

BIOMEDICAL ENGINEERING

GRADUATE DIRECTOR: HELMUT STREY
DEPARTMENT CHAIR: CLINTON RUBIN

❖ Grants, Fellowships, and Awards

Alemu, Yared. (2009) BMES Student Travel Award, \$400. *Biomedical Engineering Society (BMES)*, Landover, MD.

Xenos, M., Rambhia, S., **Alemu, Y.**, Einav, S., Ricotta, J., Labropoulos, N., Apostolos, T., Bluestein, D. (2009) 2nd place Mimics Innovation Awards. *Materialise*, Leuven, Belgium.

Georgi, Melissa. (2010) Cardiovascular Section Research Recognition Award, \$500. *American Physiological Society*, Bethesda, MD.

Krishnamoorthy, Srilalan. (2010) Excellence in Research Award. *Sigma Xi - Stony Brook University Chapter*, Stony Brook, NY.

Jia, Zhiheng. (2010) Sigma Xi Excellence in Research Award. *Sigma Xi - Stony Brook University Chapter*, Stony Brook, NY.

Sheriff, Jawaad. (2009) Travel Award, \$400. *Biomedical Engineering Society*, Pittsburgh, PA.

❖ Jointly Authored Publications/Research Reports/Reviews

Acerbo, Alvin S., & Miller, Lisa M. (2009) Assessment of the chemical changes induced in human melanoma cells by boric acid treatment using infrared imaging. *Analyst* 134(8): 1669-1674.

Xenos, M., Girdhar, G., **Alemu, Y.**, Jesty, J., Slepian, M., Einav, S. & Bluestein, D. (In Press) Device Thrombogenicity Emulator (DTE) – Design optimization Methodology for Cardiovascular Devices: A Study in Two Bileaflet MHV Designs. *Journal of Biomechanics*.

Claiborne, T.E., Bluestein, D. & Schoepfoerster, R.T. (2009) Development and evaluation of a novel artificial catheter-deliverable prosthetic heart valve and method for in vitro testing. *The International Journal of Artificial Organs* 32(5): 262-271.

Falabella, Christine & Chen, W. (2010) Cross-linked hyaluronic acid films to reduce intra-abdominal postsurgical adhesions in an experimental model. *Digestive Surgery* 26(6): 476-481.

Nègre, N., Brown, C.D., Shah, P.K., Kheradpour, P., Morrison, C.A., Henikoff, J.G., **Feng, X.**, Ahmad, K., Russell, S., White, R.A., Stein, L., Henikoff, S, Kellis, M, & White, K.P. (2010) A Comprehensive Map of Insulator Elements for the Drosophila Genome. *PLoS Genet* 6(1): e1000814.

Georgi, M.K.B., Dewar, A. & Frame, M.D. (In Press) Downstream Exposure to Growth Factors Causes Elevated Velocity and Dilation in Arteriolar Networks. *Journal of Vascular Research*.

Jia, Zhiheng, Bien, Harold & Entcheva, Emilia (2010) Detecting space-time alternating biological signals close to the bifurcation point. *IEEE Trans Biomed Eng.* 57(2): 316-24.

Yuan, Z, **Luo, Z.**, Ren, H., Du, C. & Pan, Y. (2009) A digital frequency ramping method for enhancing Doppler flow imaging in Fourier-domain optical coherence tomography. *Opt. Express* 17: 3951-3963.

Luo, Z., Yuan, Z., Pan, Y. & Du, C. (2009) Simultaneous imaging of cortical hemodynamics and blood oxygenation change during cerebral ischemia using dual-wavelength laser speckle contrast imaging. *Opt. Lett.* 34: 1480-1482.

