

PAULETTE SPENCER
Curriculum Vitae
December 10, 2014

Personal Information

Director, Bioengineering Research Center
Deane E. Ackers Distinguished Professor
Mechanical Engineering
University of Kansas
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Lawrence, KS 66045

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Education

Ph.D., Oral Biology and Physics (Interdisciplinary PhD), 1993
University of Missouri-Kansas City, Kansas City, MO
Dissertation/Thesis: "Morphologic and structural characterization of bone formation in a canine osseous defect model"

M.S., Materials Engineering, 1988
Rensselaer Polytechnic Institute, Troy, NY
Dissertation/Thesis: "Structural and chemical analysis of dental enamel from magnesium and sodium fluoride supplemented rats"

M.S., Pediatric Dentistry, 1980
University of Minnesota, Minneapolis, MN
Dissertation/Thesis: "*In vitro* comparison of a hydrophilic and hydrophobic fissure sealant"

D.D.S., 1978
University of Missouri-Kansas City School of Dentistry, Kansas City

B.S., 1973
University of Missouri, Columbia, MO
Teaching license in biology and related sciences

Licensures, Certifications, and Professional Training

Minnesota #D8685

Missouri #DE 015869

Provisional Mississippi Licensure, 1981 - 1984

Central Regional Board of Dental Examiners, 1978

National Board of Dental Examiners, 1978

National Board of Dental Examiners, 1976

Employment History

Academic

University of Kansas, Lawrence, KS

Founding Director, Bioengineering Research Center, September 2007 - Present

Deanne E. Ackers Distinguished Professor, Mechanical Engineering, University of Kansas School of Engineering, September 2007 - Present

Adjunct Professor, Department of Mechanical Engineering, December 2003 - September 2007

University of Missouri

Curators' Professor Emeritus, September 2007 - Present

Curators' Professor, September 2004

University of Missouri-Kansas City (UMKC), Kansas City, MO

Adjunct member, Doctoral Faculty, September 2008 - Present

Professor, University of Missouri-Kansas City School of Computing and Engineering, January 2002 - September 2007

Professor, Departments of Oral Biology and Pediatric Dentistry, UMKC School of Dentistry, September 1999 - September 2007

Appointed as the Hamilton B. G. Robinson Professor, UMKC School of Dentistry
Director, UMKC Center for Research on Interfacial Structure and Properties (UMKC-CRISP),
October 2003 - August 2007

Recognized as an official University Center. This Center was discontinued when I retired from UMKC.

Director of Graduate Studies and Research, Department of Oral Biology, UMKC School of Dentistry, May 1994 - 2006

Acting Chair, Department of Oral Biology, UMKC School of Dentistry, June 2003 - August 2003

Acting Chair, Department of Oral Biology, UMKC School of Dentistry, June 2003 - August 2003

Acting Chair, Department of Oral Biology, UMKC School of Dentistry, June 2002 - August 2002

Acting Chair, Department of Oral Biology, UMKC School of Dentistry, February 1997 - August 1997

Assistant Professor, Joint Appointment in Departments of Pediatric Dentistry and Oral Biology, UMKC School of Dentistry, July 1989 - 1993

Member of Doctoral Faculty, November 1993

Associate Professor with tenure, Joint Appointment in Departments of Pediatric Dentistry and Oral Biology, UMKC School of Dentistry, September 1993

Assistant Professor, Department of Pediatric Dentistry, University of Missouri-Kansas City (UMKC) School of Dentistry, 1988 - 1989

Member, Graduate Faculty, April 1988

Rensselaer Polytechnic Institute, Troy, NY

Research Associate, 1984 - 1987

University Hospital, University of Mississippi Medical Center, Jackson, MS

Attending Dentist, 1982 - 1984

University of Mississippi Faculty Practice, Jackson, MS

Private Practitioner, 1981 - 1984

University of Mississippi School of Dentistry, Jackson, MS
Assistant Professor, Department of Pediatric Dentistry, 1981 - 1984

Administrative Assignments

University of Kansas
Founding Director, Bioengineering Research Center, September 2007 - Present

University of Missouri-Kansas City, Kansas City, MO
Director, UMKC Center for Research on Interfacial Structure and Properties (UMKC-CRISP),
October 2003 - August 2007
Recognized as an official University Center. This Center was discontinued when I retired from UMKC.
Director of Graduate Studies and Research, Department of Oral Biology, UMKC School of Dentistry, May 1994 - 2006
Acting Chair, Department of Oral Biology, UMKC School of Dentistry, June 2004 - August 2004
Acting Chair, Department of Oral Biology, UMKC School of Dentistry, June 2003 - August 2003
Acting Chair, Department of Oral Biology, UMKC School of Dentistry, June 2002 - August 2002
Acting Chair, Department of Oral Biology, UMKC School of Dentistry, February 1997 - August 1997

Professional Memberships

Society for Applied Spectroscopy (2002 - Present)

Society for Biomaterials (1997 - Present)

American Dental Association (1996 - Present)

Missouri Dental Association (1996 - Present)

American Association for the Advancement of Science (AAAS) (1992 - Present)

Omicron Kappa Upsilon-Rho Chapter (1992 - Present)

American Association of Dental Research, Kansas City Section (1988 - Present)

Sigma Xi (1987 - Present)

International Association of Dental Research (1982 - Present)

Honors/Awards/Honor Societies

Group Honors/Awards

National Research Service Award, NIH/NIDR (1993)
to support graduate study toward M.S. (institutional award)

Honor Societies Honors/Awards

Elected to the Rho Chapter of Omicron Kappa Upsilon (1992 - Present)

Elected Vice-President, President-elect, President Omicron Kappa Upsilon, Rho Chapter (1997 - 1999)

Individual Honors/Awards

Fellow, American Association for the Advancement of Science (AAAS) (2007 - Present)

Fellow, Biomaterials Science and Engineering (FBSE), International Union of Societies for Biomaterials (2007 - Present)

Fellow, American Institute for Medical and Biological Engineering (2003 - Present)

Fellow, American College of Dentists (1992 - Present)

Fellow, American Academy of Dental Materials (1983 - Present)

Fellow, American Academy of Pediatric Dentistry (1983 - Present)

Miller Scholar, Mechanical Engineering, University of Kansas School of Engineering (2014)

Selected for 2014-15 Fulbright U.S. Scholar Award to Brazil (2014)

Bellows Scholar, University of Kansas School of Engineering (2013)

Cramer Award, Dept. of Mechanical Engineering, University of Kansas School of Engineering (2013)

Leading Light Award, University of Kansas (2012)

Miller Scholar, University of Kansas School of Engineering (2012)

UMKC Dental Alumni Achievement Award (2011)

Bellows Scholar, University of Kansas School of Engineering (2010)

Cramer Research Professor, Department of Mechanical Engineering, School of Engineering, University of Kansas (September 1, 2007 - September 1, 2010)

Visiting Professor Program, Bauru School of Dentistry, University of Sao Paulo, Sao Paulo State, Brazil (2009)

Selected for Who's Who in Engineering Higher Education (2008)

Distinguished Women Calendar, University of Kansas (2007)

Deane E. Ackers Distinguished Professor, School of Engineering, University of Kansas (September 1, 2007)

First female distinguished professor in the School of Engineering.

Madison Who's Who of Professionals (2005)

Selected as one of "America's Top Dentists" and listed in the "Guide to America's Top Dentists" (2005)

Curators' Professor, University of Missouri (2003)

This is the highest and most prestigious academic rank awarded by the Board of Curators.

Appointed Hamilton B. G. Robinson Professor, UMKC School of Dentistry (2001)

Distinguished Teaching Award, UMKC School of Dentistry (2000 - 2001)

President, UMKC Dental Alumni Association (2000 - 2001)

First female president of the UMKC Dental Alumni Association. Part of my responsibilities included organization and oversight of the alumni meeting (Midwest Dental Conference) held in Kansas City on April 5-8, 2001.

President-elect, UMKC Dental Alumni Association (1999)

Third, Second, First Vice-President, UMKC Dental Alumni Association (1996 - 1998)

Elected Secretary-Treasurer, Kansas City Section-American College of Dentists (1996)

Elected Secretary, UMKC Dental Alumni Association (1995)

Elected to the Board of Trustees, UMKC Dental Alumni Association (1993)

Physician Scientist Award, NIH/NIDR (1993)

to support graduate study toward Ph.D.

Elected to the Faculty Council, UMKC School of Dentistry, Kansas City, MO (1991)

Young Investigator Award, Fifth International Conference on Cell Mediated Calcification and Matrix Vesicles (1991)

Graduate Pedodontic Student Research Award, American Academy of Pediatric Dentistry (1982)

Tuition scholarship, University of Minnesota Graduate School (1979)

Research Key Words

biomaterials, dental materials, material/tissue interfacial phenomena and characterization,

Research/Scholarly Work

Publications

Reviewed/Refereed

Journal Articles

- Abedin, F., Q. Ye, H. J. Good, R. Parthasarathy, and P. Spencer. 2014. "Polymerization- and Solvent-Induced Phase Separation in Hydrophilic-rich Dentin Adhesive Mimic." *Acta Biomaterialia* 10: 3038-3047.
- Dixit, N., J. K. Settle, Q. Ye, C. L. Berrie, P. Spencer, and J. S. Laurence. 2014. "Grafting MAP Peptide to Dental Polymer Inhibits MMP-8 Activity." *J Biomed Mater Res: Part B Appl Biomater*. Forthcoming.
- Ge, X., Q. Ye, L. Song, A. Misra, and P. Spencer. 2014. "Synthesis and evaluation of novel siloxane-methacrylate monomers used as dentin adhesives." *Dental Mater* 30: 1073-7087.
- Laurence, J. S., B. Nelson, Q. Ye, and P. Spencer. 2014. "Characterization of Acid-Neutralizing Basic Monomers in Co-Solvent Systems by NMR." *Int J Polymer Mater* 63: 361-7.
- Misra, A., B. Parthasarathy, Q. Ye, V. Singh, and P. Spencer. 2014. "Swelling equilibrium of dentin adhesive polymers formed on the water-adhesive phase boundary: Experiments and micromechanical model." *Acta Biomaterialia* 10 (1): 330-342.
- Singh, V., A. Misra, R. Parthasarathy, Q. Ye, and P. Spencer. 2014. "Viscoelastic Properties of Collagen-Adhesive Composites under Water Saturated and Dry Conditions." *J Biomed Mater Res: Part A* 00A. 00A:000-000
- Song, L., Q. Ye, X. Ge, A. Misra, J. S. Lawrence, C. L. Berrie, and P. Spencer. 2014. "Synthesis and evaluation of novel dental monomer with branched aromatic carboxylic acid group." *J Biomed Mater Res Part B* 00B. 00B:000-000
- Spencer, P., Q. Ye, A. Misra, S. E.P. Goncalves, and J. S. Laurence. 2014. "Proteins, Pathogens, and Failure at the Composite/Tooth Interface." *J Dent Res* (September 4).
Published online
- Bohaty, B. S., Q. Ye, A. Misra, F. Sene, and P. Spencer. 2013. "Posterior Composite Restoration Update: Focus on Factors Influencing Form and Function." *Clinical, Cosmetic and Investigational Dentistry* 5: 33-42.
- Misra, A., O. Marangos, R. Parthasarathy, and P. Spencer. 2013. "Micro-scale analysis of compositional and mechanical properties of dentin using homotopic measurements." *Biomedical Imaging and Computational Modeling in Biomechanics, Lecture Notes in Computational Vision and Biomechanics*, no. 4, 131-141.
- Misra, A., R. Parthasarathy, V. Singh, and P. Spencer. 2013. "Micro-poromechanics model of fluid saturated chemically active fibrous media." *Z. Angew. Math. Mech.* 1-20.
- Misra, A., R. Parthasarathy, V. Singh, and P. Spencer. 2013. "Poromechanics parameters of fluid-saturated chemically active fibrous media derived from a micromechanical approach." *J Nanomechanics and Micromechanics* 3 (4): 04013002.
doi:10.1061/(ASCE)NM.2153-5477.0000069.
- Singh, V., A. Misra, R. Parthasarathy, Q. Ye, J. Park, and P. Spencer. 2013. "Mechanical Properties

- of Methacrylate Based Model Dentin Adhesives: Effect of Loading Rate and Moisture Exposure." *Journal of Biomedical Materials Research: Part B* 101B: 1437-1443.
- Ye, Q., R. Parthasarathy, F. Abedin, J. S. Laurence, A. Misra, and P. Spencer. 2013. "Multivariate Analysis of Attenuated Total Reflection-Fourier Transform Infrared (ATR/FTIR) Spectroscopic Data to Confirm Phase Partitioning in Methacrylate-based Dentin Adhesive." *Appl Spect* 67 (12): 1473-1478.
- Park, J. G., Q. Ye, V. Singh, S. L. Kieweg, A. Misra, and P. Spencer. 2012. "Synthesis and evaluation of novel dental monomer with branched aromatic carboxylic acid group." *J Biomed Mater Res Part B: Appl Biomaterials* 100B: 569-576.
- Park, J., Q. Ye, P. Spencer, and J. S. Laurence. 2012. "Determination of neutralization capacity and stability of a basic methacrylate monomer using NMR." *International Journal of Polymeric Materials* 61 (2): 144-153.
- Spencer, P., Q. Ye, J. Park, A. Misra, B. S. Bohaty, V. Singh, R. Parthasarathy, F. Sene, S. Goncalves, and J. S. Laurence. 2012. "Durable bonds at the adhesive/dentin interface: an impossible mission or simply a moving target?" *Braz Dent Sci* 15 (1): 23-37.
- Ye, Q., J. G. Park, R. Parthasarathy, F. Pamatmat, A. Misra, J. S. Laurence, O. Marangos, and P. Spencer. 2012. "Quantitative analysis of aqueous phase composition of model dentin adhesives experiencing phase separation." *J Biomed Mater Res Part B: Appl Biomaterials* 100B: 1086-1092.
- Parthasarathy, R., A. Misra, J. Park, Q. Ye, and P. Spencer. 2012. "Diffusion coefficients of water and leachables in methacrylate-based crosslinked polymers using absorption experiments." *J Mater Sci Mater Med* 23, no. 5 (May): 1157-1172.
- Park, Jonggu, John Eslick, Qiang Ye, Anil Misra, and P. Spencer. 2011. "The influence of chemical structure on the properties in methacrylate-based dentin adhesives." *Dent Mater* 27: 1086-1093.
- Pinzon, L. M., J. M. Powers, K. L. O'Keefe, V. Dusevich, P. Spencer, and G. W. Marshall. 2011. "Effect of Mucoprotein on the Bond Strength of Resin Composite to Human Dentin." *Odontology* 99 (2): 119-128.
- Singh, V., A. Misra, O. Marangos, J. Park, Q. Ye, S. L. Kieweg, and P. Spencer. 2011. "Fatigue life prediction of dentin-adhesive interface using micromechanical stress analysis." *Dent Mater* 27 (9): e187-e195.
- Ye, Q., J. Park, J. S. Laurence, R. Parthasarathy, A. Misra, and P. Spencer. 2011. "Ternary phase diagram of model dentin adhesive exposed to over-wet environments." *J Dent Res* 90 (12): 1434-1438.
- Marangos, O., A. Misra, P. Spencer, and J. L. Katz. 2011. "Scanning acoustic microscopy investigation of frequency-dependent reflectance of acid-etched human dentin using homotopic measurements." *IEEE Transactions on Ultrasonics, Ferroelectrics, and Frequency Control* 58, no. 3 (March): 585-595.
- Park, J., Q. Ye, E. M. Topp, S. L. Kieweg, and P. Spencer. 2010. "Effect of Photoinitiator System

