUTREACH

International Science and Engineering Fair Los Angeles, CA	Judge: Biomedical Engineering 2017
California State Science Fair Los Angeles, CA	Judge: Multiple subjects 2015-2018
Undergraduate Symposium Judge University of Southern California	Judge: Engineering 2017-2018
IEEE MEMS Technical Committee Program Los Angeles, CA	Volunteer 2016
K-12 Outreach: ‘NanoCamp’ University of Michigan	Volunteer 2010-2013
K-12 Outreach: Society of Woman in Physics ‘Demo Days’ Detroit area schools, MI	Volunteer 2012-2013
K-12 Outreach: Society of Physics Students ‘Physics Palooza’ University of Michigan	Volunteer 2010-2011

JOURNAL REFEREE

Sensors	2016-Present
Transactions on Neural Systems & Rehabilitation Engineering	2015-Present
Sensors & Actuators B: Chemical	2016-Present
Micromachines	2017-Present