- Luo, Z.,** Yuan, Z., Tully, M., Pan, Y. & Du, C. (2009) Quantification of cocaine-induced cortical blood flow changes using laser speckle contrast imaging and Doppler optical coherence tomography. *Appl. Opt.* 48: D247-D255.
- Ren, Hugang,** Yuan, Z.J., Liu, J.X. & Pan, Y.T. (In Press) Enhancing the Detection of Carcinoma in situ of the Urinary Bladder by Three-dimensional Optical Coherence Tomography. *Journal of Urology*.
- Ren, Hugang,** Waltzer, W.C., Bhalla, R., Liu, J.X., Yuan, Z.J., Lee, C.S., Darras, F., Schulsinger, D., Adler, H.L., Kim, J., Mishail, A. & Pan, Y.T. (2009) Diagnosis of Bladder Cancer With Microelectromechanical Systems-based Cystoscopic Optical Coherence Tomography. *Urology* 74(6): 1351-1357.
- Yuan, Z.J., Zakhaleva, J., **Ren, Hugang,** Liu, J.X., Chen, W. & Pan, Y.T. (2010) Noninvasive and High-Resolution Optical Monitoring of Healing of Diabetic Dermal Excisional Wounds Implanted with Biodegradable In Situ Gelable Hydrogels. *Tissue Engineering Part C: Methods* 16(2): 237-247.
- Yuan, Z.J., Luo, Z. C., **Ren, Hugang,** Du, C.W. & Pan, Y.T. (2009) A Digital Frequency Ramping Method for Enhancing Doppler Flow Imaging in Fourier-Domain Optical Coherence Tomography. *Optics Express* 17(5): 3951-3963.
- Yuan, Z.J., Chen, B., **Ren, Hugang** & Pan, Y.T. (2009) On the Possibility of Time-lapse Ultrahigh-resolution Optical Coherence Tomography for Bladder Cancer Grading. *Journal of Biomedical Optics* 14(5): 050502.
- Ren, Hugang,** Waltzer, W.C., Bhalla, R., Liu, J.X., Yuan, Z.J., Lee, C.S., Darras, F., Schulsinger, D., Adler, H.L., Kim, J., Mishail, A. & Pan, Y.T. (2009) Diagnosis of Bladder Cancer With Microelectromechanical Systems-based Cystoscopic Optical Coherence Tomography. *Urology* 74(6):1351-7.
- Yuan, Z.J., Zakhaleva, J., **Ren, Hugang,** Liu, J.X., Chen, W. & Pan, Y.T. (2010) Noninvasive and High-Resolution Optical Monitoring of Healing of Diabetic Dermal Excisional Wounds Implanted with Biodegradable In Situ Gelable Hydrogels. *Tissue Engineering Part C: Methods* 16(2): 237-247.
- Yuan, Z.J., Luo, Z. C., **Ren, Hugang,** Du, C.W. & Pan, Y.T. (2009) A Digital Frequency Ramping Method for Enhancing Doppler Flow Imaging in Fourier-Domain Optical Coherence Tomography. *Optics Express* 17(5): 3951-3963.
- Sheriff, Jawaad,** Bluestein, D., Girdhar, G. & Jesty, J. (2010) High-Shear Stress Sensitizes Platelets to Subsequent Low-Shear Conditions. *Ann Biomed Eng* 38(4): 1442-50.
- Tower, A.M., **Trinward, A.,** Lee, K., Joseph, L., Jacobson, H.I., Bennett, J.A. & Andersen, T.T. (2009) AFPeP, a novel drug for prevention and treatment of breast cancer does not disrupt the estrous cycle or fertility in rats. *Oncology Reports* 22(1):49-56.
- Yuan, Z.,** Zakhaleva J, Ren H, Liu J, Chen W. & Pan Y. (2010) Noninvasive and High-Resolution Optical Monitoring of Healing of Diabetic Dermal Excisional Wounds Implanted with Biodegradable *In Situ* Gelable Hydrogels. *Tissue Engineering Part C: Methods* 16: 237-247.
- Yuan, Z.,** Chen, B., Ren, H. & Pan Y. (2009) On the possibility of time-lapse ultrahigh-resolution optical coherence tomography for bladder cancer grading. *J. Biomed. Opt.* 14: 050502.

❖ Abstracts, Conferences/Colloquiums, Presentations, Symposiums, Workshops

- Acerbo, Alvin S.** (2009) ImmunoGold Silver Staining Workshop. *Aurion and Electron Microscopy Sciences Workshops*. University of Florida, Miami, FL.
- Acerbo, Alvin S.** (2009) Rapid Determination of Bone Chemical Composition and Distribution En Block using Synchrotron-Based Fourier Transform Infrared Imaging. *ASBMR 31st Annual Meeting*. Denver, CO.