- and Water Content on Dynamic Mechanical Properties of a Light-Cured bisGMA/HEMA Dental Resin." *J Biomed Mater Res Part A* 93 (4): 1245-1251.
- Pinzon, L. M., M. Oguri, K. L. O'Keefe, V. Dusevish, P. Spencer, J. Powers, and G. W. Marshall. 2010. "Bond Strength of Adhesives to Dentin Contaminated with Smoker's Saliva." *Odontology* 98 (1): 37-43.
- Singh, V., A. Misra, O. Marangos, J. Park, Q. Ye, S. Kieweg, and P. Spencer. 2010. "Viscoelastic and fatigue properties of model methacrylate based dentin adhesives." *J Biomed Mater Res Part B: Appl Biomater* 95B: 283-290.
- Spencer, P., Q. Ye, J. Park, E. M. Topp, A. Misra, O. Marangos, Y. Wang, B. S. Bohaty, V. Singh, F. Sene, J. Eslick, K. Camarda, and J. L. Katz. 2010. "Adhesive/Dentin Interface: The Weak Link in the Composite Restoration." *Annals of Biomed Eng* 38 (6): 1989-2003.
- Benavides, E., M. Bilgen, B. Al-Hafez, T. Alrefae, Y. Wang, and P. Spencer. 2009. "High Resolution Magnetic Resonance Imaging and Diffusion Tensor Imaging of the Porcine Temporomandibular Joint Disc." *Dentomaxillofacial Radiology* 38: 148-155.
- Eslick, J. C., Q. Ye, J. Park, E. M. Topp, P. Spencer, and K. V. Camarda. 2009. "A Computational Molecular Design Framework for Crosslinked Polymer Networks." *Computers & Chemical Engineering* 33: 954-963.
- Guo, X., Z. Peng, P. Spencer, and Y. Wang. 2009. "Effect of Initiator on Photopolymerization of Acidic, Aqueous Dental Model Adhesives." *J Biomed Materials Res, Part A* 90 (4): 1120-1127.
- Kostoryz, E. L., K. Dharmala, Q. Ye, Y. Wang, J. Huber, J. G. Park, G. Snider, J. L. Katz, and P. Spencer. 2009. "Enzymatic biodegradation of HEMA/BisGMA adhesives formulated with different water content." *J Biomed Mater Res B: Appl Biomater* 88B: 394-401.
- Marangos, O., A. Misra, P. Spencer, B. Bohaty, and J. L. Katz. 2009. "Physico-mechanical Properties Determination using Microscale Homotopic Measurement: Application to Sound and Caries Affected Primary Tooth Dentin." *Acta Biomaterialia* 5: 1338-1348.
- Park, J. G., Q. Ye, E. M. Topp, A. Misra, and P. Spencer. 2009. "Water Sorption and Dynamic Mechanical Properties of Dentin Adhesives with a Urethane-Based Multifunctional Methacrylate Monomer." *Dent Mater* 25: 1569-1575.
- Park, J. G., Q. Ye, E. M. Topp, C. H. Lee, E. L. Kostoryz, A. Misra, and P. Spencer. 2009. "Dynamic Mechanical Analysis and Esterase Degradation of Dentin Adhesives Containing a Branched Methacrylate." *J Biomed Mater Res B: Appl Biomater* 91B: 61-70.
- Park, J. G., Q. Ye, E. M. Topp, and P. Spencer. 2009. "Enzyme-catalyzed Hydrolysis of Dentin Adhesives Containing a New Urethane-Based Trimethacrylate Monomer." *J Biomed Mater Res Part B: Appl Biomater* 91B: 562-571.
- Ye, Q., J. G. Park, E. Topp, and P. Spencer. 2009. "Effect of Photo-Initiators on the In Vitro Performance of a Dentin Adhesive Exposed to Simulated Oral Environment." *Dental Mater* 25 (4): 452-458.

- Ye, Q., Y. Wang, and P. Spencer. 2009. "Nanophase Separation of Polymers Exposed to Simulated Bonding Conditions." *J Biomed Mater Res B: Appl Biomater* 88B: 339-348.
- Guo, X., Y. Wang, P. Spencer, Q. Ye, and X. Yao. 2008. "Effects of Water Content and Initiator Composition on Photopolymerization of a Model BisGMA/HEMA Resin." *Dent Mater* 24 (6): 824-831.
- Katz, J. L., P. Spencer, Y. Wang, A. Misra, O. Marangos, and L. Friis. 2008. "On the Anisotropic Elastic Properties of Wood." *J Materials Science* 43 (1): 139-145.
- Park, J. G., Q. Ye, E. M. Topp, E. Kostoryz, Y. Wang, S. L. Kieweg, and P. Spencer. 2008. "Preparation and Properties of Novel Dentin Adhesives with Esterase Resistance." *J Appl Polymer Sci* 107: 3588-3597.
- Parthasarathy, R., G. Thiagarajan, X. Yao, Y. P. Wang, P. Spencer, and Y. Wang. 2008. "Application of Multivariate Spectral Analyses in Micro-Raman Imaging to Unveil Structure/Chemical Features of the Adhesive/Dentin Interface." *J Biomed Optics* 13 (1): 014020.
- Ye, Q., J. G. Park, E. Topp, Y. Wang, A. Misra, and P. Spencer. 2008. "In Vitro Performance of Nano-Heterogeneous Dentin Adhesive." *J Dent Res* 87 (9): 829-833.
- Athar, A., C. Angelolopoulos, J. Katz, K. Williams, and P. Spencer. 2008. "Radiographic endodontic working length estimation: comparison of three digital image receptors." *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 106, no. 4 (August): 604-8.
- Castro, V. M., J. O. Katz, P. K. Hardman, A. G. Glaros, and P. Spencer. 2007. "In vitro comparison of conventional film and direct digital imaging in the detection of approximal caries." *Dentomaxillofacial Radiology* 36: 138-142.
- Guo, X., P. Spencer, Y. Wang, Q. Ye, X. Yao, and K. Williams. 2007. "Effects of a Solubility Enhancer on Penetration of Hydrophobic Component in Model Adhesives into Wet Demineralized Dentin." *Dental Mater* 23: 1473-1481.
- Katz, J. L., A. Misra, P. Spencer, Y. Wang, S. Bumrerraj, T. Nomura, S. J. Eppell, and M. Tabib-Azar. 2007. "Multiscale Mechanics of Hierarchical Structure/Property Relationships in Calcified Tissues and Tissue/Material Interfaces." *Mat Sci Eng C-Bio S* 27 (3): 450-468.
- Walker, M. P., B. Wichman, K. B. Williams, M. Rondeau, and P. Spencer. 2007. "Risk Factors associated with post-radiation dental lesions." *J Invest Med* 55 (2): 16.
- Wang, Y., P. Spencer, X. Yao, and B. Bohaty. 2007. "Effect of solvent content on resin hybridization in wet dentin bonding." *J. Biomed Mater Res. A* 82: 975-983.
- Wang, Y., P. Spencer, and M. P. Walker. 2007. "Chemical profile of adhesive/caries-affected dentin interfaces using Raman microspectroscopy." *J Biomed Mater Res A* 81 (2): 279-286.
- Ye, Q., P. Spencer, Y. Wang, and A. Misra. 2007. "Relationship of Solvent to the Photopolymerization Process, Properties and Structure in Model Dentin Adhesives." *J Biomed Mater Res A* 80 (2): 342-350.

- Ye, Q., P. Spencer, and Y. Wang. 2007. "Nanoscale patterning in crosslinked methacrylate copolymer networks: an atomic force microscopy study." *J Appl Polym Sci* 106: 3843-3851.
- Ye, Q., Y. Wang, K. Williams, and P. Spencer. 2007. "Characterization of photopolymerization of dentin adhesives as a function of light source and irradiance." *J Biomed Mater Res B Appl Biomater* 80 (2): 440-446.
- Thiagarajan, G., K. Deshmukh, Y. Wang, A. Misra, J. L. Katz, and P. Spencer. 2007. "Nano Finite Element Modeling of the Mechanical Behavior of Biocomposites Using Multi-Scale (Virtual Internal Bond) Finite Element Models." *J Biomed Mater Res* 83A, no. 2 (November): 332-344.
- Haj-Ali, R., M. P. Walker, K. Williams, Y. Wang, and P. Spencer. 2006. "Histomorphologic Characterization of Non-carious and Caries-Affected Dentin/ Adhesive Interfaces." *J Prosthodont* 15 (2): 82-88.
- Wang, Y. P., Y. Wang, and P. Spencer. 2006. "Fuzzy clustering of Raman spectral imaging data with a wavelet-based noise reduction approach." *Appl. Spec.* 60 (7): 826-832.
- Wang, Y., P. Spencer, C. Hager, and B. Bohaty. 2006. "Comparison of Interfacial Characteristics of Adhesive Bonding to Superficial versus Deep Dentin Using SEM and Staining Techniques." *J. Dent.* 34 (1): 26 - 34.
- Wang, Y., P. Spencer, X. Yao, and Q. Ye. 2006. "Effect of Co-Initiator and Water on the Photoreactivity and Photopolymerization of HEMA/Camphoroquinone-Based Reactant Mixtures." *J Biomed Mater Res A* 78 (4): 721-728.
- Wang, Y., P. Spencer, and X. Yao. 2006. "Micro-Raman Imaging Analysis of Monomer/Mineral Distribution in Intertubular Region of Adhesive/Dentin Interfaces." *J Biomed Optics* 11 (2): 024005-1 to 024005-7.
- Spencer, P., Y. Wang, and B. Bohaty. 2006. "Interfacial Chemistry of Moisture-Aged Class II Composite Restorations." *J Biomed Mater Res B: Appl Biomater* 77, no. 2 (May): 234-240.
- Katz, J. L., J. H. Kinney, P. Spencer, Y. Wang, B. Fricke, M. P. Walker, and E. A. Friis. 2005. "Elastic Anisotropy of Bone and Dentitional Tissues." *J Mater Sci, Mater Med* 16 (9): 803-806.
- Misra, A., P. Spencer, O. Marangos, Y. Wang, and J. L. Katz. 2005. "Parametric Study of the Effect of Phase Anisotropy on the Micromechanical Behavior of Dentin/Adhesive Interfaces." *J R Soc Interface* 2 (3): 145-157.
- Spencer, Paulette, Yong Wang, J. Lawrence Katz, and Anil Misra. 2005. "Physicochemical Interactions at the Dentin/Adhesive Interface Using FTIR Chemical Imaging." *J Biomed Optics* 10 (3): 031104-1 to 031104-11.
- Wang, Y., and P. Spencer. 2005. "Evaluation of the Interface between One-Bottle Adhesive Systems and Dentin by Goldner's Trichrome Stain." *Am J Dent* 18 (1): 66-72.
- Wang, Y., and P. Spencer. 2005. "Interfacial Chemistry of Class II Composite Restorations: Structure Analysis." *J Biomed Mater Res A* 75 (3): 580-587.
- Wang, Yong, and Paulette Spencer. 2005. "Continuing Etching of an All-in-One Adhesive in Wet

