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THURSDAY APRIL 14, 2016

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RESEARCH EXPO

Thursday April 14, 2016

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Program Schedule

1:30 PM	REGISTRATION
	Price Center, East Lobby - Level 2
2:00-4:30 PM	POSTER SESSION
	Price Center, West Ballroom A&B 200+ Graduate Students Display their Research Results
2:30-4:30 PM	FACULTY TALKS
	Price Center, Forum - Level 4
2:30 PM	A SYSTEMS APPROACH TO ENGINEERING MAMMALIAN CELLS FOR BETTER THERAPEUTICS Nathan Lewis | CHO Systems Biology Center
3:00 PM	REVERSE ENGINEERING THE BRAIN: FROM NEUROSCIENCE TO ENGINEERING AND BACK AGAIN Gabriel Silva | Bioengineering
3:30 PM	THE CHEMICAL ROLE OF 4 POUNDS OF BACTERIA THAT LIVE IN AND ON EACH OF US Pieter Dorrestein | Center for Microbiome Innovation
4:00 PM	ADVANCED MATERIALS AND MANUFACTURING PROMOTING INTERDISCIPLINARY RESEARCH AND STUDENT MOBILITY Olivia Graeve | CaliBaja Center for Resilient Materials & Systems
4:30- 6:00 PM	NETWORKING RECEPTION
	Price Center, East Ballroom Network with faculty, students and industry partners Best Poster Awards

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CHO SYSTEMS BIOLOGY CENTER

2:30 PM

A SYSTEMS APPROACH TO ENGINEERING MAMMALIAN CELLS FOR BETTER THERAPEUTICS

Nathan Lewis, Professor, Department of Pediatrics, UC San Diego School of Medicine

Over the past three decades, mammalian cells have emerged as key hosts for the production of therapeutic proteins. Indeed, of the top ten pharmaceuticals by global sales in 2014, six are produced in mammalian cells, such as Chinese hamster ovary (CHO) cells. Furthermore, in just the last few years, over half a trillion dollars worth of product has been produced in CHO cells. However, despite the success of several protein-based drugs, there is a growing awareness of the importance of controlling critical quality attributes (CQAs) that impact drug safety and efficacy, and that rational cell line engineering is often needed to control product quality. The hurdles limiting mammalian cell engineering are just now being overcome with the emergence of novel tools, resources, and analysis methods. In the CHO Systems Biology Center in the Jacobs School of Engineering, we are developing genomic and systems biology resources and big-data analytics to guide the rational engineering mammalian cells. In this talk, I will highlight computational approaches for managing big data for cell engineering and guiding the development of better drugs and biosimilars.

ABOUT: CHO SYSTEMS BIOLOGY CENTER

As world leaders in both systems biology and CHO research, the Center for CHO Systems Biology is uniquely positioned – and driven – to develop new resources and techniques that empower the biopharmaceutical industry to rationally engineer and optimize CHO cell lines for drug development.

CHO.UCSD.EDU

BIOENGINEERING

3:00 PM

REVERSE ENGINEERING THE BRAIN: FROM NEUROSCIENCE TO ENGINEERING AND BACK AGAIN

Gabriel Silva
Professor of Bioengineering

The brain epitomizes a complex dynamical system, where the emergent properties that result from the interactions of the 'stuff' that makes it up, e.g., molecules, neurons, glia, and networks, far surpass the properties of the individual components. From an engineering and design perspective, the question is how is this achieved? How do these components interact together as a dynamical system and what are the rules (algorithms) implemented in the biological substrate that achieve this? The answer to this has neurobiological and clinical implications because it would allow us to understand how the brain works in health and how it fails in disease, as well as what might be done to fix it. But it also has possible non-biological applications to engineered neuromimetic systems that attempt to reproduce the computational power and robustness of the biological brain. For example in areas such as robotics, data analytics, and novel neural computing architectures. This talk will discuss some of our own work past and present towards these goals as well as some recent work from others. And we will speculate on what might drive the field moving forward.

ABOUT THIS RESEARCH:

Professor Silva and colleagues are working to capture the core functionality and properties of neurobiological processes responsible for the processing of information in the brain. This includes computational robustness and fault tolerance, ultra-low-power high performance computing, high efficiency distributed decentralized computation and adaptive computing. One goal is to apply these insights to engineered systems such as machine learning, robotics, big data analytics, and new computing architectures. The researchers' efforts involve integrating experimental neurobiology with mathematical modeling, computation, and engineering, in order to iteratively inform algorithm development.

SILVA.UCSD.EDU

CENTER FOR MICROBIOME INNOVATION

3:30 PM

THE CHEMICAL ROLE OF 4 POUNDS OF BACTERIA THAT LIVE IN AND ON EACH OF US

Pieter Dorrestein, Professor of Pharmacology, Chemistry and Biochemistry

Here we describe the generation, processing, and analysis of multi-omics data platforms from human, environmental, and animal samples as a part of the the newly established Center for Microbiome Innovation and describe what opportunities there are to get involved with the center. With 16S rRNA amplicon, metagenomic and transcriptomic sequencing and mass spectrometry, we explore the relationship between chemistry and microbial communities. We will showcase how we can map such information with human skin and lungs in 3D. The first paper of the center that was submitted demonstrated that we can go from sample to data conclusions in less than 48 hours. While not yet routine, this achievement has far-reaching implications because it demonstrates that multi-omics methods can be applied in clinically relevant timeframes and approaches the speed of classical microbiology experiments.

ABOUT: CENTER FOR MICROBIOME INNOVATION

The UC San Diego Center for Microbiome Innovation leverages the university's strengths in clinical medicine, bioengineering, computer science, the biological and physical sciences, data sciences and more to coordinate and accelerate microbiome research. We also develop methods for manipulating microbiomes for the benefit of human and environmental health.

MICROBIOME.UCSD.EDU

CALIBAJA CENTER FOR RESILIENT MATERIALS & SYSTEMS

4:00 PM

ADVANCED MATERIALS AND MANUFACTURING PROMOTING INTERDISCIPLINARY RESEARCH AND STUDENT MOBILITY

Olivia Graeve, Professor of Mechanical and Aerospace Engineering

The CaliBaja Center for Resilient Materials & Systems supports and promotes research activities and technology development in the CaliBaja region, with emphasis in three strong technology sectors of the region: aerospace, biomedical devices, and manufacturing. The Center also connects the humanities, environmental sciences, and social sciences to promote bi-national student mobility and scientific collaborations. The Center brings together a multidisciplinary team of researchers and scholars that are highly responsive to: (1) the challenge of designing materials and systems for extreme environments such as those found in a variety of engineering applications (i.e., ultra-high temperatures, extreme pressures and deformations, radiation, acidic conditions, etc.); (2) the challenge of exploring the extreme social and economic contrasts found along the Tijuana-San Diego border, the busiest border in the world, a place where social extremes collide and converge to form a unique social fabric and an emerging bi-national identity. Both challenges require human capital highly versed in the newest technologies and a cultural understanding that can promote effective links between the two sides of the border.

