CURRICULUM VITAE

Kenith E. Meissner II, Ph.D., Fellow, Institute of Physics
Dean and Riter Professor of Engineering
The University of Texas at El Paso
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Personal Data

Citizenship: United States of America

Education/Training

Post-Doc	1994-1995	Sandia National Laboratories, Albuquerque, NM Surface Physics Division
Ph.D.	1994	University of Arizona, Tucson, AZ *Optical Sciences*
B.S.	1987	Lehigh University, Bethlehem, PA *Electrical Engineering*

Positions in Higher Education

2022-present	The University of Texas at El Paso Dean and Riter Professor of Engineering Professor, Department of Metallurgical, Materials and Biomedical Engineering
2020-2022	Swansea University Founding Dean and Pro-Vice Chancellor, Faculty of Science and Engineering
2016-2020	Swansea University Head of Department, Physics (31 direct academic staff reports) College of Science
2015-2016	Swansea University Research Group Head cABCs (9 direct academic staff reports)
2014-2022	Swansea University Professor/Chair Centre for Nanohealth College of Engineering/Medical Engineering
2010-2014	Texas A&M University Associate Professor Department of Biomedical Engineering/Materials Science and Engineering Program
2004-2010	Texas A&M University Assistant Professor

	Department of Biomedical Engineering/Materials Science and Engineering Program
2000-2004	Virginia Polytechnic Institute and State University Senior Research Scientist Optical Sciences and Engineering Research Center/Virginia Tech Applied Biosciences Center

Other Work Experience

2018-2021	Refiex, Swansea, UK Co-Founder
2006-2014	QCharm LLC, College Station, TX Co-Founder
1997-2000	Instrumentation Metrics, Inc., Tempe, AZ Principal Scientist
1995-1997	Biotronics Technologies, Inc, Waukesha, WI Optical Scientist

Administrative Positions at Swansea University

University and College

Swansea University League Table Improvement Working Group Member (2018-2020)
Swansea University ACP Working Group: Teaching *ad hoc* Member (2019-2022)
College of Science Head of Department Forum Member (2016-2020)

Administrative Positions at Texas A&M University

University and College

College of Engineering Dean's Fellow (2013-2014)
College of Engineering Honors Committee Chair (2013-2014)
University Honors Program Advisory Committee (2010-2014)
Engineering Scholars Program/Engineering Honors, Director (2010-2014)
University Radiological Safety Committee (2006-2014)
University Goldwater Selection Committee (2005-2012)

Departmental

BMEN Growth Committee (2014)
BMEN Instrumentation Track Committee Chair (2012-2013)
MSEN Graduate Admission Committee (2011-2013)
BMEN Awards Committee (2010-2014)
MSEN Graduate Admission Committee for Spring 2010 (fall 2009)
Alpha Eta Mu Beta (BMEN Honor Society), Faculty Advisor (2006-2011)
Engineering Scholars Program, Departmental Coordinator (2005-2010)
BMEN Department Curriculum Committee (2005-2013)
BMEN Department Space Committee (2005-2006)

National Awards and Honors

Fellow, Institute of Physics, 2018- present
Graduate Research Fellowship, AT&T, 1990-1994

Local Awards and Honors

TAMU Honors Director's Award for Outstanding Service to Honors Programs, 2014
William Keeler Faculty TEES Research Fellow, 2012
BMES Commitment to Students Award, Texas A&M University, 2006 & 2012
Big 12 Faculty Fellow, Texas A&M College of Engineering, 2009
Association of Former Students Distinguished Achievement Award in Teaching, 2009
Caterpillar Teaching Excellence Award, 2009
Freshman Fish-camp Namesake, Texas A&M University, 2006
AT&T Graduate Research Fellowship, 1990
Research Assistantship, University of Arizona, Optical Sciences Center, 1987
E.E. Undergraduate Award at Lehigh University, AT&T, 1986
Undergraduate Award, Lehigh University, Instrumentation Society of America, 1986
President's Award, Lehigh University, 1986, 1985, 1984

Teaching (* developed course)

Courses taught at Swansea University

EGA221	Computing for Medical Engineers* 2014, 2015 (x2)
EGD03	M-Level Projects 2014, 2015
PH-M35	M-Level Nanobiophysics* 2016, 2017, 2018
PH-356	Nanobiophysics* 2016, 2017, 2018
PH-311	BSc Projects 2017, 2018
PH-M5	MPhys Projects 2017, 2018

Courses taught at Texas A&M University

ENGR 111	Foundations of Engineering I 2011, 2012
ENGR 281H	ESP Seminar I 2011, 2012
BMEN 289	Computing for BMEN* 2012, 2013A, 2013C
BMEN 289	Signals, Systems and Circuits* 2013A, 2013C
ENGR 381H	ESP Seminar II 2010, 2011, 2012, 2013, 2014
BMEN 489/689	Light Scattering and Absorption for Biomedicine* 2010
BMEN 305	Bioinstrumentation Laboratory, 2006, 2007, 2008, 2009, 2010, 2011
BMEN 306	Biomeasurements Laboratory, 2007
BMEN 321	Biomedical Electronics, 2006, 2007
BMEN 343	Introduction to Biomaterials* 2005
BMEN 424/624	Biomedical Imaging and Sensing at the Nanoscale* 2005, 2006, 2007, 2009, 2011, 2014

Courses taught at Virginia Tech

PHYS 4714	Introduction to Biophysics* 2002, 2003

Other Courses - Community

STARS Teacher Inservice, Dec. 1, 2007, "Microscopy: From Virtual to Reality," 30 high school teachers*
STARS Teacher Inservice, Feb. 2, 2008, "Virtual Spec20-tacular," 25 high school teachers*

Research Students Supervised

Ph.D. Students (US and UK)