- Dentin Tubules." *J Dental Res* 84 (4): 350-354.
- Misra, A., P. Spencer, O. Marangos, Y. Wang, and J. L. Katz. 2004. "Micromechanical Analysis of Dentin/Adhesive Interface Using Finite Element Method." *J Biomed Mater Res B: Appl Biomater* 70 (1): 56-65.
- Purk, J. H., V. Dusevich, A. Glaros, P. Spencer, and J. D. Eick. 2004. "In-vivo vs. in-vitro microtensile bond strength of axial vs. gingival cavity walls in class II composite resin restorations." *JADA* 135: 185-193.
- Spencer, P., Y. Wang, and J. L. Katz. 2004. "Identification of Collagen Encapsulation at the Dentin/Adhesive Interface." *J Adh Dent* 6 (2): 91-95.
- Wang, Y., and P. Spencer. 2004. "Effect of Acid Etching Time and Technique on Interfacial Characteristics of the Adhesive-Dentin Bond Using Differential Staining." *Eur J Oral Sci* 112 (3): 293-299.
- Wang, Y., and P. Spencer. 2004. "Exploring the Nature of Acid-Resistant Hybrid Layer with Wet Bonding." *Oper Dent* 29 (6): 650-655.
- Wang, Y., and P. Spencer. 2004. "Overestimating Hybrid Layer Quality in Polished Adhesive/Dentin Interfaces." *J Biomed Mater Res A* 68 (4): 735-746.
- Wang, Y., and P. Spencer. 2004. "Physicochemical Interactions at the Interfaces Between Self-Etch Adhesive Systems and Dentin." *J Dent* 32, no. 7 (September): 567-79.
- Katz, J. L., P. Spencer, T. Nomura, A. Wagh, and Y. Wang. 2003. "Micromechanical Properties of Demineralized Dentin Collagen With and Without Adhesive Infiltration." *J Biomed Mater Res A* 66 (1): 120-128.
- Petrie, C. S., M. P. Walker, A. M. O'Mahony, and P. Spencer. 2003. "Dimensional accuracy and surface detail reproduction of two hydrophilic polyvinyl siloxane impression materials tested under dry, moist and wet conditions." *J Prosthetic Dentistry* 90 (4): 365-376.
- Walker, M. P., P. Spencer, and J. D. Eick. 2003. "Effect of Simulated Resin-Bonded Fixed Partial Denture Clinical Conditions on Resin Cement Mechanical Properties." *J Oral Rehabilitation* 30 (8): 837-846.
- Walker, M. P., P. Spencer, and J. D. Eick. 2003. "Mechanical Property Characterization of Resin Cement After Aqueous Aging with and without Cyclic Loading." *Dental Materials* 19 (7): 645-652.
- Walker, M. P., Y. Wang, and P. Spencer. 2003. "Morphologic and Chemical Characterization of the Dentin/Resin Cement Interface Produced with a Self-etching Primer." *J Adhesive Dent* 4 (3): 181-189.
- Wang, Y., and P. Spencer. 2003. "Hybridization of the Adhesive/Dentin Interface with Wet Bonding." *J Dent Res* 82 (2): 141-145.
(Listed in The Year Book of Dentistry, 2004, p. 9).
- Masood, F., J. O. Katz, P. K. Hardman, A. G. Glaros, and P. Spencer. 2002. "Comparison of

- panoramic radiography and panoramic digital subtraction radiography in the detection of simulated osteophytic lesions of the mandibular condyle." *Oral Surg, Oral Med, Oral Pathol, Oral Radiol, Endod* 93: 626-31.
- Spencer, P., and Y. Wang. 2002. "Adhesive Phase Separation at the Dentin Interface Under Wet Bonding Conditions." *J Biomedical Materials Research* 62 (3): 447-456.
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- Walker, M., Y. Wang, A. Evans, J. R. Swafford, and P. Spencer. 2000. "Chemical and Morphologic Characterization of the Dentin/Resin Cement Interface." In *Journal of Dental Research* 79:437, Abstract No. 2350, April (IADR Meeting).
- Wang, Y., M. P. Walker, J. R. Swafford, and P. Spencer. 2000. "Molecular Structure of the Acid-Treated Smear Layer." In *Journal of Dental Research* 79:181, Abstract No. 300, April (IADR Meeting).
- White, R. J., V. Dusovich, J. D. Eick, P. Spencer, K. B. Williams, and K. S. Kula. 2000. "In Vitro Effects of Daily Topical Fluorides on TMA Orthodontic Wire." In *Journal of Dental Research* 79:527, Abstract No. 3067, April (IADR Meeting).
- O'Mahony, A., P. Spencer, K. Williams, G. Markway, and J. Corcoran. 1999. "Effects of retraction cord medicaments on polyvinylsiloxane impression materials." In *Journal of Dental Research* 78:400, Abstract No. 2353, March (IADR Meeting).
- Spencer, P., J. D. Eick, and J. R. Swafford. 1999. "Field emission scanning microscopy of etched dentin under hydrated conditions." In *Journal of Dental Research* 78:225, Abstract No. 955, March (IADR Meeting).
- Spencer, P., J. R. Swafford, M. Brown, and D. M. Wieliczka. 1999. "Spectroscopic and morphologic imaging of the dentin/adhesive interface." In *Journal of Dental Research* 78:111,

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- Spencer, P., M. Brown, J. R. Swafford, C. M. Cobb, G. M. Peavy, L. Reinisch, and D. M. Wieliczka. 1999. "Raman spectroscopic analysis of bone ablated with free electron laser." In *Journal of Dental Research* 78:192, Abstract No. 690, March (IADR Meeting).
- Spencer, P., and J. R. Swafford. 1999. "High resolution imaging of the smear/dentin/adhesive interface under environmental conditions." In *Journal of Dental Research* 78:474, Abstract No. 2952, March (IADR Meeting).
- Lemor, R., D. M. Wieliczka, P. Spencer, and M. B. Kruger. 1998. "Influence of surface treatment on the adhesive/dentin interface studied with Raman spectroscopy." In *Journal of Dental Research* 77:810, Abstract No. 1429, June (IADR Meeting).
- O'Mahony, A., Q. Bowles, P. Spencer, and G. Woolsey. 1998. "A Finite Element Analysis of the Stress Distribution of an Osseointegrated Dental Implant." In *Journal of Dental Research* 77:121, Abstract No. 128, March (AADR Meeting).
- Padilla, M., J. Gordon, P. Spencer, and J. Swafford. 1998. "Characterization and Comparison of Dentin Tubule Distribution in Primary and Permanent Teeth." In table clinic presentation, at *the American Academy of Pediatric Dentistry*, May.
- Pollina, L., J. Saxe, P. Spencer, and J. Swafford. 1998. "A Novel Investigation of the Smear Layer." In Table clinic presentation, at *the American Academy of Pediatric Dentistry*, May.
- Spencer, P., D. Drummer, J. Payne, D. Suchman, and D. Wieliczka. 1998. "Spectroscopic Analysis of Bone Ablated with a Free Electron Laser." In *Journal of Dental Research* 77:182, Abstract No. 611, March (AADR Meeting).
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- Wieliczka, D. M., P. Spencer, and R. Lemor. 1998. "Infrared spectroscopy at the adhesive/dentin interface." In *Journal of Dental Research* 77:911, Abstract No. 2233, June (IADR Meeting).
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- Fernandez, M., P. Spencer, J. Swafford, and D. Wieliczka. 1996. "Corrosion Microstructure of Gallium vs Mercury Containing Alloys." In table clinic presentation, at *the American Academy of Pediatric Dentistry*, May.
- Friesen, L. R., C. M. Cobb, P. Spencer, J. R. Rapley, and L. B. Forgas. 1996. "Healing of Laser Induced Bone Defects: An *In Vivo* Study." In *Journal of Dental Research* 75:91, Abstract No. 591(IADR/AADR Meeting).
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- Lopez, C., M. Padilla, P. Spencer, C. M. Cobb, and D. M. Wieliczka. 1996. "Intrapulpal Temperature Changes During Exposure to Two Different Laser Wavelengths." In *Journal of Dental Research* 75:428, Abstract No. 3288, March (IADR/AADR Meeting).
- Montgomery, K., P. Spencer, B. Bohaty, and J. Swafford. 1996. "Interface Breakdown in Esthetic Stainless Steel Crowns." In table clinic presentation, at *the American Academy of Pediatric Dentistry*, May.
- Suchman, D., P. Spencer, and R. Hathaway. 1996. "Exploring structural, morphologic, and chemical changes in carious dentin after exposure to the CO₂ laser using Fourier transform infrared photoacoustic spectroscopy and the scanning electron microscope." At *Biological Sciences Undergraduate Research Conference*, April.
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- Epidermolysis Bullosa Simplex: Report of a Case." In table clinic presentation, at *the American Academy of Pediatric Dentistry*, May.
- Cobb, C. M., P. Spencer, and M. H. McCollum. 1995. "Histologic comparison of the CO₂ laser and Hd:YAG with and without water/air surface cooling on tooth root structure." In *Journal of Dental Research* 74:208, Abstract No. 1571, March (AADR Meeting).
- Cobb, C. M., P. Spencer, and M. H. McCollum. 1995. "Histologic comparison of the CO₂ laser and Nd:YAG with and without water/air surface cooling on tooth root structure." At *International Symposium on Biomedical Optics*. Sponsored by the International Society for Optical Engineering, February.
- Defelice, M. A., C. M. Cobb, and P. Spencer. 1995. "Histologic Comparison of Soft Tissue Incisions Made by CO₂ and Nd:YAG Lasers." In *Journal of Dental Research* 74:208, Abstract No. 1569, March (AADR meeting).
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- Montgomery, K. R., C. Lopez, P. Spencer, and B. Bohaty. 1995. "Doctor, How Hot is that Lased Tissue?" In table clinic presentation, at *the American Academy of Pediatric Dentistry meeting*, May.
- Spencer, P., A. Wandera, D. M. Wieliczka, C. M. Cobb, and M. Kruger. 1995. "Structural Analysis of Early Bone Healing." In *Journal of Dental Research* 74:222, Abstract No. 1684, March (AADR Meeting).
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- Wandera, A., P. Spencer, and B. S. Bohaty. 1995. "Fluoride Release from a Polymaleinate Glass Ionomer Restorative Material." In *Journal of Dental Research* 74:108, Abstract No. 769, March (AADR Meeting).
- Wieliczka, D. M., C. Moffitt, P. Spencer, and A. Wandera. 1995. "Measurement of Mercury Release from Dental Amalgam with a Quartz Crystal Microbalance." In *Journal of Dental Research* 74:102, Abstract No. 724, March (AADR Meeting).
- Bohaty, B. S., and P. Spencer. 1994. "A Novel Assessment of Dental Fluorosis." Research Presentation at *the American Academy of Pediatric Dentistry*, May.

- Chappell, R. P., C. M. Cobb, P. Spencer, and J. D. Eick. 1994. "Dentinal Tubule Anastomoses: A new Factor in Dentinal Adhesive Bonding." In *Journal of Dental Research* 73:107, Abstract No. 47, March (IADR/AADR Meeting).
- Drisko, C., C. M. Cobb, C. Nelson, P. Spencer, and J. Yancey. 1994. "Residual Calculus Following Use of Curettes vs. Cavitron Slimline Inserts." In *Journal of Dental Research* 73:160, Abstract No. 468, March (IADR/AADR Meeting).
- Spencer, P., D. M. Wieliczka, J. Meeske, S. E. Adams, and J. D. Eick. 1994. "The Resin/ Dentin Interface-Morphologic and Chemical Characterization." In *Journal of Dental Research* 73:107, Abstract No. 44, March (IADR/AADR Meeting).
- Wieliczka, D. M., P. Spencer, E. Wagner, and A. Wandera. 1994. "Factors Influencing the Accurate Measurement of Mercury using a Quartz Crystal Microbalance." In *Journal of Dental Research* 73:105, Abstract No. 28, March (IADR/AADR Meeting).
- Woolsey, G. D., C. P. Leser, J. D. Eick, and P. Spencer. 1994. "SEM Characterization of *In vivo* Interproximal Amalgam Surfaces." In *Journal of Dental Research* 73:104, Abstract No. 24, March (IADR/AADR Meeting).
- Adams, S., P. Spencer, U. Dixit, J. Mixson, J. Ahlert, and R. Vergotine. 1993. "Chemical Characterization of Sclerotic Dentin using FTIR Photoacoustic Spectroscopy." In *Journal of Dental Research* 72:258, Abstract No. 1238, March (IADR/AADR Meeting).
- Blackwell, B., P. Spencer, S. Adams, U. Dixit, and B. Bohaty. 1993. "Carbamide Peroxide Tooth Bleaching: Effects on Composite Composition and Topography." In *Journal of Dental Research* 72:259, Abstract No. 1243, March (IADR/AADR Meeting).
- Eick, D., S. Robinson, T. Byerley, R. Chappell, P. Spencer, and C. Chappelow. 1993. "STEM Observation of the Tagged HEMA-Dentin-Adhesive Interface." In *Journal of Dental Research* 72:350, Abstract No. 1972, March (IADR/AADR Meeting).
- Spencer, P., D. M. Wieliczka, E. Wagner, J. D. Eick, and R. Miller. 1993. "Damage to Biological Substrates Following Exposure to High Vacuum Techniques." In *Journal of Dental Research* 72:383, Abstract No. 2239, March (IADR/AADR Meeting).
- Spencer, P. 1993. "Dentin Bonding Agents: Past, Present, & Future." Mini clinic presentation at the *Annual Missouri Dental Association*.
- Wagner, E., D. M. Wieliczka, and P. Spencer. 1993. "Mercury Release in Dental Amalgam using Surface Spectroscopy." In *Journal of Dental Research* 72:112, Abstract No. 72, March (IADR/AADR Meeting).
- Wieliczka, D. M., J. Wintergerst, E. Wagner, P. Spencer, B. Whalen, and D. Eick. 1993. "Photoemission Studies on Dental Adhesives." In *Journal of Dental Research* 72:386, Abstract No. 2262, March (IADR/AADR Meeting).
- Wieliczka, D. M., P. Spencer, E. Wagner, J. Wintergerst, and B. Whalen. 1993. "Characterization of Synthetic Apatites using Surface Spectroscopy Techniques." In *Journal of Dental Research* 72:383, Abstract No. 2241, March (IADR/AADR Meeting).