ABOUT: CALIBAJA CENTER FOR RESILIENT MATERIALS & SYSTEMS

The Center is built around the concept of designing new materials and systems for extreme environments, as well as educating a technology-focused workforce for a thriving 21st century bi-national region. In the area of technology development, improvement and continued innovation of advanced technologies for aerospace, energy, nuclear, biomedical, and national security applications is critically dependent on the design and performance enhancement of new materials and devices. In particular, unique materials are required that can withstand extremes in stress, strain, temperature, pressure, chemical reactivity, photon or radiation flux, and electric or magnetic fields.

RESILIENTMATERIALS.UCSD.EDU

GRADUATE STUDENT POSTERS

SUSTAINABLE POWER AND ENERGY CENTER

1. IMPROVED, LOW-COST SILICON SOLAR CELL EMITTERS PRODUCED VIA LIQUID PHASE EPITAXY DOPING
Student: Ernesto Magana | Professor: David Fenning

2. SPATIALLY HETEROGENEOUS CHLORINE INCORPORATION IN ORGANIC-INORGANIC PEROVSKITE SOLAR CELLS
Student: Yanqi Luo | Professor: David Fenning

3. PREDICTING THE MECHANICAL PROPERTIES OF ORGANIC SEMICONDUCTORS
Student: Samuel Evan Root | Professors: Darren J. Lipomi, Gaurav Arya

4. LIQUEFIED GAS SOLVENT BASED ELECTROLYTE FOR ELECTROCHEMICAL ENERGY STORAGE DEVICE
Students: Yangyuchen Yang, Cyrus Rustomji | Professor: Ying S. Meng

5. ADDITIVES IN PEROVSKITE SOLAR CELL PLAY KEY ROLE
Student: Shen Wang | Professor: Ying S. Meng

6. DOPING STRATEGIES TO ENHANCE THE NA+ CONDUCTIVITY OF THE CUBIC NA3PS4 SUPERIONIC CONDUCTOR
Student: Zhuoying Zhu | Professor: Shyue Ping Ong

7. DISCOVERY OF NOVEL NARROW-BAND RED PHOSPHORS USING HIGH-THROUGHPUT FIRST PRINCIPLES DESCRIPTORS
Student: Zhenbin Wang | Professor: Shyue Ping Ong

8. ECO-DAC: ENERGY CONTROL OVER DIVIDE AND CONTROL
Student: Alper Sinan Akyurek | Professor: Tajana S. Rosing

CENTER FOR WEARABLE SENSORS

9. **A FULLY INTEGRATED 144 MHZ WIRELESS-POWER-RECEIVER-ON-CHIP WITH AN ADAPTIVE BUCK-BOOST REGULATING RECTIFIER AND LOW-LOSS H-TREE SIGNAL DISTRIBUTION**
   Students: Chul Kim, Jiwoong Park, Abraham Akinin, Sohmyung Ha, Rajkumar Kubendran, Hui Wang
   Professors: Gert Cauwenberghs, Patrick P. Mercier

10. **INTEGRATED WEARABLE ELECTRONICS WITH ENERGY HARVESTING**
    Student: Ahmed Taha Elthakeb Youssef | Professor: Shadi A. Dayeh

11. **A DIGITALLY ASSISTED DYNAMICALLY RECONFIGURABLE ANALOG FRONT-END WITH DATA-DEPENDENT POWER REDUCTION FOR PHYSIOLOGICAL SENSING APPLICATIONS**
    Student: Somok Mondal | Professor: Drew A. Hall

12. **METALLIC NANOISLANDS ON GRAPHENE AS HIGHLY SENSITIVE TRANSDUCERS OF MECHANICAL, BIOLOGICAL, AND OPTICAL SIGNALS**
    Student: Aliaksandr Zaretski | Professors: Darren J. Lipomi

13. **A 51 PW REFERENCE-FREE CAPACITIVE-DISCHARGING OSCILLATOR ARCHITECTURE OPERATING AT 2.8 HZ**
    Student: Hui Wang | Professor: Patrick P. Mercier

14. **WEARABLE SALIVARY METABOLITE MOUTHGUARD BIOSENSOR WITH INTEGRATED WIRELESS ELECTRONICS**
    Students: Somayeh Imani, Jayoung Kim
    Professors: Patrick P. Mercier, Joseph Wang

15. **A MULTI-CHANNEL EEG SYSTEM FEATURING SINGLE-WIRE DATA AGGREGATION VIA FM-FDM TECHNIQUES**
    Student: Julian Alexander Warchall | Professor: Patrick P. Mercier

16. **ORGANIC PHOTOSENSOR FOR THE SHORT WAVELENGTH INFRARED REGION**
    Students: Weichuan Yao, Zhenghui Wu | Professor: Tse Nga Ng

17. A WEARABLE FINGERNAIL CHEMICAL SENSOR: PH SENSING AT YOUR FINGERTIPS
Student: Jayoung Kim | Professor: Joseph Wang

18. STRETCHABLE TEXTILE-BASED ENZYMATIC BIOFUEL CELLS AND SELF-POWERED SENSORS
Students: Juliane R Sempionatto Moreto, Itthipon Jeerapan
Professor: Joseph Wang

19. HIGHLY STRETCHABLE PRINTED CNT-BASED ELECTROCHEMICAL DEVICES: SENSORS AND BIOFUEL CELLS
Student: Itthipon Jeerapan | Professor: Joseph Wang

20. THE INTERNET OF MEDICAL THINGS (IOMT) TO REMOTELY MONITOR PATIENTS WITH CHRONIC CONDITIONS: A STEP TOWARDS REDUCING PREVENTABLE HOSPITAL READMISSIONS FOR CONGESTIVE HEART FAILURE
Student: Sagar Bakliwal Jain | Professor: John T. Watson

CENTER FOR VISUAL COMPUTING

21. UNIFIED SHAPE AND BRDF ACQUISITION BY PHOTOMETRIC STEREO
Students: Zachary Paul Murez, Matteo Mannino
Professors: David Kriegman, Ravi Ramamoorthi

22. ALBEDO CORRECTION FOR RENDERING DOWNSAMPLED HETEROGENEOUS MEDIA
Student: Lifan Wu | Professor: Ravi Ramamoorthi

23. SINGLE IMAGE 3D FACE RECONSTRUCTION
Student: Muhammad Ahmed Riaz | Professor: Ravi Ramamoorthi

24. PATCH-BASED TEXTURE MAP OPTIMIZATION FOR INACCURATE GEOMETRIES
Students: Sai Bi, Nima Khademi Kalantari | Professor: Ravi Ramamoorthi

25. MINIMAL BRDF SAMPLING FOR TWO-SHOT NEAR-FIELD REFLECTANCE ACQUISITION
Student: Zexiang Xu | Professor: Ravi Ramamoorthi

