

## Schedule of Events

- 1:00 pm** **PODIUM SESSION 3**
- Vivek Pradeep**  
*Robot Vision for the Visually Impaired*
- Rui Zhu**  
*Isoniazid Pharmacokinetics in HIV Perinatally Exposed Infants: The Pharmacogenetics of NAT2 Enzyme*
- Jae Kyoo Lee**  
*A Systematic Study of Retinal Ganglion Cell Apoptosis under Elevated Pressure using Live-Cell and Nanoscale Imaging*
- 2:00 pm** **COFFEE & POSTERS\***
- Group 3:** 2:10 - 2:40 pm  
**Group 4:** 2:40 - 3:10 pm
- 3:20 pm** **DEPT CHAIR ADDRESS**
- Prof. Michael C.K. Khoo, Ph.D.**
- 3:30 pm** **KEYNOTE TALK**
- Sunil S. Dalal, Ph.D.**
- 4:00 pm** **RECEPTION**
- 4:30 pm** **AWARDS**

\*Each Presenter is assigned a Poster Number and a Group Number. The times for each group are as follows:

- Group 1 (G1): 10:10 - 10:40 am  
Group 2 (G2): 10:40 - 11:10 am  
Group 3 (G3): 2:10 - 2:40 pm  
Group 4 (G4): 2:40 - 3:10 pm

## Sponsors



## History of the Symposium

The Fred S. Grodins Graduate Research Symposium began in 1997 as a forum for Biomedical Engineering graduate students to present their current research work and future plans. It also affords the faculty and students the opportunity to exchange ideas on the various areas of on-going research activities within the department, and provides new graduate students first-hand exposure to the research conducted by department faculty.