- Bohaty, B., and P. Spencer. 1992. "Trends in Dental Treatment Rendered under General Anesthesia; a Ten Year Comparison." In *American Academy of Pediatric Dentistry*, May.
- Eick, J., S. Robinson, P. Spencer, C. Cobb, R. Chappell, and D. Sackuvich. 1992. "Influence of the Treated Dentin Surface on Adhesive Performance." In *Journal of Dental Research* 71:170, Abstract No. 520, March (AADR Meeting).
- Marshall, L. L., and P. Spencer. 1992. "FTIR Photoacoustic Spectroscopic Analysis of Structural Variation in Dentin." In *Journal of Dental Research* 71:265, Abstract No. 1277, March (AADR Meeting).
- Sanchez, E. I., B. Bohaty, and P. Spencer. 1992. "Enamel Surface Abrasion: Clinical Evaluation." At *Missouri Dental Alumni Meeting*, March.
- Spencer, P., J. P. Gorski, and C. M. Cobb. 1992. "FTIR Photoacoustic Spectroscopic Analysis of Healing Bone Defects." In *Journal of Dental Research* 71:307, Abstract No. 1614, March (AADR Meeting).
- Spencer, P., and J. Gorski. 1992. "FTIR Photoacoustic Spectroscopic Analysis of Healing Canine Tibial Defects." In *Bone and Mineral* 17 (*Spec Issue*):311, (Fifth International Conference on Cell-Mediated Calcification and Matrix Vesicles, 1991).
- Spencer, P. 1992. "New Esthetic Materials: the Good, the Bad and the Ugly." At *1992 Kansas City Section AADR Symposium, Dental Products-Use and Abuse*, January.
- Bohaty, B., and P. Spencer. 1991. "Community Service and Pediatric Dental Education." At *Missouri Dental Alumni Meeting*, March.
- Jacob, P., S. Brockman, J. D. Eick, K. Gross, R. P. Chappell, and P. Spencer. 1991. "Effect of Airpolishing on Bond Strength of Orthodontic Adhesives." In *Journal of Dental Research* 70:297, Abstract No. 256, April, (IADR/AADR Meeting).
- Sanchez, E. I., B. Bohaty, and P. Spencer. 1991. "Enamel Surface Abrasion: Clinical Evaluation." In *American Academy of Pediatric Dentistry*, May.
- Spencer, P., T. Byerley, L. Marshall, D. Eick, and J. Witt. 1991. "Dentin/Adhesive Surface Characterization using FT-IR Photoacoustic Spectroscopy." In *Journal of Dental Research* 70:458, Abstract No. 1533, April (IADR/AADR Meeting).
- Spencer, P. 1991. "Application of FTIR Spectroscopy to the Analysis of Early Fracture Repair Tissue." In *Connective Tissue Journal Club*, September.
- Bohaty, B., and P. Spencer. 1990. "Community Service and Pediatric Dental Education." In *American Academy of Pediatric Dentistry*, May.
- Mixson, J., J. Eick, D. Tira, P. Spencer, and D. Moore. 1990. "Comparison of Sectional Scoring methodologies for *In Vitro* Microleakage Studies." In *J Dental Research* 69:129, Abstract No. 161, March (AADR Meeting).
- Spencer, P., C. M. Cobb, T. J. Beyerley, and J. D. Eick. 1990. "FTIR Microspectroscopy and TEM

- of Bone following Mg, F Exposure." In *Journal of Dental Research* 69:224, Abstract No. 923, March (AADR Meeting).
- Spencer, P., J. D. Eick, and T. J. Byerley. 1990. "FTIR Microspectroscopy of the Dentin/Adhesive Interface." In *Journal of Dental Research* 69:116, Abstract No. 57, (AADR Meeting).
- Bohaty, B., and P. Spencer. 1989. "Change in Dental Treatment Patterns in an Urban Pediatric Population, 1977 to 1987." In *American Academy of Pediatric Dentistry*, May.
- Chappell, R., J. Eick, J. Mixson, P. Spencer, and F. Theisen. 1989. "Shear Bond Strength and SEM Observation of Four Dentin Adhesives." In *Journal of Dental Research* 68:344, Abstract No. 1302, March, (AADR Meeting).
- Eick, J., P. Spencer, R. Chappell, C. Cobb, S. Robinson, and D. Sackvich. 1989. "Further SEM/TEM of the Smear Layer and Dentin-Adhesive Interface." In *Journal of Dental Research* 68:321, Abstract No. 1116, March (AADR Meeting).
- Spencer, P., R. Doremus, R. Garcia, and J. Martini. 1988. "Structure of Enamel-Effect of Mg and NaF Administration." In *Journal of Dental Research* 67:289, Abstract No. 1414, March, (IADR/AADR Meeting).
- Spencer, P., R. Doremus, C. D. Barnes, and E. A. Barnes. 1987. "Isolation of Mg According to Developmental Age." In *Journal of Dental Research* 66:142, Abstract No. 285, March, (IADR/AADR Meeting).
- Fleming, J. E., S. C. Bayne, P. Spencer, and C. Tames. 1984. "45 Month Clinical of Extracoronal Laminate Veneer Performance." In *Journal of Dental Research* 63:291, Abstract No. 1082, March, (IADR/AADR Meeting).
- Spencer, P., W. C. Kruckberg, J. M. Barnett, P. Kent, and R. A. DeVille. 1984. "Attachment of Oral Deposits to Solids with Defined Surface Characteristics." In *Journal of Dental Research* 63:215, Abstract No. 397, March, (IADR/AADR Meeting).
- Spencer, P., and J. M. Barnett. 1983. "Bacterial Adhesion to Two Sealants with Defined Surface Characteristics." At *American Academy of Pediatric Dentistry Meeting*, May.
- Spencer, P., W. H. Douglas, L. B. Messer, and R. G. Craig. 1982. "*In Vitro* Comparison of a Hydrophilic and a Hydrophobic Fissure Sealant." At *American Academy of Pediatric Dentistry Meeting*, May.
- Spencer, P., W. H. Douglas, L. B. Messer, and R. G. Craig. 1980. "*In Vitro* Comparison of Two Fissure Sealants." In *Journal of Dental Research* 59:427, Abstract No. 640, March, (AADR Meeting).

Encyclopedia Entries

- Dixit, Namrata, P. Spencer, and J. S. Laurence. 2014. "Protein-Polymeric Materials Interaction: Mineralized Tissues Reconstruction." In *Encyclopedia of Biomedical Polymers and Polymeric Biomaterials*, edited by Munmaya Misra. New York, NY: Taylor and Francis Group.
- Spencer, Paulette, Y. Wang, and J. L. Katz. 2007. "Dentin." In *Wiley Encyclopedia of Biomedical*

Engineering, edited by Metin Akay. Hoboken: John Wiley & Sons, Inc.

Lawrence, Katz J., Catherine G. Ambrose, Carl R. McMillin, and Paulette Spencer. 2004. "Orthopedic Biomaterials." In *Encyclopedia of Biomaterials and Biomedical Engineering*, edited by Gary E. Wnek and Gary L. Bowlin. 1160-1171. New York: Marcel Decker.

Invited Presentations/Lectures

Spencer, P. 2013. "Rational Design of Materials to Reconstruct Oral & Craniofacial Tissues." Academy of Dental Materials, Invited Lunch and Learn, Vancouver, Canada. October 10.

Spencer, P. 2012. "The Science of Adhesion." Featured speaker Dental Conference, Londrina, Brazil. May 21.

Spencer, P. 2012. "Dentin/Adhesive Interface: the Weakest Link in the Composite Restoration." Featured speaker for the 25th Bauru Dental Congress--Gold Jubilee of Bauru School of Dentistry, Bauru, Sao Paulo State, Brazil. May 17 - May 19.

Benavides, E., M. Bilgen, P. Spencer, J. L. Katz, Y. Wang, and A. Misra. 2009. "Structure/Property Imaging of the TMJ." Invited Keynote Presentation, TMJ Bioengineering Conference, Broomfield, CO. November 4 - November 7.

Spencer, P. 2007. "Material/Tissue Interfacial Structure/Property Imaging." Annual Meeting of the International Association of Dental Research/American Association of Dental Research, Lunch & Learn Seminar. March 22.

Spencer, P., Y. Wang, B. Bohaty, F. Sene, J. L. Katz, and A. Misra. 2006. "'Kissing Bonds' and Dentin/Adhesive Interfacial Chemomechanics." Annual Meeting of the Academy of Dental Materials, Sao Paulo, Brazil. October 23 - October 25.

Spencer, P., Y. Wang, J. L. Katz, A. Misra, O. Marangos, and B. S. Bohaty. 2006. "Tales of a Mad Hatter." Oral and Craniofacial Biology Symposium, Kansas City, MO. October 9.

Spencer, P., E. Benavides, Y. Wang, J. L. Katz, X. Yao, and A. Misra. 2006. "Multi-scale Structure/Property Imaging of the TMJ." TMJ Bioengineering Conference, Broomfield, CO. May 25 - May 27.

Spencer, P., A. Misra, O. Marangos, Y. Wang, J. L. Katz, and R. Dharmala. 2005. "Molecular/Mechanical Imaging & Adhesive/Dentin Interfacial Structure, Properties and Functional Relationships." Composites at Lake Louise 2005, Lake Louise, Canada. October 31.

Spencer, P. 2005. "Molecular Dynamics at the Material/Tissue Interface." University of Kansas, Department of Pharmaceutical Chemistry Seminar Series, Lawrence, KS. October 18.

Spencer, P. 2004. "Molecular Dynamics at the Dentin/Adhesive Interface." Ohio State University Seminar Series, Columbus, OH. August 13.

Spencer, P., and J. L. Katz. 2004. "Research Activities at the University of Missouri-Kansas City Center for Research on Interfacial Structure & Properties (UMKC-CRISP)." Missouri Nanotechnology Alliance Meeting, St. Louis, MO. May 14 - May 15.

- Katz, J. L., P. Spencer, Y. Wang, A. Misra, and O. Marangos. 2003. "Hierarchical Material/Structural Relationships at the Dentin/Adhesive Interface." Composites: The Role of Interfaces Within and Between Composites, Lake Louise, Canada.
- Katz, J. L., Y. Wang, H. J. Hein, and P. Spencer. 2003. "Continued Scanning Acoustic Microscopy and Ultrasonic Wave Propagation for Imaging and Measurements of Connective Tissue Properties." Second International Conference on the Ultrasonic Measurement and Imaging of Tissue Elasticity, Corpus Christi, TX.
- Spencer, P., Y. Wang, and J. L. Katz. 2003. Invited keynote presentation, Molecular Dynamics at the Dentin/Adhesive Interface. Annual Meeting of the Academy of Dental Materials, Charleston, SC.
- Wang, Y., P. Spencer, and J. L. Katz. 2003. "Molecular/Mechanical Imaging at the Material/Tissue Interface." FACSS 30th Annual Meeting, Ft. Lauderdale, FL.
- Spencer, P. 2002. "Biomaterials/Tissue Engineering." Missouri Summit on Life Sciences, one of three invited presenters for the session titled, "Biomedical Engineering: Now & Future".

Presentations/Lectures

- Spencer, P. 2013. "Material Characterization: Interaction of Energy with Matter." ME 790, University of Kansas School of Engineering, Lawrence, KS. December 3.
- Spencer, P. 2013. "Structure/Function Relationships at the Material/Tissue Interface." ME 790, University of Kansas School of Engineering, Lawrence, KS. November 21.
- Spencer, P. 2013. "Interfacial Phenomena and Characterizing Material/tissue Samples that Abhor Environments Required for High Resolution." ME 790, University of Kansas School of Engineering, Lawrence, KS. November 5.
- Spencer, P. 2013. "Interfacial Phenomena and Design/Development of Materials to Reconstruct Tissues." BioE 690, Introduction to Bioengineering. October 25.
- Spencer, P. 2012. "Designing New Materials for Tissue Reconstruction." Universidade Estadual Paulista "Julio de Mesquita Filho", Sao jose dos Campos, Sao Paulo, Brazil. May 15.
- Spencer, P. 2010. "Tissue Reconstruction and Hydrophobic Polymers: Challenges and Opportunities." Society of Manufacturing Engineers. February 25.
- Spencer, P. 2009. "Tissue Reconstruction and Hydrophobic Polymers." Physics Seminar, University of Kansas, Lawrence, KS. December 7.
- Spencer, P. 2009. "Tales of a Mad Hatter." Distinguished Professor Lecture, University of Kansas, Lawrence, KS. October 27.
- Spencer, P. 2009. "Corrosion in the Mouth." CPE 765, Corrosion Engineering, University of Kansas School of Engineering, Lawrence, KS. April 15.
- Spencer, P. 2009. Featured Speaker for the Annual Meeting of the Rho Chapter of Omicron Kappa

Upsilon. March 25.

Spencer, P. 2008. "Hg Release from Dental Amalgam: A Real Danger or Tales of a Mad Hatter?" D 6328, Clinical Decision Making in Dentistry, UMKC School of Dentistry, Kansas City, MO. September 19.

Spencer, P. 2008. "The Good, the Bad & the Ugly of Restorative Materials for the Pediatric Dental Patient." Lecture delivered to Pediatric Dental Residents, Children's Mercy Hospital, Kansas City, MO. March 27.

Spencer, P. 2007. "Structure, Property, Function: Engineering at the Interface with Clinical Sciences." University of Kansas School of Engineering, Chemical and Petroleum Engineering Colloquium. November 27.

Spencer, P. 2007. "Writing a Winning Grant or Is There a Pot of Gold at the End of the Rainbow?" ME 765, Biomaterials, University of Kansas, Lawrence, KS. October 30.

Spencer, P. 2007. "Structure, Property, Function: Engineering at the Interface with Clinical Sciences." ME 765, Biomaterials, University of Kansas, Lawrence, KS. October 9.

Spencer, P. 2007. "Issues Facing Oral Healthcare for Children." University of Minnesota School of Dentistry. June 15.

Spencer, P. 2007. "The Future of Bioengineering in the Heartland." First Regional Bioengineering Day, Lawrence, KS. February 3.

Spencer, P. 2006. "The Future of Dental Research in an Academic Setting-How Do We Get There?" University of Minnesota School of Dentistry. September 17.

Spencer, P. 2006. "Structure, Property, Function: Engineering at the Interface with Clinical Sciences. The Role of Bioengineering." University of Kansas Medical Center, Kansas City, KS and University of Kansas, Lawrence, KS. March 14 - March 15.

Spencer, P., and J. L. Katz. 2004. "Team Science and UMKC-CRISP Research Activities." Research Alliance of Missouri, Jefferson City, MO. July 13.

Spencer, P. 2003. "Chemical Imaging: What is it & what can it tell me about the material/tissue interface?" Oral Biology Seminar Series, University of Missouri-Kansas City Faculty, Students, and Staff.