26. RENDERING GLINTS ON HIGH-RESOLUTION NORMAL-MAPPED SPECULAR SURFACES
Student: Lingqi Yan | Professor: Ravi Ramamoorthi

27. HOLISTICALLY-NESTED EDGE DETECTION
Student: Saining Xie | Professor: Zhuowen Tu

28. GENERALIZING POOLING FUNCTIONS IN CONVOLUTIONAL NEURAL NETWORKS: MIXED, GATED, AND TREE
Student: Chenyu Lee | Professor: Zhuowen Tu

29. REAL-TIME OBJECT DETECTION FOR ROBOTIC PLATFORMS
Student: Zhaowei Cai | Professor: Nuno M. Vasconcelos

CALIBAJA CENTER FOR RESILIENT MATERIALS & SYSTEMS

30. THE P- AND N- DOPING OF GRAPHENE THROUGH SPECIFIC PLASMA PROCESSING
Students: Rajaram Narayanan, Aliaksandr Zaretski
Professors: Prabhakar R. Bandaru, Darren J. Lipomi

31. SUPERHYDROPHOBIC SURFACE MODULATION OF FLUID AND THERMAL TRANSPORT IN MICROCHANNELS
Student: David Ian Moreira | Professor: Prabhakar R. Bandaru

32. MORPHOLOGICAL CHARACTERISTICS AND INTERFACES OF GOLD/COBALT JANUS NANOPARTICLES
Student: Kyungah Seo | Professor: Olivia A. Graeve

33. EXPLORING THE FUNDAMENTAL BEHAVIOR OF TAILORED NANOSCALE CARBIDE MORPHOLOGIES: MATERIALS BY DESIGN FOR ULTRA-HIGH TEMPERATURE APPLICATIONS
Student: Tianqi Ren | Professor: Olivia A. Graeve

34. PHASE FORMATION IN MIXED DIVALENT HEXABORIDE POWDERS PRODUCED BY COMBUSTION SYNTHESIS
Students: James Timothy Cahill, Chris Pisano
Professor: Olivia A. Graeve

35. ELECTRICALLY-CONDUCTIVE MESOPOROUS CERAMICS FOR ENZYME CATALYSIS
Students: Shuang Qiao, Ekaterina Novitskaya, Flor Sanchez
Professors: Olivia A. Graeve, Rafael Vazquez-Duhalt

36. CORRELATION BETWEEN PARTICLE SIZE AND GRAIN SIZE DISTRIBUTIONS IN SINGLE/MULTIPHASE CERAMICS
Student: Keyur Karandikar | Professor: Olivia A. Graeve

37. MIMETIC BONE THROUGH 3D PRINTED TEMPLATING OF FREEZE CASTING
Student: Steven Eric Naleway
Professors: Joanna M. McKittrick, Marc A. Meyers

38. MECHANICAL PROPERTIES OF PORCINE CORTICAL BONE AND BIOINSPIRED BONE: VERIFICATION OF THE INTERPENETRATING COMPOSITE STRUCTURE OF BONE
Student: Frances Yenan Su | Professor: Joanna M. McKittrick

39. MAGNETIZED MATERIALS FOR BIOINSPIRED BONE SCAFFOLDS
Students: Michael Brian Frank, Sze Hei Siu, Jerry Ng, Ali Ismail, Ivan Torres, Chin-Hung Liu, Keyur Karandikar, Steven Naleway
Professor: Joanna M. McKittrick

40. 2-D BASED MICRO AND NANO FLUIDIC CHANNELS FOR SENSING AND FILTERING APPLICATIONS
Student: Yang Huang | Professor: Oscar Vazquez Mena

CENTER FOR EXTREME EVENTS RESEARCH

41. NUMERICAL SIMULATION OF HYDRAULIC FRACTURING USING MESHFREE METHOD
Student: Haoyan Wei | Professor: Jiun-Shyan Chen

42. TOWARDS IMAGE-BASED REAL-TIME SIMULATION FOR PATIENT-SPECIFIC SKELETAL MUSCLE
Student: Qizhi He | Professor: Jiun-Shyan Chen

43. RECENT ADVANCES IN MODELING EXTREME EVENTS AND APPLICATION TO HOMELAND SECURITY
Students: Guohua Zhou, Mike Hillman, Marco Pasetto, Frank Beckwith
Professor: Jiun-Shyan Chen

44. NANOCOMPOSITE FABRIC SENSORS FOR HUMAN PERFORMANCE AND HEALTH MONITORING
Student: Long Wang | Professor: Kenneth J. Loh

45. DAMAGE VISUALIZATION USING NANO-ENGINEERED STRUCTURAL MATERIALS AND TOMOGRAPHIC METHODS
Student: Sumit Gupta | Professor: Kenneth J. Loh

BIOENGINEERING

46. MICROPOWER INTEGRATED NANO-ENGINEERED RETINAL INTERFACES
Students: Abraham Akinin, Sohmyung Ha
Professors: Gert Cauwenberghs, Gabriel A. Silva

47. HUMANIZED MOUSE MODEL FOR THE STUDY OF THE HUMAN IMMUNE RESPONSE TO XENOGENEIC AND ALLOGENEIC BIOMATERIAL THERAPIES
Student: Raymond M. Wang | Professor: Karen L. Christman

48. ELECTROPHORETIC METHOD FOR MONITORING PROTEASE ACTIVITY RESPONSE TO HIGH-FAT MEAL IN PERSONS WITH TYPE 2 DIABETES
Students: Elaine Alexandra Skowronski, Augusta Esmeralda Modestino
Professor: Michael J. Heller

49. TRANSFER LEARNING WITH LARGE-SCALE DATA IN BRAIN-COMPUTER INTERFACES
Student: Chunshu Wei | Professor: Tzyy-Ping Jung

50. BRANCHED CHAIN AMINO ACID CATABOLISM SUPPORTS ADIPOCYTE DIFFERENTIATION AND LIPOGENESIS
Student: Courtney Renee Green | Professor: Christian M. Metallo

51. CARDIAC STRETCH-INDUCED TRANSCRIPTOMIC CHANGES ARE DIRECTION DEPENDENT
Student: Kyle Buchholz
Professors: Jeffrey Omens, Andrew D. Mc Culloch

52. THE EFFECT OF SINGLE NUCLEOTIDE POLYMORPHISMS ON DRUG RESPONSES IN ERYTHROCYTE METABOLISM
Students: Nathan Da-Wei Mih | Professor: Bernhard O. Palsson

53. CARTILAGE AND SYNOVIUM GENE EXPRESSION CHANGES DURING PTOA PROGRESSION
Student: Aimee Rose Raleigh | Professor: Robert L. Sah

54. COMPARING NETWORK EFFICIENCY OF AN AUTISM MODEL TO A TYPICALLY DEVELOPING MODEL
Student: Vivek Kurien George | Professor: Gabriel A. Silva