1. Karol Szuba-Jablonski (BSc Swansea University) – Swansea University Applied Physics, "*Characterisation and Functionalisation of Ultrabithorax Materials for Biosensing"*, 2023, 1st Supervisor (through 2022)
2. Laura O'Dea (MSc Swansea University) – Swansea University Nanotechnology, "Challenges in optical micro-rheometry for blood clot detection", 2023, 2nd Supervisor (through 2022)
3. Valeria Italia (MSc Politecnico di Milano, Italy) – Swansea University Applied Physics, "Understanding novel EGFP-Ubx protein-based film formation", 2022, 1st Supervisor
4. Andrew Fisher (B.S. Texas A&M) –Swansea University, Nanotechnology, "Application of Optical Analyses to Cancer Therapeutics and Diagnostics", 2020, 1st Supervisor
5. Daniel Watson (MEng Swansea University) – Swansea University Nanotechnology, "Numerical Study of Lymph Mechanics", 2021, 2nd Supervisor
6. Sandra Bustamonte-Lopez (B.S. Boston University) - Texas A&M University BMEN, "Erythrosensor cellular characterization", 2017, Advisor
7. Sarah Ritter (B.S. Louisiana Tech) – Texas A&M University BMEN, "Application of luminescent materials to optical sensing", 2014, Advisor
8. Aishwarya Sooresh (B.S. Anna University, India) – Texas A&M University MSEN, "Synthesis, Characterization and Toxicity of Nanoparticles for Real World Applications", 2014, Advisor
9. Sina Amini (M.S. Razi University, Iran) – Texas A&M University BMEN, "Atomic force microscope based near-field imaging for probing cell surface interactions", 2013, Advisor
10. Ravish Majithia (M.S. Louisiana Tech) – Texas A&M University MSEN,"Microwaveassisted Synthesis of II-VI Semiconductor Micro- and Nanoparticles towards Sensor Applications", 2013, Advisor
11. Hope Beier (B.S. TAMU) – Texas A&M BMEN, "Whispering-gallery modes in quantum dot embedded microspheres for sensing applications", 2009, co-Advisor
12. Xing Jin (M.S. Louisiana State University) – Texas A&M BMEN, "Microwave-induced thermoacoustic tomography: Applications and corrections for the effects of acoustic heterogeneities", 2007, co-Advisor
13. Bryan Dickerson (M.S. Virginia Tech) – Virginia Tech, "Organometallic synthesis kinetics of CdSe quantum dots", 2005, Committee Member/Research Advisor

MSc by Research Students (UK)

1. Thomas Argue (BSc Swansea University) – Swansea University Applied Physics, "Creating an antimicrobial protein matrix from Ultrabithorax, cospun with Hybrisan Ltd's P1.2 antimicrobial solution using a needleless electrospinning device for medical applications", 2021, 1st Supervisor
2. Edd Dibley (BSc Swansea University) – Swansea University Applied Physics, "Crosslinking ultrabithorax to produce fibres using an LED and Tris(2,2'bipyridyl)ruthenium (II)", 2020, 1st Supervisor
3. Karol Szuba-Jablonski (BSc Swansea University) – Swansea University Nanotechnology, "The Mechanical and Electrical Properties of Ultrabithorax Materials", 2020, 1st Supervisor

4. Patrick Jolomba (BSc Keel University) –Swansea University Nanotechology, "Analysing the RBC adhesion to the dialysis membrane using the Flow cell system: Analysis of the RBC morphology"**,** 2020 1st Supervisor

M.S. Students (US)

1. Marta Taghavi (Islamic Azad University, Iran) "Investigation of nanoparticles for use in microwave system in biomedicine" 2013, Advisor
2. Ameet Juriani (B.S. Thadomal Shahani Engineering College) "Investigation of the emission properties of quantum dot-thermoresponsive polymer nanocomposite hydrogels with temperature" 2010, Advisor
3. Shuo Pang (B.S. Tsinghua University) "Whispering Gallery Modes in Quantum DotEmbedded Dielectric Microspheres for Tagless Remote Refractometric Sensing" 2008, Advisor
4. Bhavik Bharat Nathwani (B.S. Saurashtra University) "Developing Luminescent Nanoprobes for Labeling Focal Adhesion Complex Proteins" 2008, Advisor
5. Suhani Shah (B.S. Nirma Institute of Technology) "Modeling Scattered Intensity from Microspheres in an Evanescent Field" 2007, Advisor
6. Haribhaskar Balasubramanian (B.S. Lokmanya Tilak College) "Two Photon Luminescence from Quantum Dots Using Broad- and Narrow-band Ultrafast Laser Pulses" 2007, Advisor 7. Shankarapandian Muthukumar (B.S. University of Madras) "Spectral Multiplexing using Quantum Dot Tagged Microspheres with Diffusing Colloidal Probe Microscopy" 2007, Advisor
8. Adam Allen (B.S. Texas A&M University) "Modeling Scattered Intensities for Multiple Particle TIRM Using Mie Theory" 2006, Advisor
9. Aaron Keho (B.S. Rice University) "Iron Oxide Nanoparticles as a Contrast Agent for Thermoacoustic Tomography" 2006, Advisor

Undergraduate Research Students (USRG, REU and Honors Fellows) at Texas A&M University

Michelle Garst, 2006; Clark Needham, 2008; Kyle Borque, 2008; Mei Zhang, 2009; Teddy Bao, 2009; Juana Gomez, 2010; Jeffrey Speich, 2010; Morgan Holmes, 2010; Ritvik Bansal, 2011; Megan Poorman 2012

Student Awards; Hope Beier: TAMU Distinguished PhD Graduate Award, 2010; Ameet Juriani: Student Poster Award – Runner up, HSEMB Conference, 2009; Sina Amini: Graduate Student Paper Award – 3rd place, ASEE - Gulf Southwest Conference, 2009; Sarah Jeffords: Center for Integration of Medicine & Innovative Technology (CIMIT) Student Prize for Primary Healthcare, Finalist, 2009

Bhavik Nathwani: Best Graduate Student Poster, Nano Summit 2007, August 7-8, 2007, College Station, TX

Bhavik Nathwani: Alliance for Nanohealth Graduate Student Scholarship, Nanomedicine Workshop, June 10-15, 2007, Cardiff, UK.