Spencer, P. 2002. "Interfacial Chemistry & Mechanics: How Do They Relate to the Clinical Performance of a Material?" Oral Biology Seminar Series, University of Missouri-Kansas City Faculty, Students, and Staff.

Spencer, P. 2001. "Spectroscopic Imaging of Biointerfaces & the (Political) Science of Mercury-Containing Dental Materials." University of Missouri-Rolla Faculty, Students, and Staff in Ceramic/Composite Engineering.

Spencer, P. 1999. "Mercury Release from Dental Amalgam: A Clear & Present Danger or Tales of a 'Mad Hatter?'" Kansas City Chemist, Kansas City Section of the American Chemical Society, Park College, Parkville, MO.

Spencer, P. 1999. "Mercury Release from Dental Amalgam: A Clear & Present Danger or Tales of a 'Mad Hatter?'" Oral Biology Seminar Series, University of Missouri-Kansas City Faculty, Students, and Staff.

Spencer, P. 1999. "Raman chemical imaging of the dentin/adhesive interface." University of Missouri-Kansas City Faculty and Students in the Department of Chemistry, Kansas City, MO.

Spencer, P. 1995. "Structural Characterization of Early Bone Healing in the Mature Canine." University of Louisville School of Dentistry, Louisville, KY.

Spencer, P. 1994. "Laser Irradiation of Dental Hard Tissues: Damage Control." University of Texas Health Science Center, San Antonio, TX.

Spencer, P. 1993. "Biocompatibility: a Step Beyond." Dental Materials Seminar, Medical College of Georgia, Augusta, GA.

Spencer, P. 1992. "FTIR Photoacoustic Spectroscopy of Biological Substrates." Physics Seminar, University of Missouri-Kansas City Physics Department.

Research Funding/Fellowships

University of Kansas

Externally-Funded Grant/Contract

Funded

Nguyen, T. V. (Principal), Spencer, P. (Co-Principal), "MRI: Acquisition of an Advanced X-Ray Photoelectron Spectroscopy for Materials Research," NSFCBET-1429727 NSF, \$650,000 (September 1, 2014 - August 31, 2017).

Spencer, P., "Supplement for Collaborative Science," 3R01DE022054-04S1, NIH/NIDCR, \$176,221 (September 15, 2014 - June 30, 2016).

Spencer, P. (Principal), Laurence (Principal), "Proton Sponge Adhesives, Interfacial Miliea: Molecular Structure-Mechanics," 1R01DE022054, NIH/NIDCR, \$1,813,385 (July 1, 2011 - June 30, 2016).

Detamore, M. (Principal), Spencer, P., "Gradient-based strategy for osteochondral regeneration," AR056347-01, NIH/NIAMS, \$1,347,542 (April 1, 2010 - March 31, 2015).
Role: Investigator

Subramaniam, B. (Principal), Spencer, P. (Co-Principal), "MRI: Acquisition of an FEI Versa 3D dual-beam FIB/SEM for Catalysis and Materials Research," 0067935 NSF, \$2,200,000 (September 15, 2012 - August 31, 2014).

Spencer, P. (Principal), "Im/Miscible Adhesive/Dentin Interface: Structure/Mechanic," R01DE014392-07, National Institutes of Health/National Institute of Dental & Craniofacial Research, \$1,378,278 (May 1, 2008 - April 30, 2013).

Weir, S. (Principal), Spencer, P. (Co-Investigator), "Institute for Advancing Medical Innovation," Kauffman Foundation and Kansas University Endowment Association, \$16,000,000 (January 2009 - January 2013).

Friis, E. (Principal), Spencer, P. (Co-Principal), "RET Site: Bioengineering Toolkits for 4th Grade Teachers (Bet 4 Teachers)," EEC-0808749 National Science Foundation, \$500,000 (September 1, 2008 - August 31, 2012).

Spencer, P. (Principal), "Im/Miscible Adhesive/Dentin Interface: Structure/Mechanic," 3R01DE014392-08S109, National Institutes of Health/National Institute of Dental & Craniofacial Research, \$123,939 (October 1, 2009 - August 31, 2011).

Walker, M. P. (Principal), Spencer, P., "Radiation Therapy Impact on Structure/Mechanics of Teeth," K23 DE016023-01A1, National Institutes of Health/National Institute of Dental & Craniofacial Research, \$612,500 (July 1, 2005 - June 30, 2010).
Role: Mentor

Spencer, P. (Co-Principal), McDonald, D. (Co-Principal), "Kansas Center for Biomaterials Innovation and Design," Kansas Bioscience Authority, Centers of Innovation Planning Grant, \$60,000 (January 16, 2008 - July 16, 2008).

Wang, Y. (Principal), Spencer, P., "Molecular/mechanical imaging of dentin bonding substrate," K25 DE015281, National Institutes of Health/National Institute of Dental & Craniofacial Research, Mentored Career Development Award, \$566,261 (August 1, 2003 - May 31, 2008).
Role: mentor. IDC: 8%

Spencer, P. (Principal), "Im/Miscible Adhesive/Dentin Interface:, Structure/Mechanic," R01DE014392, National Institutes of Health/National Institute of Dental & Craniofacial Research, \$1,366,250 (July 15, 2003 - April 30, 2008).

Internal Award

Funded

Kieweg, S. (Principal), Spencer, P., "Optimizing Drug Delivery of Vaginal Anti-HIV Microbicides," University of Kansas Medical Center, Institutional K12, Title of sponsoring grant, "Building Interdisciplinary Research Careers in Women's Health", \$247,451 (January 1, 2007 - December 31, 2009).
Role: mentor

Rensselaer Polytechnic Institute

Internal Award

Funded

Doremus, R. (Principal), Spencer, P. (Co-Principal), "Magnesium in the Teeth of Growing Rat Pups: Amount, Distribution and Effects on Enamel Structure," Rensselaer Polytechnic Institute, \$1,029 (1986).

University of Mississippi

Internal AwardFunded

Spencer, P. (Principal), "Surface Chemistry Properties of Selected Solids Prior and Subsequent to Pellicle Formation," University of Mississippi, \$4,527 (1982).

University of Missouri-Kansas City**Externally-Funded Grant/Contract**Funded

Spencer, P. (Principal), Katz, J. L. (Co-Principal), "Dental Science Research Training Program for Engineers," R13 DK069504, National Institutes of Health, \$648,000 (September 20, 2004 - July 31, 2007).

IDC 8%. Due to Dr. Katz's retirement, NIH approved my appointment as PI on this grant.

Wang, Y. (Principal), Spencer, P., "Dentin/Adhesive Interface Structure Property Imaging," R03-DE15735, National Institutes of Health/National Institute of Dental & Craniofacial Research, \$147,000 (March 1, 2005 - February 28, 2007).

Role: Senior Investigator

Bohaty, B. (Principal), Spencer, P., "Molecular Dynamics in Class II Composite Restorations," 1K23DE/HD00468, National Institutes of Health/National Institute of Dental & Craniofacial Research, Mentored Patient-Oriented Research Career Development Award, \$636,014 (March 15, 2002 - February 28, 2007).

Role: Mentor. IDC: 8%

Eick, J. D. (Principal), Spencer, P. (Co-Principal), "Pre and Post Doctoral Training, UMKC School of Dentistry," T32 DE-7294 Department of Health and Human Services, U.S. Public Health Service, \$2,499,750 (July 1, 2001 - June 30, 2006).

Eick, J. D. (Principal), Spencer, P., "Improved Polymeric Restorative Through Molecular Design," 5 P01 DE09696, National Institutes of Health/National Institute of Dental Research (1991 - 2005).

Role: Internal Review Board member

Spencer, P. (Principal), "Molecular Dynamics at the Dentin/Adhesive Interface," R01-DE12487 Department of Health and Human Services, U.S. Public Health Service, \$777,409 (September 15, 1998 - July 31, 2004).

Spencer, P. (Principal), "High and Low Frequency Scanning Acoustic Microscopes," S10 RR16710 Department of Health and Human Services, U.S. Public Health Service, \$500,000 (May 1, 2002 - April 30, 2004).

Eick, J. D. (Principal), Spencer, P. (Co-Principal), "Biomaterials Ph.D. Training for Dentists," DE07294 National Research Service Award, Department of Health and Human Services, U.S. Public Health Service, \$870,877 (September 1996 - August 2001).

Brown, M. (Principal), Spencer, P., "Interfacial Chemistry of Adhesive Restorations," American Association Dental Research Student Research Fellowship, \$2,400 (June 1, 1999 - April 1, 2000).

Role: Faculty Sponsor to 2nd Year Dental Student

Spencer, P. (Principal), "Spectroscopic Imaging of the Dentin/Adhesive Interface," R15 DE12252 Department of Health and Human Services, U.S. Public Health Service, \$101,368 (May 1997 - April 1999).

Theodotou, N. (Principal), Spencer, P., "Dimensional Accuracy of Five Die Materials," American Academy of Fixed Prosthodontics, Tylmsen Award, \$1,500 (1995).

Role: Faculty Sponsor of Graduate Prosthodontics Student

Spencer, P. (Principal), "The Effect of a Sonic Toothbrush on Esthetic Restorative Materials," Teledyne Waterpik Corp., \$11,500 (1995).

Spencer, P. (Principal), "Development of a Substrate for Testing Dental Adhesion," DE00260 Physician Scientist Award for Dentists, Department of Health and Human Services, U.S. Public Health Service, \$382,151 (June 1989 - May 1995).

Wieliczka, D. M. (Principal), Spencer, P. (Co-Principal), "Mercury Release in Dental Amalgam by Surface Spectroscopy," Department of Health and Human Services, U.S. Public Health Service, \$49,525 (May 1992 - April 1994).

Role: Internal Review Board member

Adams, S. (Principal), Spencer, P., "Chemical Characterization of Sclerotic Dentin Using FT-IR Photoacoustic Spectroscopy," American Association Dental Research Student Research Fellowship, \$1,900 (May 1992 - May 1993).

Role: Faculty Sponsor to 2nd Year Dental Student

Blackwell, B. (Principal), Spencer, P., "Carbamide Peroxide Tooth Bleaching: Effects of Composite Composition and Topography," American Association Dental Research Student Research Fellowship, \$1,900 (May 1991 - May 1992).

Role: Faculty Sponsor to 2nd Year Dental Student

Marshall, L. (Principal), Spencer, P., "Photoacoustic Spectroscopy: Its Use in the Characterization of Dentin Substrate Variations as a Function of Pulpal Proximity," American Association Dental Research Student Research Fellowship, \$1,900 (May 1991 - May 1992).

Role: Faculty Sponsor to 2nd Year Dental Student

LeGeros, R. Z. (Principal), Spencer, P., "Effect of Sr and Other Elements on Formation and Stabilization of Calcium Phosphates," DE04123-13 Department of Health and Human Services, U.S. Public Health Service (July 1989 - September 1990).

Role: Consultant

Internal Award

Funded

Spencer, P. (Principal), "Multi-disciplinary Research and Training at UMKC-CRISP," Chancellor's Fund for Innovation, UMKC, \$29,560 (July 1, 2004 - August 31, 2007).

Wang, Y., Spencer, P. (Co-Principal), "Integrated Structure/Property/Function Imaging Platform," University of Missouri Research Board, \$17,300 (January 1, 2005 - December 31, 2005).

Spencer, P. (Principal), "Purchase of FTIR Spectrometer," 0154 University of Missouri-Kansas City School of Dentistry, \$8,000 (June 18, 2001 - May 1, 2002).

Eick, J. D. (Principal), Spencer, P. (Co-Principal), "New Microscope and Analytic Equipment for UMKC," University of Missouri Research Board, Special Opportunities, \$109,000 (December 9, 1998 - November 30, 2000).

Spencer, P. (Principal), "Novel Assessment of Laser Irradiation Damage to Dental Hard Tissue," University of Missouri Research Board, \$32,475 (January 1994 - January 1995).

Wieliczka, D. M. (Principal), Spencer, P. (Co-Principal), "Investigation of New Technological Materials with X-ray Photoelectron Spectroscopy," University of Missouri Research Board Special Opportunities, \$90,000 (1994).

Bohaty, B. S. (Principal), Spencer, P. (Co-Principal), "A Novel Assessment of Dental Fluorosis," University of Missouri Research Board, \$15,761 (February 1993 - February 1994).

Wieliczka, D. M., Spencer, P. (Co-Principal), "Mercury Release in Dental Amalgam Using Surface Spectroscopy," Extramural Proposals Incentive Program, University of Missouri-Kansas City, \$4,000 (September 1991 - September 1992).

Spencer, P. (Principal), "The Effect of Magnesium on Enamel Crystal Chemistry in the Normal, Young Rat," University of Missouri-Kansas City School of Dentistry, \$2,643 (1988).

Patents

Park, J., Spencer, P., Topp, E., Ye, Q., Patent. "Novel Monomer for Dental Adhesive", 8,344,041, United States. (Granted: January 1, 2013).

Dissertation/Thesis/Postdoctoral/Other Supervision

University of Kansas

Dissertation Committee Co-Chair

Farhana Abedin, PhD, Bioengineering, Status: in progress.

Viraj Singh, PhD, Mechanical Engineering, Status: completed. May 2014

Ranganathan Parthasarathy, PhD, Bioengineering, Status: completed. August 2013

Dissertation Committee Member

Anahita Khanlari, PhD, Chemical Engineering, Status: in progress.

AJ Mellott, PhD, Bioengineering, Status: in progress.

Tricia Sprouse, PhD, Chemical Engineering, Status: completed. 2014

Tiffany Suekama, PhD, Chemical Engineering, Status: completed. May 2014

Natalie Ciaccio, PhD, Pharmaceutical Chemistry, Status: completed. December 2010

Outside of discipline

Orestes Marangos, PhD, Civil Engineering, "Scanning Acoustic Microscopy Modeling for Micromechanical measurements of Complex Substrates" Status: completed. 2010

Master's Thesis Committee Member

Sarah VanOosten, M.S. in Bioengineering, Status: in progress.