- Acerbo, Alvin S.** (2009) Assessment of the Chemical Changes Induced in Human Melanoma Cells by Boric Acid Treatment using Infrared Imaging. *Joint NSLS and CFN Users' Meeting*. Brookhaven National Laboratory, Upton, NY.
- Adler, Benjamin,** Ozcivici, Engin, Luu, Yen-Kim. Judex, Stefan & Rubin, Clinton (2009) Proliferation of Bone Marrow Derived Hematopoietic Stem Cells Stimulated by a High Fat Diet is Suppressed by Low Magnitude Mechanical Signals. *American Society of Bone and Mineral Research Annual Meeting*. Denver, CO.
- Bluestein, D., Xenos, M., Girdhar, G., Sheriff, J., Claiborne, T., **Alemu, Y.**, Einav, S. & Jesty, J. (2009) Optimizing the Thrombogenic Performance of Blood Recirculating Devices. *FDA / NHLBI / NSF Workshop on Computer Methods for Cardiovascular Devices*. Rockville, MD.
- Xenos, M., **Alemu, Y.**, Girdhar, G., Sheriff, J., Jesty, J., Einav, S. & Bluestein, D. (2009) Optimizing Prosthetic Valves Thrombogenic Performance Combining Numerical and Experimental Approach. *BMES Annual Fall Meeting*. Pittsburgh, PA.
- Xenos, M., Rambhia, S., **Alemu, Y.**, Einav, S., Ricotta, J.J., Labropoulos, N., Tassiopoulos, A., & Bluestein, D. (2009) Patient Based FSI Approach for predicting Abdominal Aortic Aneurysms Risk of Rupture. *BMES Annual Fall Meeting*. Pittsburgh, PA.
- Girdhar, G., Sheriff, J., Xenos, M., **Alemu, Y.**, Claiborne, T., Slepian, M., Jesty, J., Einav, S. & Bluestein, D. (2009) Dynamic Shear Stress Induced Platelet Activation in Blood Recirculation Devices: Implications for Thrombogenicity Minimization. *Proceedings of the ASME 2009 Summer Bioengineering Conference*. Lake Tahoe, CA.
- Xenos, M., Rambhia, S., **Alemu, Y.**, Einav, S., Ricotta, J.J., Labropoulos, N., Tassiopoulos, A. & Bluestein, D. (2009) A Patient Based Approach for Fluid Structure Interaction in Ruptured Abdominal Aortic Aneurysms. *Proceedings of the ASME 2009 Summer Bioengineering Conference*. Lake Tahoe, CA.
- Xenos, M., **Alemu, Y.**, Girdhar, G., Einav, S. & Bluestein, D. (2009) Turbulent and Direct Numerical Simulations for Optimizing Mechanical Heart Valve Designs. *Proceedings of the ASME 2009 Summer Bioengineering Conference*. Lake Tahoe, CA.
- Sheriff, Jawaad, **Chiu, P.**, Hoque, M., Jesty, J., & Bluestein, D. (2009) *In Vitro* Measurements of Shear-Induced Platelet Sensitization and Activation Thresholds. *2009 BMES Annual Fall Meeting*. Pittsburgh, PA.
- Girdhar, G., Sheriff, J., Xenos, M., Alemu, Y., **Claiborne, T.**, Slepian, M., Jesty, J., Einav, S. & Bluestein, D. (2009) Dynamic Shear Stress Induced Platelet Activation in Blood Recirculation Devices: Implications for Thrombogenicity Minimization. *Proceedings of the ASME 2009 Summer Bioengineering Conference*. Lake Tahoe, CA.
- Bluestein, D., Xenos, M., Girdhar, G., Sheriff, J., **Claiborne, T.**, Alemu, Y., Einav, S. & Jesty, J. (2009) Optimizing the Thrombogenic Performance of Blood Recirculating Devices. *FDA / NHLBI / NSF Workshop on Computer Methods for Cardiovascular Devices*. Rockville, MD.
- Girdhar, G., **Claiborne, T.**, Sheriff, J., Slepian, M., Einav, S., Jesty, J. & Bluestein, D. (2009) Platelet activity measurement in the CardioWest Total Artificial Heart (TAH) and in Ventricular Assist Device with Trileaflet Polymer Valves. *Biomedical Engineering Society Annual Fall Meeting*. Pittsburgh, PA.
- Claiborne, T.E.**, Girdhar, G., Sheriff, J., Jesty, J., Slepian, M.J., Benkowski, R., Pinchuk, L., & Bluestein, D. (2010) In-vitro Thrombogenicity Assessment of Mechanical Circulatory Support Devices and Prosthetic Heart Valves. *ASME Summer Bioengineering Conference*. Naples, FL.
- Chen, W., **Falabella, Christine**, Weng, L., Zakhaleva, J., Melendez, M. (2009) Chitosan based in situ gelable hydrogel for modulating wound healing. *Proceedings of the 11th International Conference on Chitin and Chitosan & The 8th Asia-Pacific Chitin and Chitosan Symposium*. Taipei, Taiwan.