Erik Herz: Fulbright Fellowship, 2003.

Erik Herz: Barry M. Goldwater Scholarship, 2002.

Issued Patents

1. J.D. Bennet, K.E. Meissner II, W.B. Spillman Jr., M.F. Mayer, J. Gong, *"System, device and method for detecting perturbations,"* Australian Patent #2003291003, May 7, 2009.
2. E. Herz, C. Holton, K. Meissner and C. Paye, "*Optical fiber with quantum dots*," U.S. Patent #7,362,938, April 22, 2008.
3. K.E. Meissner II and W.B. Spillman Jr., "*System, device and method for detecting perturbations*," U.S. Patent #7,196,317, March 27, 2007.
4. W.B. Spillman Jr., K.E. Meissner II, J. Gong, M.F. Mayer and J.D. Bennett, "*System, device and method for detecting perturbations via a fiber optic sensor*," U.S. Patent #7,189,958, March 13, 2007.
5. E. Herz, C. Holton, K. Meissner and C. Paye, "*Optical fiber with quantum dots*," U.S. Patent #7,142,758, November 28, 2006.
6. E. Herz, C. Holton, K. Meissner and C. Paye, "*Optical fiber with quantum dots*," U.S. Patent #7,054,513, May 30, 2006.
7. B.J. Wenzel, S.L. Monfre, T.L. Ruchti, K. Meissner, F. Grochocki, T. Blank and J. Rennert, "*Method for quantification of stratum corneum hydration using diffuse reflectance spectroscopy*," U.S. Patent #6,668,181, December 23, 2003.
8. T. Stippick, G. Acosta and K. Meissner, "*Oscillating mechanism driven monochromator*," U.S. Patent #6,587,196, July 1, 2003.
9. B.J. Wenzel, S.L. Monfre, T.L. Ruchti, K. Meissner, F. Grochocki, T. Blank and J. Rennert, "*Method for quantification of stratum corneum hydration using diffuse reflectance spectroscopy*," U.S. Patent #6,442,408, August 27, 2002.

Sponsored Research

Completed

Sponsor: Cancer Research UK (co-PI with Dr Psaila, Oxford and Prof. Gregory, Edinburgh)
Title: TEP-eDx: Validating the use of Tumour Educated Platelets for early cancer diagnosis
Award: £631,689
Period: 3/1/21 – 2/28/25 *(Note: co-PI duties moved to Prof. Rees when I moved to UTEP)*

Sponsor: Swansea/Grenoble Collaborative Program (co-PI with Prof Martin, Grenoble)
Title: Understanding novel protein-derived biopolymers to enable biomimetic devices
Award: £120,000
Period: 10/1/19 – 9/30/22

Sponsor: Cancer Research UK (co-PI with Dr Psaila, Oxford and Prof. Gregory, Edinburgh)
Title: Tumour Educated Platelets for Early Cancer Detection (TEP-eDx)
Award: £100,000
Period: 12/1/18 – 11/30/19

Sponsor: Swansea/Grenoble Collaborative Program (co-PI with Prof Martin, Grenoble)
Title: Understanding novel protein-derived biopolymers to enable biomimetic devices
Award: £120,000
Period: 1/1/18 – 12/31/21

Sponsor: Welsh Government – Ser Cymru Cofund (PI)
Title: Quantum Physics
Award: £200,329
Period: 9/1/17 – 8/31/20

Sponsor: Welsh Government – Ser Cymru Rising Star (PI)
Title: Next-generation semiconductors for photodetectors and optoelectronics
Award: £1,000,000
Period: 15/10/17 – 14/10/22

Sponsor: COST Action Network (co-I, substitute Managing Committee member)
Title: Brillouin Light Scattering Microspectroscopy for Biological and Biomedical Research and Applications
Award: Networking Grant
Period: 28/2/17 – 27/2/21

Sponsor: EPSRC Platform (co-PI)
Title: Engineering Blood Diagnostics: Integrated Platforms for Advanced Detection and Analysis
Award: £1,502,075 (total award)
Period: 1/2/16 – 31/1/21

Sponsor: EPSRC (co-I, Summers PI)
Title: Translational alliance in biophotonics for cytometry
Award: £201,932
Period: 1/3/16 – 28/2/19

Sponsor: Research Triangle Institute (PI)
Title: Nanoparticle Biocompatibility
Award: $11,528
Period: 1/15/13 – 5/14/13

Sponsor: NIH R21 (co-I, PI at TAMU, P.I. Milanick)
Title: Developing a Non-Invasive Monitoring System Using NIR Dyes Inside Erythrocytes
Award: $137,941 (funding to Meissner)
Period: 9/01/12 – 8/31/14

Source: National Science Foundation (co-PI with McShane – Texas A&M)
Title: Energy Transfer between Nanomaterials: Fundamentals and Sensor Applications
Award: $380,000
Period: 8/15/11 – 7/31/14

Source: NIH PPG (co-I, P.I. Meininger)
Title: Mechanisms of Microvascular Control and Coordination in Health and Disease
Award: $68,000
Period: 4/1/10–3/31/15

Sponsor: EPSRC (subcontract: P.I. Summers, Doak, Rees, Thornton - Swansea University)
Title: Quantum Dots For The Study of Distribution and Toxicity in Cell Cultures
Award $7,500 (Total Award: £1,067,482)
Period: 10/1/10 - 7/31/13

Source: National Science Foundation (PI)
Title: IDR Collaborative Research: Evanescent Field-Enabled Atomic Force Microscopy for Nanoscale Imaging of Cell Membrane Dynamics
Award: $198,398 (total Collaborative Award: $398,398)
Period: 9/15/09 – 8/31/12