Qi Zheng, M.S. in Bioengineering, "The Etiology of Thumb Carpometacarpal Osteoarthritis: Early Indications from In Vivo Joint Contact Mechanics" Status: completed. May 2014

Viraj Singh, MS, Mechanical Engineering, University of Kansas School of Engineering, "Viscoelastic and Fatigue Properties of Dental Adhesives and Their Impact on Dentin-Adhesive Interface Durability" Status: completed. December 2009

Postdoctoral Research Mentor

Jennifer Settle, PhD in chemistry, Temporary Appt as Postdoctoral Researcher, Status: in progress. December 15, 2012 - Present

Xueping Ge, PhD in polymer chemistry and physics, Postdoctoral Researcher, Status: in progress. December 2012 - Present

Namrata Dixit, PhD in polymer chemistry, Postdoctoral Researcher, Status: in progress. November 2012 - Present

LinYong (Leon) Song, PhD in polymer chemistry, Postdoctoral Researcher, Status: in progress. November 2012 - Present

Ben Johnson, PhD in pharmaceutical chemistry, Postdoctoral Researcher, Status: completed. January 2012 - August 2012

Orestes Marangos, PhD in civil engineering, Post-doctoral Research Fellow, Status: completed. September 2010 - December 2011

Zhaobin Chen, PhD in polymer science, Post-doctoral Research Fellow, Status: completed. March 2010 - March 2011

Jong-Gu Park, PhD in chemistry: Post-doctoral Research Fellow, Status: completed. 2006 - 2010

Promoted to Research Assistant Professor in 2010-May, 2012

John Eslick, PhD in chemical engineering, Post-doctoral Research Fellow, Status: completed. June 2009 - December 2009

Hong Zhao, PhD in pharmaceutical chemistry, Post-doctoral Research Fellow, Status: completed. September 2008 - December 2008

Qiang Ye, PhD in polymer engineering: Post-doctoral Research Fellow, Status: completed. 2004 - 2008

Xinglin Guo, PhD in polymer chemistry: Post-doctoral Research Fellow, Status: completed. 2005 - 2007

Yan Wang, PhD in vibrational spectroscopy: Post-doctoral Research Asst, Status: completed. 2004

Undergraduate Student Research Advisor

Holly J. Good, Chemistry, "Photo-polymerization Kinetics and Degradation Profiles of Novel Methacrylate Polymers" Status: completed. 2014

Undergraduate Research Award

Ana Villanueva, Mechanical Engineering, "Mechanistic Investigation of the Structure/Property Relationship in Novel Methacrylate Polymers" Status: completed. 2014
Undergraduate Research Award

Visiting Scholar Supervisor

Sergio Goncalves, Professor, Universidade Estadual Paulista "Julio de Mesquita Filho, Sao Jose dos Campos, Sao Paulo, Brazil, Status: completed. September 2011 - December 2011

Rensselaer Polytechnic Institute

Graduate Student Research Advisor

Two graduate students in the materials engineering program, "Elemental Analysis of Dental Enamel in Magnesium-Supplemented Rats" and "X-ray Diffraction Studies of Enamel in Mg Supplemented Rats" Status: completed. 1986 - 1987

These students worked with me to complete their research in partial fulfillment of the requirements for the Master of Science in Materials Engineering. This research resulted in master's theses.

University of Missouri Kansas City

Dissertation Committee Chair

Brenda Bohaty, Interdisciplinary PhD in Oral Biology and Health Administration, "Molecular Dynamics in Class II Resin Restorations in Primary Molars" Status: completed. 2009

University of Missouri-Kansas City

Dissertation Committee Chair

Erika Benavides, Interdisciplinary PhD in Oral Biology and Engineering, "Structure and Property Characterization of the Temporomandibular Joint Disc at the Micro-scale Level" Status: completed. 2006

Mary Walker, Interdisciplinary PhD in Oral Biology and Pharmacology, "Mechanical Property Characterization of Resin Cement after Aqueous Aging with or without Dynamic Loading" Status: completed. 2001

Dissertation Committee Co-Chair

Fabio Sene, PhD from Universidade de São Paulo, Faculdade de Odontologia de Bauru, Brazil, "Analysis of the Quality of the Dentin-Adhesive Interface with Three Different Bonding Systems Applied *In Vivo* and *In Vitro*" Status: completed. 2004

Co-Chair with Dr. Jose Pereira

Dissertation Committee Member

James Code, Interdisciplinary PhD in Oral Biology and Chemistry, "Experimental Evaluation of Solvents with a Biological Substrate Based on Solubility Parameter Theory: Solubility Parameter Determinations by Computational Chemistry Using a Rational Design Process" Status: completed. 2004

John Purk, Interdisciplinary PhD in Oral Biology and Engineering, "A Clinical Study to Evaluate the Microtensile Bond Strength of a Composite Resin Tested under In-Vivo and In-Vitro Conditions at 24 hours at the Axial and Gingival Walls of Class II Cavity Preparations" Status: completed. 2002

Karen A. Russo, Interdisciplinary PhD in Pharmacology/Toxicology and Pharmaceutical Sciences, "Kinetic Measurement of Esterase-Mediated Hydrolysis for Methacrylate Monomers Used as Biomaterials" Status: completed. 2002

Leigh Ann Julian, Interdisciplinary PhD in Pharmacology, Pharmaceutical Sciences and Oral Biology, "Molecular assessment of biocompatibility: development of an in vitro test for detection of pro-inflammatory properties of dental materials utilizing intercellular adhesion molecule-1" Status: completed. 1998

Elements of the Scientific Method BISC 751 Advisor

Status: completed. 1989 - 2007

Individualized instruction for students enrolled in the Master of Science in Oral Biology

program

First Year Dental Students Advisor

Enrolled in "Research Methods in Dentistry.", Status: completed. 1989 - 1994

Master's Thesis Committee Chair

Jarrod Williams, MS, Oral Biology, "Chemomechanical Caries Removal: Effect on Adhesive Diffusion into Caries-Affected Dentin" Status: incomplete.

Reem Haj-Ali, MS, Oral Biology, "Adhesive Diffusion into Caries-Affected Dentin under Simulated Oral Conditions" Status: completed. 2004

Nancy Hemingway, MS, Dental Hygiene Education, "Interfacial changes in an orthodontic bracket adhesive system upon in vitro exposure to a sonic toothbrush" Status: completed. 1997

Master's Thesis Committee Member

Federico Lamus, MS, Oral Biology, "Comparison of direct digital radiography and conventional e-speed film for accuracy of endodontic file measurements using different beam angulations" Status: incomplete.

Nicholas Theodotou, MS, Oral Biology, "Dimensional accuracy of five die materials" Status: incomplete.

Rebecca Williams, MS, Pharmacology/Toxicology, "The cytotoxicity of bisphenol A and analogs: representative of product components commercialized for human usage" Status: incomplete.

Anas Athar, MS, Oral Biology, UMKC School of Dentistry, "Radiographic Endodontic Working Length Estimation Comparison of Three Digital Image Receptors" Status: completed. December 2006

Rohini Dharmala, MS, Mechanical Engineering, UMKC School of Computing and Engineering, "Finite Element Analysis of Dentin/Adhesive Interface Accounting for Micro-Scale Geometrical and Mechanical Properties" Status: completed. December 2006

Lilliam Pinzon, Specialized MS in Oral Biomaterials, The University of Texas Health Science Center at Houston, "Effect of Mucoprotein on the Bond Strength of Resin Composite to Human Dentin" Status: completed. May 2005

Christos Aggelopoulos, MS, Oral Biology, "Pre-Surgical Dental Implant Assessment: A Comparison between Plain Film Conventional Tomography and Digital Tomography Utilizing a Storage Phosphor Plate System" Status: completed. 2002

Vania Castro, MS, Oral Biology, "In vitro comparison of conventional film and direct digital imaging in the detection of approximal caries" Status: completed. 2001

Cynthia Spiliopoulou, MS, Oral Biology, "Comparison of the Tensile Bond Strengths of Three Different Surface Treated Alloys Cemented to Human Teeth" Status: completed. 2000

Farah Masood, MS, Oral Biology, "Comparison of panoramic temporomandibular joint radiography, digital subtraction radiography and color-enhanced digital subtraction radiography in detection of simulated osteophytic lesions of mandibular condyle" Status: completed. 1999

Robert Lemor, MS, Physics, "Micro-Raman and infrared absorption studies on human dentin/adhesive interfaces" Status: completed. 1998

Aisling O'Mahony, MS, Oral Biology, "A finite element analysis of the stress distribution of an osseointegrated implant" Status: completed. 1997

Ender Ozgul, MS, Oral Biology, "A comparison of three radiographic techniques in the detection of simulated osteophytic lesions of the mandibular condyle" Status: completed. 1997

Susan Arkawara, MS, Oral Biology, "Laser fusion of root fractures: an in vitro study" Status:

completed. 1995

Lynn Friesen, MS, Oral Biology, "Comparative Healing of CO₂ Laser and Nd:YAG Induced Bone Defects: In Vivo Study" Status: completed. 1995

Randall Gordon, MS, Oral Biology, "Treatment and Evaluation of Experimentally Created Dentin Sensitivity with the CO₂ Laser" Status: completed. 1993

Robert Parker, MS, Oral Biology, "Gingival Crevicular Blood for Assessment of Blood Glucose in Diabetic Patients" Status: completed. 1992

Heather Shannon, MS, Dental Hygiene Education, "Characterization of Enamel Exposed to 10% Carbamide Peroxide Bleaching Agents" Status: completed. 1992

Dan Thomas, MS, Oral Biology, "The Effects of Various Periodontal Treatment on In Vitro Fibroblast Attachments to Nd:YAG Laser Treated Non-Diseased Root Surfaces" Status: completed. 1992

John Fales, MS, Oral Biology, "Dental Treatment for Children Under General Anesthesia: Factors Influencing Recovery" Status: completed. 1991

Patti Jacob, MS, Dental Hygiene Education, "The Effects of an Air-Powder Polishing Device on the Shear Bond Strength of Two Orthodontic Metal Bracket Adhesive Systems" Status: completed. 1991

David Trylovich, MS, Oral Biology, "The Effects of the Nd:YAG Laser on In Vitro Fibroblast Attachment to Endotoxin Treated Root Surfaces" Status: completed. 1991

Lisa Block, MS, Oral Biology, "Physical Growth and Severity of the Oral Cleft" Status: completed. 1990

James Mixson, MS, Oral Biology, "Comparison of Two-Surface and Multiple Surface Scoring Methodologies For In Vitro Microleakage Studies" Status: completed. 1990

Postdoctoral Research Advisor

Status: completed. 1991 - 1995

Responsible for the research training of post-graduate pediatric dentists involved in the Research Fellowship in Pediatric Dentistry. This Fellowship was sponsored by Children's Mercy Hospital (through funding from the Missouri Elks) and University of Missouri-Kansas City School of Dentistry.

Postdoctoral Research Mentor

Yong Wang, PhD in polymer science: Post-doctoral Research Fellow, Status: completed. 1999 - 2001

Claudia Lopez, DDS: Research Fellowship in Pediatric Dentistry, Status: completed. 1994 - 1995

Angela Wandera, DDS: Research Fellowship in Pediatric Dentistry, Status: completed. 1992 - 1994

Uma Dixit, DDS: Research Fellowship in Pediatric Dentistry, Status: completed. 1991 - 1992

Undergraduate Student Research Advisor

Summer Research Dental Scholars Program, Status: completed. 1989 - 2007

This program promotes first-hand research experience for undergraduate dental students. University of Missouri-Kansas City School of Dentistry. Dental Student Summer Research Scholars: Beth Blackwell, Laura Marshall, Sara Adams, Melissa Brown, Matt Defelice, Dino Drummer, David Suchman, Christy Hager, Tim McMann, Tim Hung, Brenton Reavley

KU Courses Taught

Fall 2014

ME 990-24416, Special Topics: _____ Advanced Biomaterials

Spring 2014

ME 890-64177, Special Topics: _____ Research Methods

Fall 2013

ME 990-29054, Special Topics: _____ Advanced Biomaterials

Spring 2013

ME 890-68405, Special Topics: _____ Research Methods

ME 990-68428, Special Topics: _____ Advanced Biomaterials

Fall 2011

ME 890-23844, Special Topics: _____ Advanced Biomaterials

Spring 2011

ME 890-67976, Special Topics: _____ Research Methods

Fall 2010

ME 890-45759, Special Topics: _____ Advanced Biomaterials

ME 899-36705, Independent Investigation

Spring 2010

ME 360-77633, Mechanical Engineering Problems

Summary List of Courses Taught

University of Kansas (2010 - Present)

Course Director, ME 990, Advanced Biomaterials, University of Kansas School of Engineering, Fall, 2010-pres

Course Director, ME 890, Research Methods, University of Kansas School of Engineering, Spring, 2011-pres.

University of Missouri-Kansas City (1989 - Present)

Course Director, Pediatric Dentistry D431, Introductory course in pediatric dentistry, second-year dental students, 1989-94

Course Director, BISC 742, Dental Biomaterials for the Restorative and General Dentist, graduate level course in biomaterials, 1989-2006

Course Director, BISC 739, Dental Biomaterials for the Dental Specialist, graduate level course in biomaterials presented to orthodontic and prosthodontic residents, 1994-95 and 1997-98

Course Director, BISC 701, Engineering Principles of Materials Used in Dentistry, new course for interdisciplinary PhD students, 1998-2004

Course Director, BISC 830, Structural Analysis of Biomaterials and Biomaterial/Tissue Interfaces, new course for interdisciplinary PhD students, 1999-2004

Initiated and Organized First Seminar Series in Oral Biology, seminars are open to all University faculty, staff, and students, University of Missouri-Kansas City, 1999-2001.