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- Feng, Xin** & Stein, Lincoln (2009) Genome-wide survey of D melanogaster insulator proteins binding preferences in genes. *RECOMB Regulatory Genomics, Systems Biology, DREAM*. Boston, MA.
- Feng, Xin**, Zheng, Zha, Chengyi, Liu, Liya, Wang & Stein, Lincoln. (2010) Get all ChIP-Seq peaks in one click: Two integrated pipelines for the modENCODE peak recalling project. *ENCODE and modENCODE Consortia*. Washington, D.C.
- Georgi, M.K.B.**, Sharma, S. & Frame, M.D. (2009) Microvascular flow patterns are altered in leptin deficient mice. *Frontiers in Microcirculation, Fall Meeting of the Microcirculatory Society*. Columbia, MO.
- Georgi, M.K.B.**, Vigilance, J., Dewar, A. & Frame, M.D. (2010) Arteriolar rarefaction in murine skeletal muscle linked to shear rate and plasma cytokine dysregulation. *Experimental Biology*. Anaheim, CA.
- Adler, Benjamin, **Ozcivici, Engin**, Luu, Yen-Kim. Judex, Stefan & Rubin, Clinton (2009) Proliferation of Bone Marrow Derived Hematopoietic Stem Cells Stimulated by a High Fat Diet is Suppressed by Low Magnitude Mechanical Signals. *American Society of Bone and Mineral Research Annual Meeting*. Denver, CO.
- Xenos, M., **Peter, D.A.**, Rambhia, S.H., Alemu, Y. & Bluestein, D. (2010) Fluid Structure Interaction for Patient Specific Risk Assessment in Abdominal Aortic Aneurysms. *36th Annual Northeast Bioengineering Conference*. New York, NY.
- Jia, Zhiheng**, Gordon, Chris, Bien, Harold, Brink, Peter & Entcheva, Emilia (2009) Anti-arrhythmic Effects of 4-phenylbutyrate (4PB) in Cardiac Myocytes. *American Heart Association: Scientific Sessions*. Orlando, FL.
- Ravindranath, Bosky**, Junnarkar, S., Maramraju, S.H., Southehal, S., Purschke, M., Stoll, S., Tomasi, D., Vaska, P., Woody, C. & Schlyer, D. (2009) Initial results from the BNL dedicated simultaneous PET-MRI breast imaging system prototype. *SNM's 56th Annual Meeting*. Toronto, ON.
- Ravindranath, Bosky**, Junnarkar, S.S., Purschke, M.L., Maramraju, S.H., Hong, X., Tomasi, D., Bennett, D., Cheng, K., Southehal, S.S., Stoll, S.P., Pratte, J.-F., Vaska, P., Woody, C.L & Schlyer, D.J. (2009) Results from prototype II of the BNL simultaneous PET-MRI dedicated breast scanner. *IEEE Nuclear Science Symposium and Medical Imaging Conference*. Orlando, FL.
- Ravindranath, Bosky**, Junnarkar, S.S., Purschke, M.L., Maramraju, S.H., Southehal, S.S., Stoll, S.P., Pratte, J.-F., Vaska, P., Woody, C.L. & Schlyer, D.J. (2009) 3D tomographic wrist scanner for non-invasive determination of input function. *IEEE Nuclear Science Symposium and Medical Imaging Conference*. Orlando, FL.
- Ren, Hugang**, Yuan, Z.J., Waltzer, W.C., Kim, J., Liu, J.X., Miles, R. A. & Pan, Y.T. (2010) Enhancing Diagnosis of Bladder Cancer by 2D and 3D Optical Coherence Tomography (OCT). *Biomedical Optics*. Miami, FL.
- Yuan, Z.J., Luo, Z.C., **Ren, Hugang**, Du, C.W. & Pan, Y.T. (2010) Doppler Optical Coherence Tomography for Flow Imaging with Optimized Digital Frequency Ramping Method. *Biomedical Optics*. Miami, FL. (poster)
- Georgi, M.K.B., **Sharma, S.** & Frame, M.D. (2009) Microvascular flow patterns are altered in leptin deficient mice. *Frontiers in Microcirculation, Fall Meeting of the Microcirculatory Society*. Columbia, MO.
- Sheriff, Jawaad**, Chiu, P., Hoque, M., Jesty, J., & Bluestein, D. (2009) *In Vitro* Measurements of Shear-Induced Platelet Sensitization and Activation Thresholds. *2009 BMES Annual Fall Meeting*. Pittsburgh, PA.
- Xenos, M., Alemu, Y., Girdhar, G., **Sheriff, J.**, Jesty, J., Einav, S. & Bluestein, D. (2009) Optimizing Prosthetic Valves Thrombogenic Performance Combining Numerical and Experimental Approach. *2009 BMES Annual Fall Meeting*. Pittsburgh, PA.