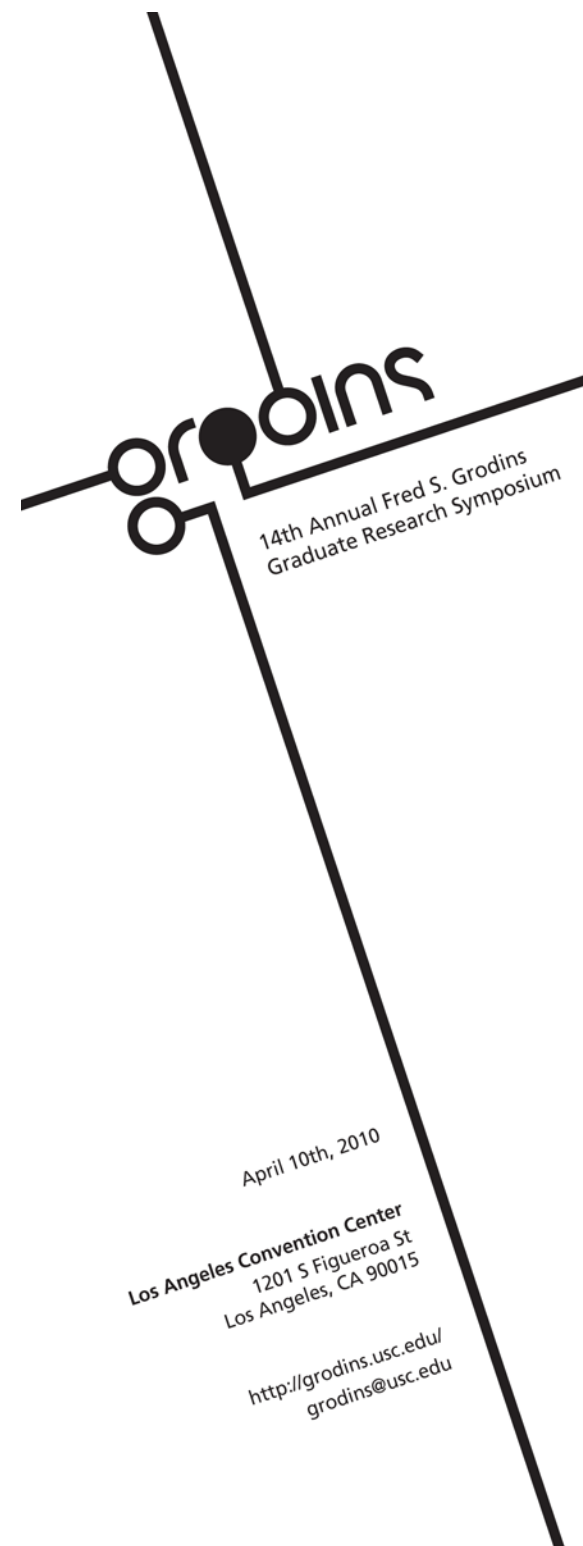
## About USC Biomedical Engineering

Established in 1976, the Department of Biomedical Engineering offers some of the most reputable undergraduate and graduate bioengineering training programs in the nation.

Its mission is to conduct original biomedical research involving the development and application of engineering approaches in biology and medicine, and to apply the knowledge acquired to improve human health and well-being.

## Schedule of Events

- 8:00 am** **REGISTRATION & BREAKFAST**
- 8:50 am** **WELCOME**
- 9:00 am** **PODIUM SESSION 1**
- Darryl Hwang**  
*Comparison of Limbic Regions FA Using Tractography-defined ROIs in AD and MCI*
- Wenli Wang**  
*Abnormalities in Baroreflex Sensitivity and Cardiac Autonomic Function: Independent Effects of Sleep-disordered Breathing and Impaired Glucose Metabolism*
- Nicholas Wettels**  
*Thermal Characterization of Objects using Tactile Information*
- 10:00 am** **COFFEE & POSTERS\***
- Group 1:** 10:10 - 10:40 am  
**Group 2:** 10:40 - 11:10 am
- 11:20 am** **PODIUM SESSION 2**
- Djordje Popovic**  
*Automated Sleep Staging Using One or Two EEG Channels on the Forehead*
- Joseph Munaretto**  
*Effect of Reaction Force and Elbow Orientations on Mechanical Load in Wheelchair Propulsion*
- 12:00 pm** **NETWORKING LUNCH**



## Poster Index

### Biosystems and Signals

Poster/Group	Presenter	Title
1/G1	Cole, Marc	<i>Biphasic Electrical Stimulation of Smooth Muscle</i>
2/G2	Kay, Brittany	<i>A Tumor-Regression Model for the Anti-Cancer Drug Apo2L/TRAIL</i>
3/G3	Kurse, Manish	<i>Extracting Mathematical Models Defining Index Finger Kinematics Using Symbolic Regression</i>
4/G4	Mallen-Ornelas, Gabriela	<i>Combined Parameter and Covariate PK/PD Population Analysis Using Mixture Models</i>
5/G1	Oliveira, Flavia	<i>Autonomic and Metabolic Effects of OSA in Overweight Children</i>
6/G2	Sangkatumvong, Suvimol	<i>Decrease in Microvascular Blood Flow and Autonomic Responses to Sighs in Sickle Cell Anemia</i>
7/G3	Soleymani, Sadaf	<i>Comparison between Charted and Continuously Recorded Vital Signs and Hemodynamic Data</i>
8/G4	Sutjandra, Liviawati	<i>Pharmacokinetic/Pharmacodynamic Modeling of Bronchodilation</i>
9/G1	Wu, Chia-Chin	<i>Network-Based Model to Identify Potential Therapeutic Targets in Breast, Colon, and Lung Cancers</i>

### Cell and Tissue Engineering

Poster/Group	Presenter	Title
10/G2	Kuwahara, Kenrick	<i>Cell-activated Release of BMP2 Using Transglutaminase Crosslinked Gelatin as a Delivery System</i>
11/G3	Nayar, Vinod	<i>Nanoindentation of Porcine Sclera</i>
12/G4	Zitting, Madison	<i>MicroRNA Microarray Analysis of Insulin-positive, Beta-like Cells Differentiated from Human Embryonic Stem Cells</i>