Lecturer in Pediatric Dentistry D560, Advanced course in pediatric dentistry, presented to third-year dental students, University of Missouri-Kansas . 1989-95

Lecturer in Dental Biomaterials DH 3220, Course in dental materials presented to junior dental

hygiene students. 1994-2004

Lecturer in Operative Dentistry D510, Course presented to fourth-year dental students. 1995-96, 1998-2002

Lecturer in Dental Biomaterials Seminar D519, Course presented to fourth-year dental students. 1995-96

Lecturer in Pediatric Dentistry D431, Introductory course in pediatric dentistry, presented to second-year dental students. 1995-2004

Lecturer, PERIO 730, Biology of the Periodontium, presented to residents in orthodontics, periodontics, and oral medicine/oral radiology. 1995-2000

Lecturer, GNPS 728, Implantology, presented to residents in periodontics and general dentistry. 1996-2007

Materials Expert, GNPR 718, Special Problems in General Practice Dentistry I, presented to residents in general dentistry. 1997-99

Lecturer, ORBIO 807, Structure and Properties of Calcified Tissues, presented to MS, PhD students in engineering and/or biological sciences. 2004

Clinical instruction in Pediatric Dentistry to third and fourth-year dental students.

Unviersity of Sao Paulo (2009)

Visiting Professor, presented a 60 hour (four credits) discipline “BAD 5740-Science and Methods for Studying Biological Interfaces”, August 3-August 16, 2009. Graduate course presented at the Bauru School of Dentistry, University of Sao Paulo, Bauru, Brazil.

University of Mississippi School of Dentistry (1982 - 1984)

Course Director, Developmental Defects I and II, second and third-year dental students.

Lecturer, Dental Morphology and Occlusion Course.

Lecturer, Pediatric Dentistry I and Pediatric Dentistry II.

Lecturer, Behavioral Disorders Course.

Lecturer, Dental Hygiene, Lectures and materials for three new courses to junior dental hygiene students.

Clinical instruction in Pediatric Dentistry for 3rd and 4th year dental students.

Clinical Supervision for General Dentistry Residents treating Pediatric Patients.

Experiential Learning

Biomedical Product Development, ME760

Team 4 Tina Coop (Chemical Eng), TJ Staley (Bioengineering), Ryan Soden (Mechanical Eng): Structure/Property Clinical Imaging Devices; Supervisor and Inventor: Dr. Paulette Spencer. (2008).

Achievements of Distinction of Current/Former Students

Laura Marshall

Third place her work titled: “FTIR Photoacoustic Spectroscopic Analysis of Structural Variation in Dentin,” Caulk Dentsply student competition (1992)

Fabio Sene

First Place, The category of operative dentistry, XVI Encontro do Grupo Brasileiro de Professores de Dentistica, This is the leading operative dentistry conference in South America.

(January 20, 2005)

Student Group Awards

Second place in scientific presentations. (1997).

The annual meeting of the American Academy of Pediatric Dentistry, Drs. Mercedes Padilla and Joe Gordon, Residents in Pediatric Dentistry at UMKC. Title of their presentation: "Fluoride-Releasing Sealants: An In Vitro Analysis."

Consulting

Dental Clinic, Albany Medical Center, Consultant, Albany, NY (1984 - 1985).

University Service

University of Kansas

Member

Distinguished Professors Committee. (2007 - Present)
 RGS Promotion Committee. (2013)
 Board of Trustees, KU Center for Research, Inc. (2009 - 2012)
 Driving Discovery and Innovation (DDI) Working Group. (2011)
 Executive Committee, KU Center for Research, Inc. (2009 - 2011)
 Implementation Team, Proof of Concept Team and External Partnerships, Institute for Advancing Medical Innovation (IAMI). (2009)
 Search Committee, Assistant Scientist for the Bioengineering Research Center. (2007)
 Search Committee for Vice-Chancellor for Research. (2003 - 2004)
 Chancellor's Extended Cabinet. (2001 - 2004)

Reviewer

Office of University Patents and Licensing. (1988 - 2007)

University of Missouri

Member

University of Missouri Research Board. One of 4 investigators appointed from the University of Missouri-Kansas City campus (2006)
 Advisory Committee for the 2004-05 and 2005-06 Presidential Award for Research and Creativity. (2004 - 2006)

University of Missouri-Kansas City

Member

Research Center Directors Committee. (2007 - Present)
 Bioinformatics Committee. (2004 - 2005)
 Search Committee for Dean, School of Computing & Engineering. (2004)
 Chancellor's Blueprint Project titled, "Leading Life Science Innovation." (2000 - 2002)
 Graduate Council. (1994 - 2002)
 Graduate Officers Committee. (1994 - 2002)
 Graduate Student Fellowship and Awards Committee. (1994 - 2002)
 Program Committee, Annual Kansas City Life Sciences Research Day. (2001)

Search Committee for the Vice Provost for Research and Dean for Graduate Studies. (1994 - 1995)

Institutional Review Board-UMKC Pediatric Health Sciences. (1989 - 1990)

Weldon Spring Disciplinary Review Committee-Biological Sciences. Representative from the School of Dentistry to review proposals for UMKC faculty development grants. (1988)

Task Force Member

Chancellor's Task Force on "Blueprint for the Future". One of 2 representatives selected from School of Dentistry. (2000 - 2002)

School Service

University of Kansas

Judge

GEA poster competition, School of Engineering. (October 2007)

Member

Distinguished Professors Committee, School of Engineering. (2007 - Present)

Research Thrust Leader for Healthcare Engineering, School of Engineering, Strategic Initiative. (2011)

Internal Advisory Board for NIST Major Construction Grant, School of Engineering. (2010)

University of Mississippi School of Dentistry

Member

Teaching Committee, General Practice Residency Program. (1983 - 1984)

University of Missouri-Kansas City

Co-Director

NIH-supported Short-Term Research Training Program in Dental and Craniofacial Bioengineering. This 10-week program provides participants with intensive didactic instruction and research experiences. (Summer 2006 - Summer 2007)

Director

NIH-supported Short-Term Research Training Program in Dental and Craniofacial Bioengineering. This 10-week program provides participants with intensive didactic instruction and research experiences. (Summer 2006 - Summer 2007)

Faculty Advisor

NIH-supported Short-Term Research Training Program in Dental and Craniofacial Bioengineering. This 10-week program provides participants with intensive didactic instruction and research experiences. (Summer 2005 - Summer 2007)

University of Missouri-Kansas City School of Dentistry

Chair

Budget Committee, Rho Chapter of Omicron Kappa Upsilon. (March 1998 - March 1999)

Nominating Committee, Rho Chapter of Omicron Kappa Upsilon. (March 1998 - March 1999)

Convocation Committee of the Rho Chapter of Omicron Kappa Upsilon. (1997 - 1998)

Member

Faculty Council. (2004 - Present)
 Research Support Committee. (2004 - Present)
 Research Support Committee. (2006 - 2007)
 Organizing Committee, Oral and Craniofacial Biology Symposium. (2006)
 Faculty Council. (2004 - 2006)
 Selection, Promotion & Tenure Committee. (May 1998 - 2004)
 Advanced Education Committee. (1994 - 2002)
 Search Committee for Asst/Assoc Dean for Academic Affairs. (2000 - 2001)
 Ad Hoc Scholarship Selection Committee. (May 1998 - 2001)
 Budget Committee. (1998 - 2000)
 Research Support Committee. (1993 - 1998)
 Task Force on Research (appointed by the Dean). (December 1997 - May 1998)
 Membership Committee of the Rho Chapter of Omicron Kappa Upsilon. (1995 - 1996)
 Budget Committee. (1993 - 1996)
 Faculty Council. Elected (1991 - 1995)
 Continuing Dental Education Consultation Committee. (1993 - 1994)
 Faculty Search Committee. (1988 - 1994)
 Table Clinics Committee, Missouri Dental Alumni Association. (1988 - 1994)
 Board of Trustees, UMKC Dental Alumni Association. Elected (1993)
 Faculty Development Committee. (1989 - 1991)
 Research Support Committee. (1989 - 1990)
 Curriculum Development Committee. (1988 - 1989)

President

UMKC Dental Alumni Association. (Elected) First female president of the UMKC Dental Alumni Association. Part of my responsibilities included organization and oversight of the alumni meeting (Midwest Dental Conference) held in Kansas City on April 5-8, 2001. There were over 3700 attendees at this meeting including dentists, dental hygienists, assistants, and guests. During my tenure as president, the UMKC Dental Alumni Association Board voted unanimously in favor of my motion to provide \$500,000 to secure the hardware (keyboards, high resolution screens, etc.) required for the electronic patient record system at the UMKC School of Dentistry (2000 - 2001)
 Omicron Kappa Upsilon, Rho Chapter. (Elected) (1999)

President-Elect

UMKC Dental Alumni Association. (Elected) (1999)
 Omicron Kappa Upsilon, Rho Chapter. (Elected) (1998)

Secretary

UMKC Dental Alumni Association. (Elected) (1995)

Student Recruiter

Interviewer for students applying to the dental program. (1990 - Present)

Vice-President

UMKC Dental Alumni Association. (Elected) Third Vice-President, Second Vice-President, First Vice-President (1996 - 1998)
 Omicron Kappa Upsilon, Rho Chapter. (Elected) (1997)

Department Service

University of Kansas

Chemical & Petroleum Engineering

Member

Faculty Search Committee. (2012 - 2013)

Mechanical Engineering

Member

Faculty Awards Committee. (2014)

Launch Committee for Lin Liu. (2014)

Faculty Search Committee. (2012 - 2013)

Professional Service

Editorial Responsibilities

International

Editor

Member, Abstract Editors, American Academy of Pediatric Dentistry. (1999 - 2001)

Editorial Board Member

Scientific World Journal.

Braz Dent Sci, (Elected). (2012 - Present)

J Applied Oral Science, (Elected). Faculdade de Odontologia de Bauru, Universidade de Sao Paulo (2011 - Present)

J Biomedical Materials Research Part B: Applied Biomaterials. Appointed (January 2011 - Present)

Dental Materials, (Elected). (2009 - Present)

Open Journal of Dentistry Insights, Honorary Editorial Board. (November 4, 2008 - Present)

Clinical, Cosmetic and Investigational Dentistry. (July 30, 2008 - Present)

The Open Dentistry Journal. (August 20, 2007 - Present)

J Dental Research, (Elected). (January 2008 - December 2010)

J Dental Research, (Elected). (January 2003 - December 2005)

J Pediatric Dentistry, (Elected). (2001 - 2005)

Other Professional Service

International

Board Member

Academy of Dental Materials. At large (2009 - 2013)

Chair

Symposium: "Material/Tissue Interfacial Phenomena: Lessons Learned from Dental/Craniofacial Reconstructions". Society of Biomaterials 2014 Annual Meeting, Denver, CO. (April 2014)

Group Program Chair and Reviewer, Dental Materials Group, AADR. (2007)
 Group Program Chair and Reviewer, Dental Materials Group, IADR. (2006)
 Subcommittee to Increase Faculty and Private Practitioners participation in AADR Cohort Program, National Affairs Committee, American Association of Dental Research. (2000 - 2003)
 Subcommittee for Council on Scientific Affairs for Review of AAPD Foundation Awards, American Academy of Pediatric Dentistry. (2001 - 2002)

Member

Membership Committee, Society of Biomaterials. (1999 - Present)
 (Elected) AAAS Electorate Nominating Committee of the Section on Dentistry and Oral Health Sciences. (February 19, 2013 - February 15, 2016)
 Program Committee, Dental Materials Group, IADR. Organized "Lunch and Learn" sessions for the Dental Materials Group for the 2007 IADR meeting. (2006)

Oral Session Co-Chair

Title of Session: Dental Materials: Adhesion, IADR/AADR Annual Meeting, Honolulu, HI. (March 2004)
 Title of Session: Dental Materials II-Adhesion-Other-Tooth Microstructure/General Adhesion, AADR Annual Meeting, San Antonio, TX. (March 2003)
 Title of Session: Dental Materials-Adhesion: Microstructure and Microleakage, IADR Annual Meeting, San Diego, CA. (March 2002)
 Title of Session: Dental Materials-Adhesion: Microstructure and Microleakage, AADR Annual Meeting, Chicago, IL. (March 2001)

Organizer

Symposium: "Material/Tissue Interfacial Phenomena: Lessons Learned from Dental/Craniofacial Reconstructions". Society of Biomaterials 2014 Annual Meeting, Denver, CO. (April 2014)

Participant

National Behavior Management Conference. Sponsored by the American Academy of Pediatric Dentistry. Academic representative for UMKC School of Dentistry. (October 1988)

Poster Discussion Session Co-Chair

AAADR Annual Meeting, Boston, MA. (March 1992)
 IADR/AADR Annual Meeting, Cincinnati, OH. (March 1990)

Representative

Society of Biomaterials delegate, International Union of Society for Biomaterials Science & Engineering (IUSBSE). Appointed (2012 - 2016)

Reviewer

Israel Science Foundation. (Spring 2014)
 AAAS Research Competitiveness Program. (Fall 2012)

Reviewer, Abstracts

Academy of Dental Materials. 20 abstracts reviewed (2013)
 Society of Biomaterials. 10 abstracts reviewed (2013)
 International Association of Dental Research. 200 abstracts reviewed (2012)

Society of Biomaterials. (2010)
 ASME 2010 Summer Bioengineering Conference. (2009)
 ASME 2009 Summer Bioengineering Conference. (2008)
 Society of Biomaterials. (2008)

Reviewer, Ad Hoc

Swiss National Science Foundation. (Spring 2009)
 Swiss National Science Foundation. (November 2006)

Reviewer, Journal Article

ACS Applied Materials & Interfaces.
Acta Biomaterialia.
Acta Odontologica Scandinavica.
Annals of Biomed Eng.
Applied Surface Science.
Biomaterials.
Biotechnology and Bioengineering.
Calcified Tissue International.
Caries Research, Archives of Oral Biology.
Clinical Oral Investigations.
Dental Materials.
Dentomaxillofacial Radiology.
European J of Oral Sciences.
J Adhesive Dentistry.
J American Dental Association.
J Biomedical Materials Research.
J Biomedical Materials Research: Applied Biomaterials.
J Dental Research.
J Dentistry.
J Materials Science.
J Materials Science: Materials in Medicine.
J Oral Rehabilitation.
J Photochemistry & Photobiology A: Chemistry.
Lasers in Surgery and Medicine.
Pediatric Dentistry.
Scanning Microscopy.
WIREs Nanomedicine and Nanobiotechnology.