Sponsor: NASA STTR (PI subcontract: Nanosonic Inc. - Blacksburg, VA)
Title: Lightweight Metal Rubber Wire and Cable for Space Power Systems
Award: $45,000
Period: 3/4/11 – 3/2/12

Source: National Science Foundation (PI)
Title: Planning Visit: Multidisciplinary International Collaboration between Texas A&M University and Swansea University
Award: $20,000
Period: 8/15/09 – 8/14/10

Sponsor: Center for Integration of Medicine & Innovative Technology; CIMIT Student Prize for Primary Healthcare Finalist (co-I, PI Jeffords – Meissner student at Texas A&M)
Title: Digital Camera-Coupled Ophthalmoscope
Award: $10,000
Period: 2/9/09-5/30/09

Source: TAMU – Health Science Center/State of Texas (PI)
Title: Digital Ophthalmoscope
Award: $25,739
Period: 2/1/09-8/31/09

Source: TAMU – Health Science Center/State of Texas (PI)
Title: Ophthalmoscope Usage for Capturing Digital Retinal Images
Award: $13,200
Period: 6/1/08-10/31/08

Source: AP Strategies Inc., Dallas, TX (PI)
Title: Development of Virtual Instrumentation: Optical Microscope and Spectrophotometer
Award: $97,511
Period: 11/1/06-12/31/08

Source: NIH R21 Grant (co-I, PI at TAMU, P.I. Meininger)
Title: Atomic Force-FRET Microscope Using Quantum Dot for Cell Mechanobiology
Award $185,000 (dollars to Texas A&M only)
Period: 9/22/06-8/31/09

Source: NSF SBIR (subcontract: Nanosonic Inc., Blacksburg, VA
Title: Low Cost Self-Assembled Bulk Thermoelectric Materials
Award: $10,000
Period: 7/1/05-12/31/05

Source: Carilion Biomedical Institute, Roanoke, VA (PI)
Title: Smart Bed Biosensor
Award: $46,000
Period: 7/1/03-6/30/04

Source: Virginia Tech ASPIRES (PI)
Title: Tunable Laser for the UV/Visible Spectral Region for Nanoscale Ultrafast Dynamics
Award: $17,600
Period: 12/12/01-6/30/02

Source: American Cancer Society- I.R.G. (co-PI with Kruzelock – Virginia Tech)
Title: Development of Fluid-based Microarray Technology Using Microspheres and Quantum Dots
Award: $18,756
Period: 9/10/01-6/30/02

Sponsor: Carilion Biomedical Institute, Roanoke, VA (co-PI with Brewer – Virginia Tech)
Title: Photodynamic Therapy Minicenter
Award: $200,000 ($100,000 each investigator)
Period: 7/01/01-6/30/03

Publications

Book Chapters

1. Z. Sun, A. Trache, K. Meissner and G. A. Meininger, "Atomic Force Microscopy In Liquid," in ***Integration Of AFM With Optical Microscopy Techniques***, A. M. Baro and R. G. Reifenberger (Eds.), Wiley VCH (2012).
2. Sandalphon, V. S. Williams, K. Meissner, N. R. Armstrong, and N. Peyghambarian, "Polarization-dependent femtosecond dynamics of MBE-grown Pthalocynineorganic thin films," in ***Ultrafast Phenomena VIII***, J.-L. Martin, A. Migus, G. A. Mourou, and A. H. Zewail (Eds.), Springer-Verlag (Berlin, Heidelberg, 1993).

Archival Journal Articles

1. 1. J. Plácido, S. C. Bustamante-López, K. E. Meissner, D. E. Kelly, S. L. Kelly, "Comparative study of the characteristics and fluorescent properties of three different biochar derived- carbonaceous nanomaterials for bioimaging and heavy metal ions sensing", Fuel Processing Technology **196**, 106163 (2019).
2. J. Plácido, S. C. Bustamante-López, K. E. Meissner, D. E. Kelly, S. L. Kelly, "Multivariate Analysis of Biochar-derived Carbonaceous Nanomaterials for Detection of Heavy Metal Ions in Aqueous Systems", Science of the Total Environment **688**, 751-761 (2019).
3. J. Plácido, S. C. Bustamante-López, K. E. Meissner, D. E. Kelly, S. L. Kelly, "NanoRefinery of carbonaceous nanomaterials: complementing dairy manure gasification and their applications in cellular imaging and heavy metal sensing", Science of the Total Environment **689**, 10-20 (2019).
4. A. J. Talib, D. V. Voronine, A. Sinyukov, S. C. Bustamante, A. Fisher, S. Ambardar, K. E. Meissner, M. O. Scully, and A. V. Sokolov, "Photostability of stained red blood cells probed using simultaneous resonant Raman and fluorescence imaging", Analyst **144**, 4362-4370 (2019).