55. A NOVEL APPROACH TO QUANTIFY THE DYNAMIC MATRIX MECHANICAL PROPERTIES DURING CANCER GROWTH
Student: Shruti Krishna Kumar Davey | Professor: Shyni Varghese

56. A NOVEL APPROACH TO QUANTIFYING THE DIFFUSIVITY OF A TUMOR
Student: Han Liang Lim | Professor: Shyni Varghese

57. AGE-RELATED IN VIVO BIOMATERIAL-MEDIATED BONE REGENERATION
Student: Mengqian Liu | Professor: Shyni Varghese

58. APPLICATION OF 3D ORGAN-ON-CHIP TECHNOLOGY TOWARDS CREATING IN VITRO CANCER MODELS
Students: Aereas Aung, Jomkuan Theprungsirikul
Professor: Shyni Varghese

59. BIOMINERALIZED MATERIAL-ASSISTED HEALING OF CRITICAL-SIZED BONE DEFECTS
Student: Eva Carolina Gonzalez Diaz | Professor: Shyni Varghese

60. ENGINEERED 3D SKELETAL MUSCLE-ON-A-CHIP AS AN IN VITRO TOOL
Student: Gaurav Agrawal | Professor: Shyni Varghese

61. MODULATION OF CELL-CELL AND CELL-SUBSTRATE INTERACTIONS TO CONTROL THE MORPHOLOGY OF PERFUSED 3D MULTICELLULAR CULTURES
Students: Nailah Makini Seale, Lynn Theprungsirikul
Professor: Shyni Varghese

COMPUTER SCIENCE & ENGINEERING

62. MATE - AN IMPROVED BAMBOO TRANSLATOR FOR LARGE-SCALE LATENCY-TOLERANT MPI APPLICATIONS
Student: Sergio Martin | Professor: Scott B. Baden

63. DETECTION OF COLORECTAL CANCER RELATED ANTIBODY PEPTIDES USING PROTEOGENOMICS
Student: Seong Won Cha | Professor: Vineet Bafna

64. TUMOR AMPLICONS IDENTIFICATION AND RECONSTRUCTION
Students: Viraj Balkrishna Deshpande
Professors: Vineet Bafna, Pavel A. Pevzner, Chung K. Cheng

65. AN INVESTIGATION OF THE IMPACT OF CLASS SIZE ON PEER INSTRUCTION IN COMPUTING
Student: Soohyun Eileen Nam
Professors: William G. Griswold, Leonard E. Porter

66. CONTINUOUS SEMANTIC INSPECTION FOR SOFTWARE EVOLUTION
Students: Yan Yan, Massimiliano Menarini
Professor: William G. Griswold

67. SENSITIVITY ANALYSIS OF AN ANYTIME END-TO-END SYSTEM FOR RESOURCE ALLOCATION/ PATH PLANNING
Student: Jeng-Hau Lin | Professor: Rajesh Gupta

68. 1BIT COMPRESSED IMAGING
Students: Alireza Khodamoradi, Alric Althof | Professor: Ryan Kastner

69. 3D RECONSTRUCTION OF ARCHAEOLOGICAL SITES
Student: Quentin Kevin Gautier | Professor: Ryan Kastner

70. AERIAL JUNGLE EXPLORATION
Student: Alexandria Louise Shearer | Professor: Ryan Kastner

71. HARDWARE ACCELERATED GRAPH ANALYTICS IN A RECONFIGURABLE SYSTEM
Students: Dajung Lee | Professor: Ryan Kastner

72. LOCALIZATION OF MOBILE UNDERWATER SENSORS USING AMBIENT ACOUSTIC NOISE
Student: Perry W. Naughton | Professor: Ryan Kastner

73. MACHINE LEARNING FOR SYSTEM LEVEL DESIGN SPACE EXPLORATION ON FPGAS
Students: Pingfan Meng, Alric Althoff, Quentin Gautier
Professor: Ryan Kastner

74. SPHERECAM: AN ACOUSTIC-VIDEO SYSTEM FOR MONITORING ENDANGERED MARINE MAMMAL POPULATIONS
Student: Antonella Christine Wilby | Professor: Ryan Kastner

75. REDEFINING A CONSISTENT MICROBIAL REFERENCE DATABASE
Students: James Morton, Zech Xu | Professor: Rob Knight

76. FAST IN-MEMORY SQL ANALYTICS ON GRAPHS
Student: Chunbin Lin | Professor: Yannis Papakonstantinou

77. PSEUDO-CHROMOSOME ASSEMBLY OF LARGE AND COMPLEX GENOMES USING MULTIPLE REFERENCES
Student: Mikhail Alekseyevich Kolmogorov
Professor: Pavel A. Pevzner

78. FIBBING TO ALLEVIATE CONGESTION IN WAN AND DATA CENTER NETWORKS
Students: Ashish Kashinath, Justin Tee, Debjit Roy
Professor: George M. Porter

79. A COMPUTATIONAL MODELING APPROACH OF USER BEHAVIOR FOR SWARM CONTROL APPLICATIONS
Students: Pietro Mercati, Baris Aksanli | Professor: Tajana S. Rosing

80. APPROXIMATE COMPUTING USING CONFIGURABLE ASSOCIATIVE MEMORY
Student: Mohsen Imani | Professor: Tajana S. Rosing

81. TIME SERIES DATA CLUSTERING FOR INTERNET OF THINGS IOT APPLICATIONS
Student: Akanksha Maurya | Professor: Tajana S. Rosing

82. CHARACTERIZING RESIDENTIAL BROADBAND PERFORMANCE IN THE UNITED STATES: INFERRING CONGESTION ON INTERDOMAIN LINKS
Student: Alexander Manuel Gamero Garrido
Professors: Alex C. Snoeren, Kimberly Claffy

83. THE CRISP PERFORMANCE MODEL FOR GPGPUS
Student: Rajib Kumar Nath | Professor: Dean Tullsen

ELECTRICAL & COMPUTER ENGINEERING

84. 4×4 COMPLEX MIMO 2.4 PJ/MAC 2.4 MHZ BASEBAND MIXED-SIGNAL SPATIAL PROCESSOR WITH 84 DB INTERFERENCE SUPPRESSION IN 65NM CMOS
Students: Siddharth Joshi, Chul Kim, Sohmyung Ha
Professor: Gert Cauwenberghs

85. DEVELOPMENT AND IMPLEMENTATION OF FLEXIBLE, CONFORMAL AND HIGH DENSITY HUMAN CORTICAL IMPLANTS
Student: Mehran Ganji | Professor: Shadi A. Dayeh

86. COMBINING EEG-BASED MOTOR IMAGERY BCI WITH SUBJECT RESPONSE TO VISUAL FEEDBACK
Student: Mahta Mousavi | Professor: Virginia De Sa

