Jenna Rickus

Ph.D. University of California, Los Angeles - 2003

Associate Professor

American Society of Engineering Education, Biomedical Engineering Teaching Award - 2007
Service Learning Faculty Fellow, Purdue University - 2006
Teaching for Tomorrow Award, Purdue University – 2005-2006

Research Areas:

Biosensors - Fiber optics sensors for predicting meat quality, new biomolecule-based biosensor materials. Bio-nanotechnology -- membrane proteins as "molecular machines" in engineered materials. Mathematical modeling – modeling protein dynamics for material/device design & optimization.

Classes Taught:

ABE 495S – Computational Methods for single Molecule Systems
ABE 560 - Biosensors
ABE 591W – Biosensors – Fundamentals and applications
BIOL 295F – Quantitative Cell Biology

Selected Publications (last 5 years):

P. Banerjee, D.Lenz, J. P.Robinson, J.L. Rickus and A.K. Bhunia (2007) "Collagen encapsulated hybridoma cells as biosensors: a simple cell-based sensing system in multi-well plates for rapid detection of Listeria monocytogenes and Bacillus cereus" Laboratory Investigation advance on-line doi: 10.1038/labinvest.3700703

S.S. Jedlicka, J.L. Rickus, D.Y. Zemlyanov (2007) "Surface Analysis by XPS of Sol-Gels Modified with Covalently Bound Peptides" J. of Physical Chemistry. 111(40) 11850-11857

S.S. Jedlicka, K.M. Little, , D.Y. Zemlyanov, D.E. Nivens, J.L. Rickus (2007) "Peptide Ormosils as Cellular Substrates" Journal of Materials Chemistry. 17 pg 5058

T. Hassell, S. Jedlicka, J. Rickus, P. Irazoqui. (2007) "Constant-Current Adjustable Waveform Microstimulator for an Implantable Bi-Modal Output Hybrid Neural Prosthetic" Proceedings of the 29th International Conference of the IEEE Engineering in Medicine and Biology Society. 1:2436-9.

Haddish, N.B., Rickus, J.L., Haghighi, K. (2007) "The role of multiscale computational approaches for rational design of conventional and nanoparticle oral drug delivery systems" International Journal of Nanomedicine, 2(3) 315-331

S. Padalkar, Y. Zhao, K. Stuart, A. Panitch, J. Rickus, L. Stanciu. (2007) "Preparation of Biomolecule Gel Matrices for Electron Microscopy" Ultramicroscopy. Epub ahead of print

Jedlicka, S.S., Leavesley, S.J., Little, K.M., Robinson J.P., Nivens, D.E., Rickus, J.L. (2006) "Interactions Between Chemical Functionality and Nanoscale Surface Topography Impact Fibronectin Conformation and Neuronal Differentiation on Model Sol-gel Silica Substrates" Proceedings of the Materials Research Society Fall Meeting. Boston, MA 2006.

Jedlicka, S.S., McKenzie, J.L., Leavesley, S.J., Little, K.M., Webster, T.J., Robinson J.P., Nivens, D.E., Rickus, J.L. (2006) "Sol-Gel Derived Materials as Substrates for Neuronal Differentiation: Effects of Surface Features and Protein Conformation" Journal of Materials Chemistry, 16:3221-3230. Featured in Chemical Biology

P. Banerjee, M.T. Morgan, J.L. Rickus, K. Ragheb, C. Corvalan, J.P. Robinson and A.K. Bhunia. (2006) "Hybridoma Ped-2E9 cells cultured under modified conditions can sensitively detect Listeria monocytogenes and Bacillus cereus", Applied Microbiology and Biotechnology, 73(6):1423-34

Zhao, J., Jedlicka, S.J., Lannu, J.D., Bhunia, A.K., Rickus, J.L. (2006) "Liposome-doped Nanocomposites as Artificial-Cell-Based Biosensors: Detection of Listeriolysin O", Biotechnology Progress, 22:32-37 Named Top 10 Cited Articles in Biotech. Prog. for 2006

Haddish, N.B.; Nyquist, C.; Haghighi, K.; Corvalan, C.; Keshavarzian, A.; Campanella, O.; Rickus, J.; Farhadi, A. (2006) "A multi-scale stochastic drug release model for polymer-coated targeted drug delivery systems" Journal of Controlled Release. 110:314-322

Banerjee, P, Banada, P.P., Rickus, J.L., Morgan, M.T., Bhunia, A.K. (2005) "A portable cell based optical detection device for rapid detection of Listeria and Bacillus toxins." Proceedings of the SPIE Vol. 5996, November

Rickus, J.L. (2005) "Impact of Coenzyme Regeneration on the Performance of an Enzyme Based Optical Biosensor: A Computational Study." Biosensors & Bioelectronics, 21:965-972

Haddish, B.H., Nyquist C., Haghighi K., Wu, H.A., Corvalan, C., Campanella, O., Rickus, J., Keshavarzian, A. (2005) "Multi-scale drug release modeling for Targeted Oral Drug Delivery (TODD)" NSTI Nanotech Conference, Anaheim, CA.

Rickus, J, Chang, P, Tobin, A., Zink, J, Dunn, B. (2004) "Photochemical Coenzyme Regeneration in an Enzymatically Active Optical Material." J. of Phys. Chem. B. 108(26) 9325-9332.

Selected Conference Presentations (last 5 years):

J.J. Koehler, D. M. Porterfield, J.L. Rickus. 2007. "Photosensitive Nitric Oxide Releasing Materials for Light Controlled Neural Differentiation" Oral Presentation at the Institute of Biological Engineering Annual Meeting. March, 2007. St. Louis MS.

J. Zhao, Z. Xue, N. Haddish-Berhane, C. Corvalan, L. Stanciu, A. Bhunia, J.L. Rickus 2007. "A Computational Model of Listeriolysin O Pore Formation in Liposome-doped Sol-gel Nanocomposites. Oral Presentation at the Institute of Biological Engineering Annual Meeting. March, 2007. St. Louis MS.

C.S. Cantley, J.L. Rickus. 2007. "Effects of Lipid Composition on the Detection of Listeriolysin O in Food Matrices" poster presentation at the Institute of Biological Engineering Annual Meeting. March, 2007. St. Louis MS.

S.Zhang, J. Zhao, S.S. Jedlicka, W. McLamb, J. Garland. J.L. Rickus 2007. "Bioreporter Sol-gel Materials for the Detection of Toluene" poster presentation at the Institute of Biological Engineering Annual Meeting. March, 2007. St. Louis MS.

Chow, E.Y., Rickus, J.L., Irazoqui, P.P., 2006. "RF Telemetry ASICs Enabling Neural Prosthetics for Epilepsy". American Epilepsy Society Annual Meeting, December 2006, San Diego, CA.

Jedlicka, S.S., Leavesley, S.J., Little, K.M., Robinson J.P., Nivens, D.E., Rickus, J.L. 2006. "Interactions Between Chemical Functionality and Nanoscale Surface Topography Impact Fibronectin Conformation and Neuronal Differentiation on Model Sol-gel Silica Substrates" Materials Research Society Fall Meeting, November 2006, Boston, MA.

S. S. Jedlicka, M.E. Floyd, J.L. Rickus 2006. "A Novel Platform for Biologically Inspired Materials to Direct Neuronal Cell Fate", Society for Neuroscience Annual Meeting, Atlanta GA, October 14 – 19.