5. J. Plácido, S. C. Bustamante-López, K. E. Meissner, D. E. Kelly, S. L. Kelly, “Microalgae biochar-derived carbon dots and their application in heavy metal sensing in aqueous systems”, Science of the Total Environment **656**, 531-539 (2019).
6. X. Wei, P. K. Balne, K. E. Meissner, L. Schmetterer, R. Agrawal, “Assessment of ocular ischemia using flow dynamics in retinal and choroidal microcirculation”, Survey of Ophthalmology **63** (5), 646–664 (2018).
7. J. Wills, H. Summers, N. Hondow, S. Aishwarya, K. E. Meissner, P. White, P. Rees, A. Brown, S. Doak, "Characterising nanoparticles in biological matrices: tipping points in agglomeration state and cellular dosimetry in vitro", ACS Nano **11**(12), 11986-12000 (2017).
8. S. C. Bustamante Lopez and K. E. Meissner, “Characteristics of carrier erythrocytes for biosensing applications,” Journal of Biomedical Optics **22** (9), 091510 (2017).
9. H. D. Summers, M. J. Ware, R. Majithia, K. E. Meissner, B. Godin and P. Rees, “Multiscale benchmarking of drug delivery vectors,” Nanomedicine: Nanotechnology, Biology, and Medicine **12**, 1843-1851 (2016).
10. A. T. Nagaraja, Y.-H. You, J.-W. Choi, J.-H. Hwang, K. E. Meissner, M. J. McShane, “Layer-by-Layer Modification of High Surface Curvature Nanoparticles with Weak Polyelectrolytes using a Multiphase Solvent Precipitation Process,” Journal of Colloid and Interface Science **466**, 432-441 (2016).
11. Z. Meng, S. C. Bustamante Lopez**,** K. E. Meissner and V. V. Yakovlev, “Subcellular measurements of mechanical and chemical properties using dual Raman-Brillouin microspectroscopy,” Journal of Biophotonics **9** (3), 201-207 (2016).
12. C. M. Sayes, A. Sooresh and K. E. Meissner, “Physicochemical Characteristics of Two Prototypical Home-Use Consumer Products Containing Engineered Nanomaterials,” J Environ Anal Toxicol **5** (6), 326 (2015).
13. D. W. Howell, S.-P. Tsai, K. Churion, J. Patterson, C. Abbey, D. Porterpan, Y.-H. You, K. E. Meissner, K. J. Bayless, S. E. Bondos, “Identification of multiple dityrosine bonds in materials composed of the *Drosophila* protein Ultrabithorax,” Advanced Functional Materials **25**, 5988–5998 (2015).
14. S. Amini, Z. Sun, G. A. Meininger and K. E. Meissner, “Characterization of evanescent field surrounding QD embedded microspheres supporting whispering gallery modes,” European Physical Journal **223**, 2023–2033 (2014).
15. M. J. Ware, B. Godin, N. Singh, R. Majithia, S. Shamsudeen, R. E. Serda, K. E. Meissner, P. Rees, and H. D. Summers, “Analysis of the Influence of Cell Heterogeneity on Nanoparticle Dose Response,” ACS Nano **8**, 6693–6700 (2014).
16. R. Majithia, S. Ritter and K. E. Meissner, “Heterogeneous nucleation for synthesis of sub-20 nm ZnO nanopods and their application to optical humidity sensing,” Analytica Chimica Acta **812**, 206-214 (2014).
17. A. Tarat, C. K. Nettle, D. T. J. Bryant, D. R. Jones, M. W. Penny, R. Brown, R. Majithia, K. E. Meissner and T. G. G. Maffeis, “Microwave-assisted synthesis of layered basic zinc acetate nanosheets and their thermal decomposition into nanocrystalline ZnO,” Nanoscale Research Letters **9**, 11:1-8 (2014).

18. A. T. Nagaraja, A. Sooresh, K. E. Meissner and M. J. McShane, "Processing and Characterization of Stable, pH-Sensitive Layer-by-Layer Modified Colloidal Quantum Dots," ACS Nano **7** (7), 6194–6202 (2013).
19. R. Majithia, J. Speich and K. E. Meissner, "Mechanism of Generation of ZnO Microstructures by Microwave-Assisted Hydrothermal Approach," Materials **6** (6), 2497-2507 (2013).
20. S. Amini, Y. You, G. W. Kattawar and and K. E. Meissner, "The effect of surrounding inhomogeneities on whispering gallery modes in spherical resonators," Applied Optics **52** (4), 690-697 (2013).
21. A. Egatz-Gomez, P. W. Simmons, R. Majithia and K. E. Meissner, "Superhydrophilic and superhydrophobic wafer-sized silicon-nanowire surfaces," RSC Adv. **2** (30), 11472 – 11480 (2012).
22. A. Tarat, R. Majithia, R. Brown, K. E. Meissner and T. Maffeis, "Synthesis of nanocrystalline ZnO nanobelts via pyrolytic decomposition of zinc acetate nanobelts for gas sensing applications," Surface Science **606**, 715-712 (2012).
23. R. Majithia, J. Patterson, S. E. Bondos and K. E. Meissner, "On the Design of Composite Protein – Quantum Dot Biomaterials via Self-assembly," Biomacromolecules **12**, 3629-3637 (2011).
24. J. Speich, "Hydrothermal growth of zinc oxide nanorods using microwaves," Journal of Undergraduate Materials Research, in press (2011).
25. A. Romoser, D. Ritter, R. Majitha, K. E. Meissner, M. McShane and C. M. Sayes, "Mitigation of Quantum Dot Cytotoxicity by Microencapsulation," PLoS ONE **6**, e22079 1-7 (2011).
26. J. P. Ferrance, A. R. Juriani, J. W. Pettit and K. E. Meissner, "Photo-induced current changes in gellan gum wrapped carbon nanotube films incorporating CdSe nanocrystals." Journal of Nanoelectronics and Optoelectronics **6**, 102-110 (2011).
27. M. A. Milanick, S. Ritter and K. E. Meissner, "Engineering erythrocytes to be erythrosensors: First steps," Blood Cells, Molecules and Diseases **47**, 100-106 (2011).
28. S. Ritter, M. Milanick and K. E. Meissner, "Encapsulation of FITC to monitor extracellular pH: A step towards the development of red blood cells as circulating blood analyte biosensors," Biomedical Optics Express **2**, 2012-2021 (2011).
29. Z. Huang, Y. Lu, R. Majitha, J. Shah, K. E. Meissner, K. S. Matthews, S. E. Bondos and J. Lou, "Size Dictates Mechanical Properties for Fibers Self-Assembled by the *Drosophila* Hox Transcription Factor Ultrabithorax," Biomacromolecules **11**, 3644-3651 (2010).
30. H. T. Beier, G. L. Cote and K. E. Meissner, "Modeling Whispering Gallery Modes in Quantum Dot Embedded Polystyrene Microspheres," J. Opt. Soc. Amer. B **27**, 536-543 (2010).
31. J. P. Ferrance, K. E. Meissner and J. W. Pettit, "Solvent effects on the electrical and optical properties of composite carbon nanotube/MEH-PPV films," Journal of Nanoparticle Research **12**, 405-415 (2010).