- Girdhar, G., Claiborne, T., **Sheriff, J.**, Slepian, M., Einav, S., Jesty, J. & Bluestein, D. (2009) Platelet activity measurement in the CardioWest Total Artificial Heart (TAH) and in Ventricular Assist Device with Trileaflet Polymer Valves. *Biomedical Engineering Society Annual Fall Meeting*. Pittsburg, PA.
- Claiborne, T.E., Girdhar, G., **Sheriff, J.**, Jesty, J., Slepian, M.J., Benkowski, R., Pinchuk, L., & Bluestein, D. (2010) In-vitro Thrombogenicity Assessment of Mechanical Circulatory Support Devices and Prosthetic Heart Valves. *ASME Summer Bioengineering Conference*. Naples, FL.
- Girdhar, G., **Sheriff, J.**, Xenos, M., Alemu, Y., Claiborne, T., Slepian, M., Jesty, J., Einav, S., & Bluestein, D. (2009) Dynamic Shear Stress Induced Platelet Activation in Blood Recirculation Devices: Implications for Thrombogenicity Minimization. *2009 ASME Summer Bioengineering Conference*. Lake Tahoe, CA.
- Bluestein, D., Xenos, M., Girdhar, G., **Sheriff, J.**, Claiborne, T., Alemu, Y., Einav, S., & Jesty, J. (2009) Optimizing the Thrombogenic Performance of Blood Recirculating Devices. *FDA / NHLBI / NSF Workshop on Computer Methods for Cardiovascular Devices*. Rockville, MD.
- Trinward, Andrea**, Tommasini, Steven M., Lublinski, Svetlana, Miller Lisa M. & Judex, Stefan. (2009) Alendronate and Parathyroid Hormone Interventions Normalize the Bone-Fat Relationship in the OVX Rat Model. *Biomedical Engineering Society Annual Meeting*. Pittsburg PA. (poster)
- Ren, Hugang, **Yuan, Z.J.**, Waltzer, W.C., Kim, J., Liu, J.X., Miles, R. A. & Pan, Y.T. (2010) Enhancing Diagnosis of Bladder Cancer by 2D and 3D Optical Coherence Tomography (OCT). *Biomedical Optics*. Miami, FL.
- Yuan, Z.J.**, Luo, Z.C., Ren, Hugang, Du, C.W. & Pan, Y.T. (2010) Doppler Optical Coherence Tomography for Flow Imaging with Optimized Digital Frequency Ramping Method. *Biomedical Optics*. Miami, FL. (poster)

❖ **Patents**

- Claiborne, T.E.**, Gallocher, S., & Schoepfoerster, R.T. (2009) *Catheter Deliverable Artificial Multi-Leaflet Heart Valve Prosthesis and Intravascular Delivery System for a Catheter Deliverable Heart Valve Prosthesis*. WO/2009/111241.

❖ **Post-Doctorates Obtained and Professional Appointments**

- Cordovez-Alvarez, Juan.** (2009) Assistant Professor. Dept. of Civil & Environmental Engineering, *Universidad de los Andes*, Bogota, Columbia.
- Ferreri, Suzanne.** (2009) Postdoctoral Research Associate. Dept. of Biomedical Engineering, *Stony Brook University*, Stony Brook, NY.
- Luo, Zhongchi.** (2010) Postdoctoral Research Associate. Dept. of Biomedical Engineering, *Stony Brook University*, Stony Brook, NY.
- Ozcivici, Engin.** (2009) Postdoctoral Research Associate. *Massachusetts General Hospital*, Boston, MA.
- Siu, Kin.** (2010) Postdoctoral Research Associate. *UCLA*, Los Angeles, CA.
- Southekal, Sudeepti.** (2009) Research Fellow. Dept. of Radiology, *Brigham Women's Hospital, Harvard Medical School*, Boston, MA.

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❖ Other

Ravindranath, Bosky, Junnarker, S., Maramraju, S.H., Southehal, S., Purschke, M., Stoll, S., Tomasi, D., Vaska, P., Woody, C., Schyler, D. (2009) Initial results from the BNL dedicated simultaneous PET-MRI breast imaging system prototype. *Press Release at SNM's 56th Annual Meeting, Scientific Paper 249.* Toronto, ON.