87. CLOUD-BASED MOBILE HEALTH MONITORING AND GUIDANCE SYSTEM
Students: Wenchuan Wei, Yao Lu | Professor: Sujit Dey

88. RENEWABLE ENERGY-AWARE VIDEO DOWNLOAD IN CELLULAR NETWORKS
Student: Po-Han Chiang | Professor: Sujit Dey

89. INTEGRATED SURFACE PLASMON RESONANCE AND FARADAIC ELECTROCHEMICAL IMPEDANCE SPECTROSCOPY DEVICE FOR BIOSENSING
Student: Brandon John Sung Hyun Hong | Professor: Y. Shaya Fainman

90. NON-DEGENERATE MULTIPHOTON MICROSCOPY FOR DEEP BRAIN IMAGING
Student: Muhan Yang | Professor: Y. Shaya Fainman

91. SPATIAL AND WAVELENGTH CONVERSION PROCESSES IN INTEGRATED OPTICAL DEVICES
Students: Jordan Austin Davis, Rajat Sharma, Matthew Puckett, Andrew Grieco | Professor: Y. Shaya Fainman

92. SIMULATED RAMAN CORRELATION SPECTROSCOPY FOR NUCLEIC ACID-SILVER COMPOSITES BINDING ANALYSIS
Students: Lindsay Michelle Freeman, Alexei Smolyaninov, Lin Pang
Professor: Y. Shaya Fainman

93. ESTIMATING MOTOR SCORES WITH ACCELEROMETERS IN THE NEURO ICU
Students: John Hermiz, Alfredo Lucas, Venkatesh Elango
Professor: Vikash Gilja

94. NEURAL CORRELATES TO AUTOMATIC BEHAVIOR ESTIMATIONS FROM RGB-D VIDEO IN EPILEPSY UNIT
Student: Paolo Gutierrez Gabriel | Professor: Vikash Gilja

95. WHOLE-CELL ELECTROCHEMICAL BIOSENSORS FOR LOW-COST POINT-OF-CARE APPLICATIONS
Students: Alexander Chuan Sun, A.G. Venkatesh
Professor: Drew A. Hall

96. RAPID, POINT OF CARE ELECTROKINETIC SEPARATION DEVICES
Student: Daniel Heineck | Professors: Michael J. Heller, Sadik C. Esener

97. ADAPTIVE POLICIES FOR SCHEDULING OF ALL-OPTICAL DATA CENTERS
Student: Changheng Wang | Professor: Tara Javidi

98. MULTIBAND SPECTRUM SENSING WITH CODEBOOKS
Student: Nancy Ronquillo | Professor: Tara Javidi

99. 3D IC IMPLEMENTATIONS WITH MIX-AND-MATCH DIE STACKING
Students: Jiajia Li, Kwangsoo Han | Professor: Andrew B. Kahng

100. ILP-BASED CO-OPTIMIZATION OF CUT MASK LAYOUT, DUMMY FILL AND TIMING FOR SUB-14NM BEOL TECHNOLOGY
Students: Lutong Wang, Kwangsoo Han, Hyein Lee
Professor: Andrew B. Kahng

101. SCALABLE DETAILED PLACEMENT LEGALIZATION FOR COMPLEX SUB-14NM CONSTRAINTS
Students: Hye In Lee, Kwangsoo Han | Professor: Andrew B. Kahng

102. DIRECTIONAL METALLIC NANOCUBE-DIMER ANTENNA FOR THE ENHANCEMENT OF THE SPONTANEOUS EMISSION RATE OF QUANTUM DOTS
Students: Babak Bahari, Ricardo Tellez-Limon | Professor: Boubacar Kante

103. PLASMONIC NANOSTRUCTURES FOR NANO-SCALE SENSING: PATH TO AN ALL-OPTICAL INTEGRATED SENSOR
Student: Ashok Kodigala
Professors: Boubacar Kante, Y. Shaya Fainman

104. WET SULFUR PASSIVATION OF THE INTERFACES BETWEEN HIGH-K DIELECTRICS AND SIGE(001)
Student: Maximillian Samuel Clemons | Professor: Andrew Kummel

105. SPECTRUM ENGINEERING FOR RECONSTRUCTIVE SPECTROSCOPY
Student: Eric Huang | Professor: Zhaowei Liu

106. A 1.65 MW PLL-FREE PSK RECEIVER EMPLOYING SUPER-REGENERATIVE PHASE SAMPLING
Student: Dhongue Lee | Professor: Patrick P. Mercier

107. ACCURATE LITHIUM-ION BATTERY PARAMETER ESTIMATION WITH CONTINUOUS TIME SYSTEM IDENTIFICATION METHODS
Student: Bing Xia
Professors: Chris Mi, Raymond A. De Callafon, Truong Nguyen

108. ACCELERATED WOUND HEALING THROUGH ELECTRICAL STIMULATION
Students: Praful Jain, Udit Parekh | Professors: Tse Nga Ng, Yu-Hwa Lo

109. DETECTING TEMPORALLY CONSISTENT OBJECTS IN VIDEOS THROUGH OBJECT CLASS LABEL PROPAGATION
Student: Subarna Tripathi
Professors: Truong Nguyen, Serge J. Belongie

110. LOMO: LOCAL ORDINAL MODEL FOR FACIAL ANALYSIS IN VIDEOS
Student: Karan Sikka | Professors: Truong Nguyen, Marian Bartlett

111. REAL-TIME SIGN LANGUAGE FINGERSPELLING RECOGNITION USING CONVOLUTIONAL NEURAL NETWORKS FROM DEPTH MAP
Students: Byeong Keun Kang, Subarna Tripathi
Professor: Truong Nguyen

112. STEREO PANORAMA STITCH BASED ON POINT CLOUD REPROJECTION
Student: Ji Dai | Professors: Truong Nguyen, Jurgen P. Schulze

113. LEAKAGE FIELD PROFILES BY NONLINEAR METAMATERIAL ABSORBERS
Student: Sanghoon Kim | Professor: Daniel F. Sievenpiper

114. METASURFACE BASED MICRO-PLASMA DEVICES
Student: Shiva Piltan | Professor: Daniel F. Sievenpiper

115. PATTERNING TECHNIQUE FOR GENERATING ARBITRARY ANISOTROPIC IMPEDANCE SURFACES
Student: Ji Yeon Lee | Professor: Daniel F. Sievenpiper

116. SCALABLE HIGH POWER MICROWAVE SOURCE & TUNABLE THRESHOLD NONLINEAR ABSORBING METASURFACES
Student: Aobo Li | Professor: Daniel F. Sievenpiper

117. CNN HAND AND FACE DETECTOR WITH HEAD POSE ESTIMATION ON THE ROAD
Student: Kevan Chun Yiu Yuen | Professor: Mohan M. Trivedi

118. EMBEDDED VISION SYSTEM FOR SURROUND UNDERSTANDING OF HIGHWAY DRIVING
Student: Sean Lee | Professor: Mohan M. Trivedi