### Devices and Diagnostic Technology

Poster/Group	Presenter	Title
13/G1	Chen, Ruimin	<i>Lead-free NKLNT Piezoceramic and 1-3 Piezocomposite for High Frequency Ultrasound Transducer Application</i>
14/G2	Gutierrez, Christian	<i>A MEMS Parylene-based MicroNewton Force Sensor for Soft Tissue Sensing</i>
15/G3	Hara, Seth	<i>Electrode Array for the Detection of Dopamine through Electrochemical Methods</i>
16/G4	Inouye, Joshua	<i>Design and Fabrication of a Device for Studying Unstable Grasp Mechanics</i>

## Poster Index

### Devices and Diagnostic Technology, continued

Poster/Group	Presenter	Title
17/G1	Joseph, Anika	<i>Comparison of Cervical Intraepithelial Neoplasia Spectral Similarity Mapping Methods for Automated Analysis Aiding Diagnosis of Cervical Histological Slides</i>
18/G2	Kuo, Jonathan	<i>A Microfluidic Platform with Integrated Flow Sensing for Focal Chemical Stimulation of Cells and Tissue</i>
19/G3	Lee, Curtis	<i>Flexible PDMS Connector for Parylene-Based BioMEMS</i>
20/G4	Li, Xiang	<i>Integrated Ultrasound (US) and Optical Coherence Tomography (OCT) Probes and System for Intravascular Imaging</i>
21/G1	Lin, Chia-Hsien	<i>Signal Processing, Fabrication and Implementation of a Biomimetic Tactile Sensor Array with Force, Microvibration and Thermal Modalities</i>
22/G2	Nandyala, Sirish	<i>Wireless Power Delivery for Implantable MEMS Drug Delivery Pumps</i>
23/G3	Raina, Shashank	<i>Effect of Increased Load on Scapular Kinematics During Wheelchair Propulsion in Users with Paraplegia and Tetraplegia</i>
24/G4	Su, Zhe	<i>Tactile Feature Extraction Using Machine Learning Techniques</i>
25/G1	Yu, Fei	<i>Assessing Vascular Oxidative Stress by Concentric Bipolar Microelectrodes</i>
26/G2	Zheng, Fan	<i>Development of an Ultrasonic Non-Destructive Testing System with a 64-element High Frequency Phased Array Transducer</i>

### Imaging

Poster/Group	Presenter	Title
27/G3	Borzage, Matthew	<i>Simultaneous BOLD and NIRS Signal Correlation During Hypoxia</i>
28/G4	Chen, Yuling	<i>A 10MHz PZT-P[VDF-TrFE] Dual-layer Transducer for 3-D Ultrasound Imaging</i>
29/G1	Cunningham, Samantha	<i>Compatibility of an Epiretinal Prosthetic Device with a 3T MRI Scanner Environment</i>
30/G2	Huang, Chiun-Wei	<i>Design, Synthesis, and Evaluation of Non-Invasive MicroPET <math>\alpha 2\beta 1</math> Integrin Targeting Peptide Probe for Prostate cancer</i>
31/G3	Jeong, Jong Seob	<i>Real-Time Therapy and Imaging for Noninvasive HIFU Surgery</i>
32/G4	Le, Anh	<i>Decision Support Tools of a ePR System for Treatment Evaluation and Outcome Analysis of Prostate Cancer Patients Treated with Proton Therapy</i>