Session Chair

Title of Oral Session: Adhesive Materials: Chemistry and Characterization, IADR/AADR Annual Meeting, Seattle, WA. (March 2013)
 Title of Oral Session: Dental Materials: Polymer-based materials-Chemistry and Composition, IADR/AADR Annual Meeting, San Diego, CA. (March 2011)
 Title of Oral Session: Dental Materials 6: Polymer-based materials-Chemistry and Composition, Recent Advances in Dental Monomers and Polymerization Processes, IADR/AADR Annual Meeting, Miami, FL. (April 2009)
 Title of Oral Session: Dental Materials 5: Polymer-based Materials-Chemistry and Composition: Polymerization Kinetics and Effects, AADR Annual Meeting, Dallas, TX. (April 2008)
 Title of Oral Session: Dental Materials II: Adhesion-Adhesive Interface Microstructure, IADR/AADR Annual Meeting, New Orleans, LA. (March 2007)

Title of Oral Session: Biology, TMJ Bioengineering Conference, Bloomfield, CO. (May 2006)

Title of Oral Session: Dental Materials: Adhesion, AADR Annual Meeting, Orlando, FL.
(March 2006)

Title of Oral Session: Dental Materials: Adhesion, IADR/AADR Annual Meeting, Baltimore,
MD. (March 2005)

National

Board of Advisors

Advisory Board, Danaher Dental Platform, Danaher. (2006 - 2007)

External Reviewer

Promotion and Tenure, University of California-San Francisco. (2012)

Promotion and Tenure, Clemson University. (2010)

Promotion and Tenure, Texas A&M University. (2010)

Bioengineering Program, University of Oklahoma. (2008)

Promotion and Tenure, University of Texas-Houston. (2008)

Grant Panelist

For grants submitted in response to RFA from the Department of Energy for the Development
of Centers of Excellence for Laser Applications in Medicine. (October 1997)

Grant Reviewer

Special Opportunities Grant, National Science Foundation. (October 2000)

Member

American Dental Association Standards Committee on Dental Products Working Groups.
(2003 - Present)

Oral, Dental and Craniofacial Sciences Study Section, Center for Scientific Review. (July 1,
2013 - June 30, 2017)

College of CSR Reviewers, National Institute of Health. (2010 - 2012)

Dental Sciences SBIR Study Section, (ZRG1 MOSS-N 11), National Institutes of Health.
Appointed (Fall 2008 - 2010)

Biomaterials and Biointerfaces Study Section, National Institutes of Health. Appointed (2004 -
2006)

Special emphasis panel, National Institutes of Health/National Institute of Dental and
Craniofacial Research. (April 2006)

National Affairs Committee, American Association of Dental Research. (2000 - 2003)

Local Arrangements Committee, annual meeting of the American Dental Association. (2001)

Council on Scientific Affairs, American Academy of Pediatric Dentistry. (1999 - 2001)

Scientific Review Special Emphasis Panel for National Institutes of Health. (February 1999)

Local Arrangements Committee, annual meeting of the American Academy of Pediatric
Dentistry. (1993 - 1994)

Subcommittee on Trends and Implications of Women in Pediatric Dentistry, American
Academy of Pediatric Dentistry. (1990 - 1993)

Participant

NIH Strategic Planning Conference. (1992)

President

American Association of Dental Research, Kansas City Section. (April 2004 - September

2006)

American Association of Dental Research, Kansas City Section. (1994 - 1995)

Reviewer

NIH/NIDCR Special Emphasis Panel, Extramural Loan Repayment Applications. (Spring 2014)

NIH/NIDCR Special Emphasis Panel. (Winter 2013)

National Institute of Dental and Craniofacial Research (NIDCR), National Institutes of Health. Summer 2011, Summer 2012, Winter 2012 (Summer 2011 - Winter 2012)

ARG1 MOSS K(11)B, National Institutes of Health. (Summer 2010)

Special Emphasis Panel, National Institutes of Health. (Spring 2010 - Winter 2010)

Oral and Dental: Special Emphasis Panel, National Institutes of Health. Fall 2008, Spring 2009, Summer 2009 (Fall 2008 - Summer 2009)

National Science Foundation. (2008)

Nanotechnology, National Institutes of Health. (October 2007)

Residency Programs in Pediatric Dentistry, Bureau of Health and Human Services. (February 2000)

Reviewer, Ad Hoc

National Institute of Dental and Craniofacial Research, Oral, Dental and Craniofacial Sciences, National Institutes of Health. (October 2006)

National Institute of Dental and Craniofacial Research, National Institutes of Health. (June 2005)

Biomaterials and Biointerfaces Study Section, National Institutes of Health. (August 2003 - 2004)

National Institute of Dental and Craniofacial Research, Oral, Dental and Craniofacial Sciences, National Institutes of Health. (October 2004)

Reviewer, Grant Proposal

Special Emphasis Panel for Metabolomics Technology Development grants, National Institutes of Health/Endocrinology, Metabolism, Nutrition & Reproductive Sciences. (June 2004)

Special Emphasis Panel for Institutional Research Training Grants, National Institutes of Health/National Institute of Dental and Craniofacial Research. (January 2004)

Special Emphasis Panel for Institutional Research Training Grants, National Institutes of Health/National Institute of Dental and Craniofacial Research. (February 2003)

Regional

Chair

Organizing Committee, Second Regional Bioengineering Day, University of Kansas Medical Center, Kansas City, KS. (2007)

Organizing Committee, First Regional Bioengineering Day, Lawrence, KS. (2006)

Organizing Committee, Nanoscience at the Interface with Life Science Research, 2nd Nanotechnology Conference sponsored by RAM. (2005)

Host

Inaugural Science Thursday Event, Guest Speaker: Antonio Tomsia, Lawrence Berkley National Laboratory, Event was focused on attracting bioengineering researchers from the regional universities, Overland Park, KS. (November 2014)

Member

Kansas City Center of Excellence in Life Sciences Screening Committee, Kansas City Area Life Sciences. (2008)

Organizer

Inaugural Science Thursday Event, Guest Speaker: Antonio Tomsia, Lawrence Berkley National Laboratory, Event was focused on attracting bioengineering researchers from the regional universities, Overland Park, KS. (November 2014)

Reviewer

Kansas City Center of Excellence in the Life Sciences Screening Committee, Kansas City Areas Life Sciences Institute. (July 2008 - September 2008)

Reviewer, Grant Proposal

Kansas City Area Life Sciences Institute Research Development Grants. (September 2003)

Secretary-Treasurer

Kansas City-Midwest Section of the American College of Dentists. (1996 - 2000)
American Association of Dental Research, Kansas City Section. (1993 - 1994)

State**Member**

University of Missouri Research Board. Reviewer for grants submitted to University of Missouri Research Board and assign reviewers for grants (January 2006 - September 2007)
Health Advisory Committee, Friends of Children, Mississippi State Board of Health. (1984)

President

(Elected) Omicron Kappa Upsilon-Rho Chapter. (1999 - 2000)
American Association of Dental Research, Mississippi Section. (1983 - 1984)

President-Elect

(Elected) Omicron Kappa Upsilon-Rho Chapter. (1998)

Reviewer, Grant Proposal

University of Missouri Research Board. (1992 - Present)

Secretary-Treasurer

American Association of Dental Research, Mississippi Section. (1982 - 1983)

Vice President

(Elected) Omicron Kappa Upsilon-Rho Chapter. (1997)

Public Service

Volunteer, Special Olympics, "Special Smiles". (1997)

Volunteer, Doctors with a Heart Clinic. (1996)

Faculty Supervisor, Hickman Mills Consolidated School District's Second Annual Health Fair, For participating dental students. (October 1994)

Volunteer, Numerous presentations to local civic groups concerning the topic of pediatric dentistry.
Tours of the dental clinic for groups of 30-40 preschoolers and kindergartners, every six months. (1982 - 1984)

Service Presentations

Spencer, P. 2001 - Present. "Biomaterials Research." Unlocking the Future: Life Sciences at UMKC, Presented to visitors from IBM. Among other presentations at University events that provide various agencies with information about Life Sciences Research at UMKC.

Spencer, P. 2012. "The Science of Adhesion." One of two featured speakers for the Dental Congress Meeting, Londrina, Brazil. May 21.

Spencer, P. 2011. "Dental Substrates and the Adhesive Interface Performance." Featured speaker for the XIX Session of the Brazilian Group of Operative Dentistry Professors-GBPD, Campo Grande, MS, Brazil. January 12 - January 15.

Spencer, P. 2009. "Bioengineering at the University of Kansas." New Generation Society, Lawrence, KS. November.

Spencer, P. 2009. "New Posterior Restorative Materials: Esthetics or Performance?" One of four featured speakers for the International Meeting of Restorative Dentistry (Meeting Internacional De Odontologia Restauradora), Londrina, Brazil. August 14 - August 15.

Spencer, P. 2006. "Physicochemical-mechanical behavior at the adhesive/dentin interface: factors that undermine the clinical durability of composite restorations." Guest Lecturer, Bauru School of Dentistry, Universidade de Sao Paulo, Bauru, Brazil.

Spencer, P. 2004. "Dentin Bonding: Past, Present and Future." Bauru School of Dentistry, Universidade de Sao Paulo, Bauru, Brazil. November 16 - November 18.

Spencer, P. 2004. "What do bones, teeth, airplanes, dental fillings and roadways have in common?" Rotary Club, Lawrence, KS. November 1.

Spencer, P. 2000. "Current Restorative Materials: the Good, the Bad & the Ugly." Faculty Development Lecture Series, University of Missouri-Kansas City School of Dentistry, one-half day presentation.

Spencer, P. 2000. "Dentin Adhesives for the Twenty-first Century." Douglas County Dental Society, Lawrence, KS.

Spencer, P. 1997. "Materials for the Pediatric Patient: Past, Present, and Future." Colombian Academy of Pediatric Dentistry Meeting. Featured speaker for a two-day conference, Cartagena, Colombia.

Spencer, P. 1996. "Amalgam Mercury Release: A Clear & Present Danger or Tales of a Mad Hatter?" American College of Dentists, Regency V Meeting, Kansas City, MO.

Spencer, P. 1996. "Amalgam Mercury Release: A Clear & Present Danger?" Truman Medical Center East Dental Study Club, Lee's Summit, MO.

- Spencer, P. 1996. "Composites in the Twenty-First Century." Pittsburgh Dental Study Club, Pittsburgh, KS.
- Spencer, P. 1995. "A Clear and Present Danger or Are We Off to See the Wizard?" Featured speaker at Midwest Dental Conference, Kansas City, MO.
- Spencer, P. 1993. "Dentin Bonding Agents-Past, Present, and Future." U.S. Army Dentac, Fort Leavenworth, KS.
- Spencer, P. 1992. "Materials in Dentistry: an Update." The Heart of America Study Club, Kansas City, MO.
- Spencer, P. 1992. "Update on Materials." Breakfast with the Experts, University of Missouri-Kansas City Dental Alumni meeting.
- Spencer, P. 1991. "Composite Resins." In service training to dental staff at Swope Parkway Health Center, Kansas City, MO.
- Spencer, P. 1991. "Esthetic Dentistry." U.S. Army Dentac, Fort Leavenworth, KS.
- Spencer, P. 1991. "The New Composite Resins." Pittsburgh Dental Study Club, Pittsburgh, KS.
- Spencer, P. 1990. "Nutrition and Oral Health." Featured speaker at the Fall Conference of the Kansas Association for School Health, Washburn University, Topeka, Kansas.
- Spencer, P. 1990. "Update in materials: clinical and physical characteristics." One of 4 featured speakers for the following continuing education course at the University of Missouri-Kansas City School of Dentistry.
- Spencer, P. 1988. "Posterior Composites-Clinical and Material Characteristics." Featured speaker at the quarterly meeting of the NW Missouri Dental Society.
- Spencer, P. 1984. "Parents' Responsibility in the Management of their Child's Dental Needs." Jackson Chapter of Parents of Twins. February.

References to My Work

"Consultations with various components of the media including local, regional and University regarding the research and scholarly activities of the UMKC Center for Research on Interfacial Structure & Properties".

"Consultations with the media regarding nanotechnology and its impact on life sciences research". (2005)

Newspapers

"Consultation with private dentist from New Mexico regarding development of news article on the latest developments in composite materials". (2000)

Television

"Media interview by local news channel regarding the indications, contraindications, and cost-effectiveness of pit and fissure sealants". (October 1994)

Interviews

Newspapers

"Interview with reporter from the Lawrence Journal World regarding tuition enhancement monies and the use of these monies to promote research and scholarly experiences for students at the University of Kansas" *Lawrence Journal World*. (December 2007)

"Interview with newspaper reporter regarding mercury release from dental amalgam and biocompatibility concerns with alternative restorative materials". (2006)

"My work related to Nanotechnology and the conference that I organized on this topic was featured on the front page" *Kansas City Business Journal*. (September 30, 2005)

"Research featured on the front page" *Kansas City Star*. (November 12, 2003)

"Interview with Kansas City Star Reporter regarding my research on the development of water-compatible adhesives" *Kansas City Star*. (October 2003)

Other Activity

Professional Other

Numerous phone consultations with private practice dentists and concerned patients regarding mercury release from dental amalgam; concerns associated with clinical lifetime of alternative restorative materials; concerns regarding composite-based restorative materials. 2000-pres Respond to numerous requests from University media and public relations regarding the impact of biomaterials research on the well-being and health of our population. 2002-pres (2000 - Present)

External or International Connections and Collaborations

Ongoing partnership

University of Sao Paulo

Collaboration on research that interfaces engineering principles with clinical sciences; the work is supported in part by the Fulbright (2009 - Present)

teaching and research collaboration

University of Missouri-Kansas City
(1988 - Present)