119. LOOKING AT PEDESTRIANS AT DIFFERENT SCALES: A MULTI-RESOLUTION APPROACH AND EVALUATIONS
Student: Rakesh Nattoji Rajaram | Professor: Mohan M. Trivedi

120. LONG-TERM, MULTI-CUE TRACKING OF HANDS IN VEHICLES
Student: Akshay Rangesh | Professor: Mohan M. Trivedi

121. MONITORING DRIVER BEHAVIOR AND GENERATING DRIVE-QUALITY REPORTS ON EMBEDDED COMPUTING PLATFORMS
Student: Frankie Lu | Professor: Mohan M. Trivedi

122. THE RHYTHMS OF HEAD, EYES AND HANDS AT STOP CONTROLLED INTERSECTIONS
Student: Sujitha Catherine Martin | Professor: Mohan M. Trivedi

123. SELF-CATALYZED GA(N)ASP NANOWIRES AND GAASP/GANASP CORE-SHELL NANOWIRES GROWN ON SI (111) BY GAS-SOURCE MOLECULAR BEAM EPITAXY
Student: Rui La | Professor: Charles W. Tu

124. BAYESIAN MODEL ADAPTATION FOR CROWD COUNTS
Student: Bo Liu | Professor: Nuno M. Vasconcelos

125. 3D NANO-FABRICATION AND LOW VOLTAGE NANO-ELECTRO-MECHANICAL SYSTEMS (NEMS)
Student: Zhelin Sun
Professors: Jie Xiang, Yu-Hwa Lo, Yuan Taur, Prabhakar R. Bandaru, Renkun Chen

126. DENSE RECONSTRUCTION AND VISUAL TRACKING FOR MINIMALLY INVASIVE SURGERY
Student: Yi Luo | Professor: Michael Yip

127. DEVELOPMENT OF A MODULAR COLONOSCOPY ROBOT
Student: Kwesi Joe Rutledge | Professor: Michael Yip

MECHANICAL & AEROSPACE ENGINEERING

128. GRAPHENE OXIDE AS A P-DOPANT AND ANTI-REFLECTION COATING LAYER, IN GRAPHENE /SILICON SOLAR CELLS
Student: Serdar Yavuz | Professor: Prabhakar R. Bandaru

129. MODELS FOR IMPEDANCE MATCHED PLASMONIC GRATINGS
Student: Anna Alexander | Professor: Prabhakar R. Bandaru

130. MAGNETO CALORIC PROPERTIES OF NANO-GRAINED NIMNSN HEUSLER ALLOY
Student: Dongwon Chun | Professors: Renkun Chen, Sungho Jin

131. OPTIMAL FILTERING FOR GRID EVENT DETECTION FROM REAL-TIME SYNCHROPHASOR DATA
Student: Sai Akhil Reddy Konakalla
Professor: Raymond A. De Callafon

132. REAL-TIME ACTIVE DAMPING CONTROL OF REAL POWER FLUCTUATIONS
Student: Xin Zhao | Professor: Raymond A. De Callafon

133. WILDFIRE SPREAD PREDICTION AND ASSIMILATION FOR FARSITE USING ENSEMBLE KALMAN FILTERING
Student: Thayjesnarayankannapp Srivas
Professor: Raymond A. De Callafon

134. FABRICATION OF MONO-SIZED MESOPORES ON GOLD-COATED POLYSTYRENE PARTICLE SURFACES FOR ENZYME IMMOBILIZATION
Student: Seongcheol Choi | Professor: Olivia A. Graeve

135. OPTIMAL SWITCHABLE LOAD SIZING AND SCHEDULING FOR STANDALONE RENEWABLE ENERGY SYSTEMS
Student: Abdulelah Habib
Professors: Jan P. Kleissl, Raymond A. De Callafon

136. ASSESSMENT AND APPLICATION OF 3D PRINTED TURBINE BLADES
Student: Spencer Riley Ellis | Professor: John B. Kosmatka

137. EVALUATION OF FIBER OPTIC STRAIN SENSORS FOR APPLICATIONS IN STRUCTURAL HEALTH MONITORING
Student: Benjamin Levi Martins | Professor: John B. Kosmatka

138. AUTOMATING PARTICLE ACCELERATOR SUBSYSTEMS
Student: Gregory Matthew Mills | Professor: Miroslav Krstic

139. BOUNDARY CONTROL AND ESTIMATION OF A SOLID-LIQUID INTERFACE IN A MELTING MATERIAL
Student: Shumon Koga | Professor: Miroslav Krstic

140. CONTROL OF EXTREME ULTRAVIOLET LIGHT GENERATION VIA INFINITE DIMENSIONAL BACKSTEPPING
Student: Stephen Chen | Professor: Miroslav Krstic

141. OBSERVER DESIGN FOR AN IPDE WITH TIME-VARYING COEFFICIENTS
Student: Shuxia Tang | Professor: Miroslav Krstic

142. STATE AND PARAMETER ESTIMATION IN LITHIUM-ION BATTERIES WITH MULTIPLE MATERIAL ELECTRODES
Student: Leobardo Camacho Solorio | Professor: Miroslav Krstic

143. THREE-DIMENSIONAL PROPAGATION OF TSUNAMI-GENERATED INTERNAL WAVES IN THE ATMOSPHERE
Student: Yue Wu | Professor: Stefan Llewellyn Smith

144. DIRECTED SELF-ORGANIZATION IN MULTI AGENT SWARMS
Student: Vishaal Krishnan | Professor: Sonia Martinez Diaz

145. A METHOD TO IMPROVE QUANTUM EFFICIENCY OF NANOSIZED PHOSPHORS FOR NEAR UV-LEDS
Students: Jungmin Ha, Ekaterina Novitskaya
Professors: Joanna M. McKittrick, Olivia A. Graeve, Gustavo Hirata

146. COMPARATIVE ANALYSIS OF THE WOODPECKER SKULL
Students: Jae-young Jung, Steven E. Naleway, Kathryn Y. Kang, Yajur N. Maker, Vincent Sherman | Professor: Joanna M. McKittrick

147. DENSIFICATION MECHANISM AND MECHANICAL PROPERTIES OF TUNGSTEN POWDER CONSOLIDATED BY SPARK PLASMA SINTERING
Student: Geuntak Lee | Professor: Joanna M. McKittrick

148. STRUCTURE AND MECHANICAL BEHAVIOR OF HIGH IMPACT RESISTANT BIOLOGICAL MATERIALS: HORNS AND HOOVES
Student: Wei Huang | Professor: Joanna M. McKittrick

149. A LIGHTWEIGHT, BIOLOGICAL COMPOSITE WITH TAILORED STIFFNESS: THE FEATHER VANE
Student: Tarah Naoe Sullivan | Professor: Marc A. Meyers