32. S. Pang, A. T. Yeh, C. Wang and K. E. Meissner, "Beyond $1/T_p$ limit: two-photon fluorescence using pulses as short as sub-10-fs," Journal of Biomedical Optics **14** 054041 1-7 (2009).

33. H. T. Beier, G. L. Cote and K. E. Meissner, "Whispering gallery mode biosensors consisting or quantum-dot embedded microspheres," Annals of Biomedical Engineering **37** 1974-1983 (2009).

34. Z. Sun, A. Juriani, G. A. Meininger and K. E. Meissner, "Probing Cell Surface Interactions Using AFM Cantilevers Functionalized for Quantum Dot-Enabled FRET", Journal of Biomedical Optics **14**, 040501 1-3 (2009).

35. B. B. Nathwani, M. Jaffari, A. Juriani, A. B. Mathur and K. E. Meissner, "Fabrication and characterization of silk fibroin coated quantum dots," IEEE Transactions on Nanobioscience **8**, 72-77 (2009).

36. H.-J. Wu, S. Shah, K. E. Meissner and M. A. Bevan, "Evanescent wave scattering of polydisperse colloids," Langmuir **24**, 13790-13795 (2008).

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Conference/Symposium Abstracts

1. K. Szuba-Jablonski, V. Italia, E. Dibley, and K.E. Meissner, "The Effect of Buffer Osmolarity on the Formation of Ultrabithorax Materials", 3rd Protein Materials Conference, Stockholm, Sweden, March 7-8, 2019 *(Poster)*.
2. E. Dibley, V. Italia, K. Szuba-Jablonski, and K.E. Meissner, "The Effect of Buffer Density on the Formation of Ultrabithorax Materials", 3rd Protein Materials Conference, Stockholm, Sweden, March 7-8, 2019 *(Poster)*.
3. V. Italia, P. Bertoncello, and K.E. Meissner, "Understanding novel Ultrabithorax protein-derived films", 3rd Protein Materials Conference, Stockholm, Sweden, March 7-8, 2019.
4. K.E. Meissner, "Ultrabithorax-based Materials," 30th Annual Congress on Nanotechnology and Nanomaterials, Stockholm, Sweden, September 10-11, 2018 (*Keynote Address*).
5. V. Italia, P. Bertoncello1, and K. E. Meissner, "Understanding novel Ultrabithorax protein-derived films," 2018 Annual Early Career Researcher Meeting of the British Society of Nanomedicine, London, UK, August 6-7, 2018.
6. S. C. Bustamante-López, J. Plácido, S. Kelly, and K.E. Meissner, "Carbon-based Nanomaterials at Refiex", Innovation Alley at Digital Manufacturing Week Smart Factory Expo in Liverpool, UK, November 14-15, 2018.
7. K. Meissner, "Toward Optical Rheometric Measurements on Biofluids," Institute for Non-Newtonian Fluid Mechanics Spring Meeting 2017, Lake Vyrnwy, Wales, UK, April 10-12, 2017 (*Invited, Plenary Talk*).

8. K. Meissner, “Exploring Red Blood Cells for Blood Diagnostics”, Nano-Spectroscopy and Bio-Imaging Conference, Coventry, UK, Oct. 12-13, 2016 (*Invited Talk)*.
9. K. Meissner, “Functionalized Red Blood Cells as a Platform For Blood Diagnostics,” 24th annual International Conference on Advanced Laser Technologies, Galway, Ireland, September 12-16, 2016 (*Invited Talk*).
10. S. Amini, Z. Sun, and G. A. Meininger and K. E. Meissner, “Whispering gallery modes at the tip of an AFM for biochemical sensing at the cell surface,” 560. WE Heraeus Seminar, Bad Honnef, Germany, Apr. 14-18, 2014 (*Invited Talk*).
11. K. E. Meissner, S. C. Ritter, N. P. Cooley, M. A. Milanick and T, E. Glass, “Using Red Blood Cells to Monitor Blood Analytes,” 44th Annual Winter Colloquium on the Physics of Quantum Electronics, Snowbird, UT, Jan. 5-9, 2014.
12. S. C. Ritter, X. Shao, M. A. Milanick, T. E. Glass and K. E. Meissner, “Blood analyte monitoring from the inside out: Red blood cells as a sensing platform,” 2013 Red Cell Meeting, New York, NY, October 4-5, 2013.
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14. K. E. Meissner, “Quantum Dots, Microspheres, and Biophotonics, Oh My!,” 2013 TAMU-Princeton Summer School on Quantum Science and Engineering, Casper, WY, July 8-12, 2013.
15. K. E. Meissner, “Red blood cells as engineered sensors for blood monitoring,” The Cardiovascular Research Institute – 4th Research Symposium, Temple, TX, May 2-3, 2013, Translational Research and Medicine: New Frontiers session.
16. S. Amini, Z. Sun, and G. A. Meininger and K. E. Meissner, “Whispering Gallery Modes at the Tip of an AFM for Near-field Imaging of Cells,” Linz Winter Workshop, Linz Austria, Feb. 4-7, 2013, Poster.
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27. K. E. Meissner, Z. Sun, S. Amini and G. A. Meininger, “Optics at the tip of an AFM enabling studies at the cellular level,” Linz Winter Workshop, Linz Austria, Feb. 4-7, 2011, Talk, Session: Cellular Structure and Dynamics I.
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50. S. Muthukumar, M.A. Bevan and K.E. Meissner, "Spectral Multiplexing Using Quantum-dot Tagged Microspheres," 23rd Annual Houston Conference on Biomedical Engineering Research, Houston, TX, February 9-10, 2006, Paper Session D: Optics and Photonics.
51. A. Keho, X. Jin, L. Wang and K. Meissner, "Imaging with Iron Oxide Nanoparticles," 23rd Annual Houston Conference on Biomedical Engineering Research, Houston, TX, February 9-10, 2006, Paper Session D: Optics and Photonics
52. K.E. Meissner, "Colloidal Quantum Dots for Cancer Research," TX-UK Workshop: The Molecular Signature of Cancer – From Bench to Clinic and Back, St. Anne's College, Oxford University, Oxford, England, January 12-14, 2006.
53. K.E. Meissner, "Colloidal Semiconductor Quantum Dots: Moving from Biological Labeling to Biosensing," Nano Summit Conference, Houston, TX, 28 July 2005.
54. K.E. Meissner, "Biosensing Techniques with Quantum Dots," TX/Scotland Symposium on Photonics and Nano-Electronics for Possible Bio-Medical Applications, Houston, TX, 19 September 2005.
55. Dickerson, B. D., Irving, D. M., Herz, E., Meissner, K. E., Claus, R. O. and Spillman, W. B., "*Arrhenius Growth of CdSe Quantum Dots in Stearic Acid*," Optics in the Southeast, Charlotte, N. C., November 4-5, 2004, paper SE01-E1.