## Poster Index

### Imaging, continued

Poster/Group	Presenter	Title
33/G1	Lee, Changyang	<i>Transverse Acoustic Trapping of Small Lipid Particles Using Single Beam of High Frequency Transducers</i>
34/G2	Lee, Jasper	<i>Data Persistence and Migration in a Medical Imaging Informatics Data Grid</i>
35/G3	Lee, Namgyun	<i>The Application of Compressed Sensing on Diffusion Spectrum Imaging</i>
36/G4	Lee, Susan	<i>The Effects of in vivo Experimental Vitreous Syneresis on Drug</i>
37/G1	Ma, Kevin	<i>The Development of a Disease Oriented eFolder for Multiple Sclerosis Decision Support</i>
38/G2	Mung, Jay	<i>Using Ultrasound Signals to Localize a Catheter</i>
39/G3	Nguyen, Man	<i>Fresnel-based Beamforming for Low-cost Portable Ultrasound</i>
40/G4	Oh, Jin Ho	<i>Population Analysis of DNA Methylation Using Novel 3-D Image Analysis Methods</i>
41/G1	Park, Jinhyoung	<i>A Novel Approach for Compensating Transducer Response in High Frequency Coded Excitation Imaging</i>
42/G2	Shin, Jun Seob	<i>Acoustic Radiation Force Impulse Imaging of Xenopus Oocytes with High-Frequency Ultrasound</i>
43/G3	Sohn, Won Joon	<i>Formation of Myocardial Blood Flow Maps from ASL-MRI Data Acquired during Multiple Breath-Holds</i>
44/G4	Tsao, Sinchai	<i>Cerebral Spinal Fluid (CSF) Contamination Correction in MR-based Diffusion Tensor Imaging (DTI) Tractography of the Fornix in Brain Imaging Studies of Elderly Subjects</i>
45/G1	Wilkins, Bryce	<i>Diffusion Histogram as an Indicator of Intra-voxel Structure</i>
46/G2	Zhang, Lequan	<i>Design of a 64 Channel Analog Receive Beamformer for Ultrasound Linear Array</i>

### Neuroengineering

Poster/Group	Presenter	Title
48/G4	Allam, Sushmita	<i>A Multi-scale Model to Study the Influence of Post-synaptic Receptor Distribution on Neuronal Spike Timing</i>
49/G1	Behabadi, Bardia	<i>When Somatic Firing Undermines Dendritic Compartmentalization</i>
50/G2	Cao, Xiwu	<i>Adaptation of Retinal Ganglion Cells to Natural-Image Contrast</i>
51/G3	Chan, Ho Man	<i>Changes of Hippocampal Population Nonlinear Dynamics across Different Training Sessions in Behaving Animals</i>

## Poster Index

### Neuroengineering, continued

Poster/Group	Presenter	Title
52/G4	Cho, Alice	<i>Whole Cell Patch Clamp Recording of Mouse Retinal Ganglion Cells</i>
53/G1	Fishel, Jeremy	<i>Investigating the Effects of Fingerprints in Generating Microvibrations</i>
54/G2	Ivzan, Nadav	<i>Computational Estimation of Optimal Current Time Courses for Eliciting Action Potentials</i>
55/G3	Iyer, Arvind	<i>Evidence against Reliance on Retinal Temporal Codes for Detection Tasks</i>
56/G4	Jadi, Monika	<i>Effect of Inhibition on Pyramidal Cells: A Conceptual Model</i>
57/G1	Lee, Junkwan	<i>Elements of Template Matching in Human Expansion Center Perception Revealed in Masking Experiments</i>
58/G2	Lu, Ude	<i>High-Order Nonlinear Model of Single Neurons with Dynamic Threshold</i>
59/G3	Miri, Seyed	<i>Application of Neurally Inspired Edge Detection Algorithm to Medical Images and Its Comparison with Canny Edge Detector</i>
60/G4	Nanduri, Devyani	<i>Spatial Summation of Phosphenes with Electrode Pair Retinal Stimulation</i>
61/G1	Parikh, Neha	<i>Simulated Vision Experiments for Mobility Tasks using Peripheral Saliency Cues</i>
62/G2	Park, Hyung Ook	<i>Discrete Synapse Recurrent Neural Network for Nonlinear System Modeling</i>
63/G3	Ramachandra, Chaithanya	<i>Contextual Interactions at Natural Image Contours</i>
64/G4	Ray, Aditi	<i>Effect of Continuous Stimulation at the Electrode-Retina Interface</i>
65/G1	Srinivasan, Arthi	<i>Improving Virtual Channel Discrimination Using Current-Focusing in a Multi-Channel Context</i>
66/G2	Srinivasan, Vijay	<i>Hardware Implementation Efficiency of Laguerre Polynomials - A Case Study</i>
67/G3	Tsianos, George	<i>Studying the Intrinsic Properties of Spinal Connectivity in the Context of Multi-Joint Arm Movement</i>
68/G4	Weitz, Andrew	<i>Calcium Imaging of the Electrically Stimulated Retina</i>
69/G1	Yu, Penning	<i>Field Potentials and Picrotoxin-Induced Epileptiform Activity in Hippocampus</i>