150. COUPLING LASER SHOCK EXPERIMENTS AND MASSIVE ATOMISTIC SIMULATIONS
Student: Eric Nicholas Hahn | Professor: Marc A. Meyers

151. DENSIFICATION, MICROSTRUCTURE AND GRAIN GROWTH IN SPARK PLASMA SINTERING OF ZIRCONIUM CARBIDE POWDER
Student: Xialu Wei | Professors: Marc A. Meyers, Eugene Olevsky

152. MECHANICAL PERFORMANCE, CONSTITUTIVE RESPONSE, AND FRAGMENTATION OF TAILORED MESOSTRUCTURED ALUMINUM-BASED COMPACTS
Student: Andrew Marquez | Professor: Marc A. Meyers

153. OPTIMIZATION OF MATERIAL STRUCTURE DURING SPARK PLASMA SINTERING
Student: Diletta Giuntini | Professors: Marc A. Meyers, Eugene Olevsky

154. STRUCTURE AND TOUGHENING MECHANISM OF COELACANTH SCALES
Student: Haocheng Quan | Professor: Marc A. Meyers

155. THE GANOID SCALES OF ATRACTOSTEUS SPATULA: POTENTIAL FOR BIOINSPIRED FLEXIBLE ARMOR
Student: Vincent Robert Sherman | Professor: Marc A. Meyers

156. MACRODISPERSION INDUCED BY PERMEABLE SURFACE TOPOLOGY
Student: Bowen Ling
Professors: David Saintillan, Ilenia Battiato

157. AERODYNAMIC EFFECTS ON FLAME SPREAD AND EXTINCTION
Student: Luca Carmignani | Professor: Kalyanasundaram Seshadri

158. DESIGN A PROGRAMMABLE AND DISPOSABLE ENDOSCOPE (SMART ENDOSCOPE) TO ELIMINATE OR REDUCE THE INFECTION RATE.
Student: Anay Mahesh Pandit | Professors: Frank E. Talke, Vlado Lubarda

159. DEVELOPMENT OF AN OPTICAL BASED INTRAOCULAR PRESSURE SENSOR
Students: Alex Minh Giang Phan, Phuong Truong
Professor: Frank E. Talke

160. INVESTIGATION OF TRIBOCHARGING AT THE HEAD-DISK INTERFACE
Student: Tan Duy Trinh | Professor: Frank E. Talke

161. INVESTIGATION OF WEAR AND ELECTROSTATIC FORCES AT THE HEAD DISK INTERFACE
Student: Karcher William Morris | Professor: Frank E. Talke

162. OPTICAL ANTENNA DESIGN FOR THE SIMULATION AND OPTIMIZATION OF HEAT ASSISTED MAGNETIC RECORDING SYSTEMS
Student: Benjamin Ying-Xiu Suen | Professor: Frank E. Talke

163. WEAR BETWEEN LIFT TAB AND LOAD/UNLOAD RAMP IN HARD DISK DRIVES
Student: Youyi Fu | Professor: Frank E. Talke

164. A GENERAL MULTISCALE HYBRID METHOD FOR TRANSPORT THROUGH COMPLEX POROUS MEDIA
Student: Mehrdad Yousefzadeh Eshkoori
Professors: Daniel M. Tartakovsky, Ilenia Battiato

165. ULTRA-LONG TIME PREDICTION OF REACTIVE SOLUTE TRANSPORT IN GEOLOGIC FORMATIONS USING SPATIO-TEMPORAL UPSCALING: THEORY AND NUMERICAL EXPERIMENTS
Student: Farzaneh Rajabi
Professors: Daniel M. Tartakovsky, Ilenia Battiato

166. DESIGN AND CHARACTERIZATION OF SOFT PNEUMATIC ACTUATORS CAPABLE OF BEND AND TWIST SENSING
Students: Benjamin Shih, Dylan Drotman
Professors: Michael T. Tolley, Miroslav Krstic

167. CALCULATION OF THE HYDROGEN DIFFUSION COEFFICIENT WITH ATOMIC TRAPPING IN ION BEAM DAMAGED TUNGSTEN
Student: Joseph Lincoln Barton | Professor: George R. Tynan

168. EROSION OF AL IN DIII-D TOKAMAK DIVERTOR AND PISCES-B LINEAR PLASMAS
Student: Christopher Chrobak | Professor: George R. Tynan

169. HEAVY IMPURITY ENTRAINMENT INDICATING MACH PROBE WAKE EFFECT
Student: Jordan James Gosselin | Professor: George R. Tynan

170. OPTIMAL CONTROL TECHNIQUES FOR RESISTIVE WALL MODES IN TOKAMAKS
Student: Mitchell Dobbs Pears Clement | Professor: George R. Tynan

171. SYNTHETIC DIAGNOSTICS OF PLASMA TURBULENCE MODEL WITH APPLICATION TO MAGNETIC CONTROLLED FUSION
Student: Payam Vaezi | Professor: George R. Tynan

172. PROGRAMMABLE RNA RECOGNITION WITH CRISPR/CAS9
Student: David Allen Nelles | Professor: Gene Yeo

NANOENGINEERING

173. ACCELERATED DEGRADATION OF HYDROGEN PEROXIDE SENSITIVE POLYMERIC NANOPARTICLES VIA CHEMICAL AMPLIFICATION
Student: Sangeun Lee | Professor: Adah Almutairi

174. ANISOTROPIC INTERACTIONS BETWEEN ISOTROPIC, GRAFTED SPHERICAL NPS WITHIN A POLYMER MATRIX
Student: Tsungyeh Tang | Professor: Gaurav Arya

175. ATOMISTIC, COARSE-GRAINED, AND STATISTICAL MECHANICAL MODELING OF DYNAMIC DNA NANOSTRUCTURES
Student: Ze Shi | Professor: Gaurav Arya

176. SYNTHESIS AND INTEGRATION OF NANOFIBERS FOR MINIMALLY INVASIVE NEURAL STIMULATION
Student: Spencer Patrick Ward
Professors: Sadik C. Esener, Donald J. Sirbuly

177. ENHANCED ANTENNA EFFECT AND FLUORESCENT RESONANT ENERGY TRANSFER OF DNA CONJUGATES COMPLEXED WITH SURFACTANTS AND DIVALENT METAL IONS
Students: Taeseok Oh, Jae-young Choi | Professor: Michael J. Heller

178. REAL TIME MEASUREMENT OF BLOOD COAGULATION TIME USING A FDA-APPROVED DYE
Student: Junxin Wang | Professor: Jesse V. Jokerst

179. TRACKING AND AIDING THE SURVIVAL OF STEM CELLS BY INDOCYANINE GREEN AND INSULIN GROWTH FACTOR-LOADED MESOPOROUS CELLULAR FOAM
Students: Fang Chen, Junxin Wang, Fang Wang
Professor: Jesse V. Jokerst