56. Irving, D. M., Tinius, M., Herz, E., Spillman, W. B. and Meissner, K. E., "*Effects of Different Precusor Ligands on Photoluminescent Intensity of Colloidal Cadmium Selenide/Zinc Sulfide Quantum Dots*," Optics in the Southeast, Charlotte, N. C., November 4-5, 2004, paper SE01-E2.
57. Xu, X., Meissner, K. E. and Spillman, W. B., "*Modification of Fiber Optic Sensors for 'Smart' Bed*," Optics in the Southeast, Charlotte, N. C., November 4-5, 2004, paper SE01-B3.
58. K. E. Meissner, C. Holton and W. B. Spillman Jr., "Optical Characterization of quantum dots entrained in microstructured optical fibers," QD2004 3nd International Conference on Semiconductor Quantum Dots, 10 May – 13 May, 2004, Banff, Canada, poster T-36..
59. M. R. Tinius, D. Irving, E. Herz and K. E. Meissner, "The Optical Properties of Colloidal Quantum Dots Produced Through Reactions Modified by Sulfone Derivatives," Optics in the Southeast 2003, Orlando, Florida, November 12-13, 2003, paper SE-05-B5.
60. D. Irving, E. Herz and K. E. Meissner, "Effects of Zinc Sulfide Capping on Photoluminescent Intensity of Colloidal Cadmium Selenide Quantum Dots," Optics in the Southeast 2003, Orlando, Florida, November 12-13, 2003, paper SE-05-B4.
61. S. Mikailoff, K. E. Meissner, and W. B. Spillman, "Sensing of Acoustic Emission Events Using Fiber Bragg Gratings," Optics in the Southeast 2002, Huntsville, Alabama, October 24-25, 2002, paper SE05-21.
62. E. Herz, R. Bowers, and K. E. Meissner, "The Effects of Quantum Dot Capping Structure on Photoluminescent Intensity: A Study of CdSe," Optics in the Southeast 2002, Huntsville, Alabama, October 24-25, 2002, paper SE02-11.
63. K. E. Meissner, E. Herz, R. P. Kruzelock, and W. B. Spillman Jr., " Quantum Dot-tagged Microspheres for Fluid-based DNA Microarrays," QD2002 2nd International Conference on Semiconductor Quantum Dots, 30 September – 4 October, 2002, Tokyo, Japan, poster M-10.
64. K. E. Meissner, E. Herz, R. P. Kruzelock, R. Brower, and W. B. Spillman Jr., "Liquid-based DNA Microarrays for DNA Analysis," International Symposium on Photonics in Measurement 2002, 11-12 June, 2002, Aachen, Germany, paper B1-4.
65. K. E. Meissner and W. B. Spillman Jr., "Adaptive Optical System for Improved Activation of PDT Photosensitizers," SPIE Complex Adaptive Structures Conference, 4-6 June, 2001, Hutchinson Island, Florida, paper 4512-31.
66. S. L. Monfre, K. E. Meissner, H. E. Fuchs, and T. Blank, "A Microspectrometer for Near-Infrared Analysis," presented at the Eastern Analytical Symposium, November 1999.
67. K. E. Meissner, P. L. Gourley, T. M. Brennan, and B. E. Hammons, "Lasing modes in semiconductor Fabry-Perot microcavities with dielectric spheres," CLEO/QELS 1995, Baltimore, Maryland, May 22-26, 1995, paper QThL4.
68. K. E. Meissner, P. L. Gourley, B. W. Hickman, N. F. Johnson, and A. E. McDonald, "Rat lung epithelial cell cultures grown on semiconductors," 1995 March Meeting of the American Physical Society, March 20-24, 1995, San Jose, California, paper J23 8.

69. K. Meissner, B. Fluegel, H. Giessen, G. Mohs, R. Binder, S. W. Koch, and N. Peyghambarian, "An experiment-theory investigation of frequency dependent dephasing in an inverted semiconductor," CLEO/IQEC 1994, Anaheim, California, May 8-13, 1994.
70. K. Meissner, B. Fluegel, A. Paul, S. W. Koch, and N. Peyghambarian, "Femtosecond gain dynamics in a passive semiconductor," CLEO/QELS 1993, Baltimore, Maryland, May 2-7, 1993, paper CThC1.
71. K. Meissner, B. Fluegel, A. Paul, R. Binder, S. W. Koch, N. Peyghambarian, F. Sasaki, T. Mishina, and Y. Masumoto, "Experimental and theoretical investigation of femtosecond carrier relaxation in CdSe," ILS-VIII Conference, Albuquerque, New Mexico, September 20-25, 1992, paper F3-5.
72. K. Meissner, B. Fluegel, R. Binder, S. W. Koch, G. Khitrova, H. M. Gibbs, and N. Peyghambarian, "Comparison of optical nonlinearities of type I and type II quantum wells," ILS-VII, Monterey, California, September 22-26, 1991.

Invited Seminars

1. "Quantum Dots, Microspheres and Whispering Gallery Modes. Oh My!", Department of Pharmacology Seminar, Cambridge University, Cambridge, UK, Oct. 28, 2016.
2. "Red Blood Cells as a Platform for Blood Analyte Sensing…and other things," Imperial College London, London, UK, Mar. 26, 2015.
3. "Applications of Physics in Biomedical Sensing," University of Stuttgart, Stuttgart, Germany, Feb. 26, 2015.
4. "Biomedical Optics with Nanoparticles, Microspheres, and Red Blood Cells," Air Force Research Labs, San Antonio, TX, Jan. 4, 2013.
5. "Non- and minimally-invasive blood analyte monitoring: A Texas A&M perspective," Swansea University: Building Global Engagements in Research, Swansea, Wales, Feb. 25-27, 2013.
6. "Biomedical Optics with Quantum Dots, Microspheres, and Red Blood Cells," Carnegie Mellon University, Department of Biomedical Engineering, Pittsburgh, PA, August 9, 2011.
7. "Virtual Instrumentation Workshop", Texas A&M Teacher Summit, College Station, TX, January 27, 2010.
8. "Quantum Dots, Microspheres and Whispering Gallery Modes. Oh My!," Wake Forest University, Department of Physics, Winston-Salem, NC, March 25, 2010.
9. "Quantum Dots, Microspheres and Whispering Gallery Modes. Oh My!," Queens University, Department of Chemistry, Belfast, N. Ireland, March 27, 2009.
10. "Quantum Dots, Microspheres and Whispering Gallery Modes. Oh My!," Swansea University, College of Engineering, Swansea, Wales, March 24, 2009.

Other Publications

1. P. L. Gourley, K. E. Meissner, M. F. Gourley, and John Lyo, "A radically new approach to cell-structure analysis," Biophotonics International **2** (4), 48 (1995).

Professional Activities

Society Memberships

Institute of Physics (IOP), Fellow
Biomedical Engineering Society (BMES)
International Society for Optical Engineering (SPIE)

Archival Journal Referee

Applied Optics
Engineering in Medicine and Biology
Flow Cytometry
Measurement Science and Technology
Optical Engineering
Optics Communications
Physiological Measurement
Optics Express
Biotechnology Journal
Journal of Biomedical Optics
Journal of Sensors
IEEE Transactions on Nanobioscience

Grant Reviewer

MRC *ad hoc* reviewer in Optical Diagnostics
EPSRC College of Reviewers
NSF SBIR/STTR Phase I: Medical Sensor Technologies (August 2013)
NSF, ERC Site visit team (March 2012)
NSF, Optical Biosensing (November 2011)
NSF, SBIR Phase I - Bioinstrumentation: Microscopy and Spectrometry (August 2011)
NSF, Biophotonics (June 2011)
NSF, IGERT (December 2010)
NSF, SBIR/STTR Phase I: Biosensors in Diagnostic Applications (March 2010)
NSF, CBET MRI-R2 (October 2009)
NSF, SBIR/STTR Phase I: Biosensors/Bioinstrumentation (September 2009, September 2010)
NSF, Biophotonics, Advanced Imaging and Sensing for Human Health (May 2009)
NSF, Sensing and Biomedical Engineering (January 2009)
NIH, Shared Instrumentation Imaging (2006)
Technology Foundation STW (Dutch Govt: Netherlands Organisation for Scientific Research, NWO, and the Dutch Ministry of Economic Affairs) VENI Program (2006)
State of Indiana: 21st Century Research and Technology Fund (2007)

Session Chair/Program Committee

30th Annual Congress on Nanotechnology and Nanomaterials, Conference co-Chair (2018)

4th International Conference on Advances in Electrical Engineering (ICAEE), Technical Program Committee (2017)
British Society for Nanomedicine Early Career Researcher Meeting, Scientific Committee and Organizing Committee (2016)
Photonics West 2014 BIOS Conference, Conference Program Committee, Optical Diagnostics and Sensing XIII (2014)
44th Annual Winter Colloquium on the Physics of Quantum Electronics, Session co-Chair, Spectroscopic Tools for Use in Complex Media (2014)
Photonics West 2013 BIOS Conference, Conference Program Committee, Optical Diagnostics and Sensing XII (2013)
BioMedOpTex Symposium, co-Chair (2012)
Photonics West 2012 BIOS Conference, Conference Program Committee, Optical Diagnostics and Sensing XI (2012)
Photonics West 2011 BIOS Conference, Conference Program Committee, Optical Diagnostics and Sensing X (2011)
Photonics West 2010 BIOS Conference, Conference Program Committee, Optical Diagnostics and Sensing IX (2010)
2010 Society for Physical Regulation in Biology and Medicine, Session Chair, *Cellular and Molecular Mechanics* (2010)
26th Annual Houston Conference on Biomedical Engineering Research, Session Co-chair, *Materials, Surfaces and Micro/Nanoscale Phenomena*, Houston, TX (2009)
Photonics West 2009 BIOS Conference, Conference Program Committee, Optical Diagnostics and Sensing VIII (2009)
Photonics West 2008 BIOS Conference, Conference Program Committee, Optical Diagnostics and Sensing VII (2008)
Photonics West 2007 BIOS Conference, Conference Program Committee, Optical Diagnostics and Sensing VI (2007)
Biomedical Engineering Society Annual Meeting, Session Chair, *Optics and Imaging – Optical Techniques*, Chicago, IL (2006)
23rd Annual Houston Conference on Biomedical Engineering Research, Session Co-chair, *Nano- and Microtechnologies II: Analytical and Delivery Systems*, Houston, TX (2006)
Photonics West 2006 BIOS Conference, Conference Program Committee, Optical Diagnostics and Sensing VI (2006).