180. STRETCHABLE AND ULTRA-FLEXIBLE ELECTRONICS: WEARABLE SOLAR CELLS
Student: Timothy Francis O'Connor | Professor: Darren J. Lipomi

181. ON THE STRAIN RATE SENSITIVITIES OF KERATIN FIBERS
Student: Yang Yu | Professor: Marc A. Meyers

182. A ONE-DIMENSIONAL OPTICAL WAVEGUIDE PLATFORM FOR THE STATISTICAL CHARACTERIZATION OF COLLOIDAL PARTICLES
Students: Joshua Tan Villanueva, Qian Huang
Professor: Donald J. Sirbuly

183. DESIGN AND APPLICATION OF PIEZOELECTRIC COMPOSITE MATERIALS
Students: James Lance Middlebrook, Jeffrey Chen
Professor: Donald J. Sirbuly

184. HIGH QUALITY HYPERBOLIC AND PLASMONIC METAMATERIALS DEPOSITED BY ATOMIC LAYER DEPOSITION
Student: Conor Tomas Riley | Professors: Donald J. Sirbuly, Zhaowei Liu

185. NANOPARTICLE-POLYMER-NANOFIBER OPTICAL PROBE FOR BIOLOGICAL MECHANICAL MEASUREMENTS
Students: Qian Huang, Lee Joon, Justin Liu, Angsantikul Pavimol, Josh Villanueva, Spencer Patrick Ward | Professor: Donald J. Sirbuly

186. PNEUMATICALLY INFLATED DIELECTRIC ELASTOMERS FOR ACTUATION, SENSING, AND ENERGY HARVESTING
Student: Caleb Michael Christianson | Professor: Michael T. Tolley

187. 2D HYBRID MULTILAYERED GRAPHENE/QUANTUM DOT PHOTOVOLTAIC SOLAR CELLS
Student: Malcolm Xaviera Lockett | Professor: Oscar Vazquez Mena

188. EXPLORATION OF GRAIN SIZE EFFECT, TEXTURE DEVELOPMENT AND AGING EFFECT ON SUPERELASTIC FERROUS-BASED ALLOYS
Student: Cheng Zhang | Professor: Kenneth S. Vecchio

189. ACOUSTIC MICROMACHINES
Student: Fernando Soto | Professor: Joseph Wang

190. ENERGETIC STABILITY, OXIDATION STATES, AND ELECTRONIC STRUCTURE OF BI-DOPED NATAO3: A FIRST-PRINCIPLES HYBRID FUNCTIONAL STUDY
Student: Paul Hyunggyu Joo | Professor: Kesong Yang

191. TWO-DIMENSIONAL ELECTRON GAS DRIVEN BY STRAIN-INDUCED POLARIZATION IN NONPOLAR AHFO3/SRTIO3 (001) (A=CA, SR, AND BA) HETEROSTRUCTURE: FIRST-PRINCIPLES ANALYSIS

Student: Jianli Cheng | Professor: Kesong Yang

192. COATING NANOFIBER SCAFFOLDS WITH BETA CELL MEMBRANE TO PROMOTE CELL PROLIFERATION AND FUNCTION

Student: Qiangzhe Zhang | Professor: Liangfang Zhang

193. PLATELET MEMBRANE-COATED NANOPARTICLES FOR BIOINTERFACING

Students: Ashley Victoria Kroll, Diana Dehaini
Professor: Liangfang Zhang

STRUCTURAL ENGINEERING

194. NONLINEAR AEROELASTIC ANALYSIS OF FLAPPING MICRO AIR VEHICLES
Student: Enrico Santarpia
Professors: David J. Benson, Luciano Demasi

195. PILE BEHAVIOR DUE TO EARTHQUAKE INDUCED LIQUEFACTION AND LATERAL SPREADING IN LARGE SCALE TESTING
Student: Ahmed Amr Ebeido | Professor: Ahmed-Waeil M. Elgamal

196. SYSTEM IDENTIFICATION ESTIMATION OF SOIL PROPERTIES AND STUDY OF SOIL STRUCTURE INTERACTION
Student: John Li | Professor: Ahmed-Waeil M. Elgamal

197. SEISMIC RESPONSE MECHANISMS OF HIGHWAY BRIDGES
Student: Abdullah S. Almutairi | Professor: Ahmed-Waeil M. Elgamal

198. DUCTILE BASE CONNECTIONS FOR THE REDUCTION OF SEISMIC DEMANDS
Students: Christopher Anderson Trautner
Professor: Tara C. Hutchinson

199. EXPERIMENTAL AND NUMERICAL STUDIES OF FREESTANDING STRUCTURAL SYSTEMS
Student: Christine Wittich | Professor: Tara C. Hutchinson

200. SEISMIC DRIFT COMPATIBLE DESIGN OF ARCHITECTURAL PRECAST CONCRETE CLADDING: TIEBACK CONNECTIONS AND CORNER JOINTS
Student: Elide Pantoli | Professor: Tara C. Hutchinson

201. SEISMIC RESPONSE CONTROL SYSTEMS AT STRATEGIC ELEVATION OF BUILDINGS: ANALYTICAL INVESTIGATION AND SIMULATED EXPERIMENTAL TESTS
Student: Gloria Faraone | Professor: Tara C. Hutchinson

202. DAMAGE OF HIGH ENERGY WIDE AREA BLUNT IMPACT TO COMPOSITE AIRCRAFT FUSELAGE STRUCTURE
Student: Moonhee Nam | Professor: Hyonny Kim

203. INVESTIGATION OF DELAMINATION BEHAVIOR AT THE VICINITY OF FASTENER LOCATIONS IN COMPOSITE STRUCTURES
Student: Mimi Ngo | Professor: Hyonny Kim

204. NON-DESTRUCTIVE EVALUATION METHODS FOR DETECTING MAJOR DAMAGE IN INTERNAL COMPOSITE STRUCTURAL COMPONENTS
Students: Hyung Suk Kim, Margherita Capriotti
Professors: Hyonny Kim, Francesco Lanza Di Scalea

205. SIMULTANEOUS MATERIAL AND STRUCTURAL OPTIMIZATION BY MULTISCALE TOPOLOGY OPTIMIZATION
Student: Raghavendra Sivapuram | Professor: Hyunsun A. Kim

206. FUSION OF 2D AND 3D IMAGING DATA FOR THE NON-DESTRUCTIVE ASSESSMENT OF THE BAPTISTERY DI SAN GIOVANNI IN FLORENCE, ITALY
Student: Michael Robert Hess | Professor: Falko Kuester

207. IR THERMOGRAPHY FOR STRUCTURAL DAMAGE DETECTION
Students: Margherita Capriotti, Simone Sternini
Professor: Francesco Lanza Di Scalea

208. 3D DEFORMATION BEHAVIOR OF A GEOSYNTHETIC REINFORCED SOIL BRIDGE ABUTMENT
Students: Wenyong Rong, Yewei Zheng | Professor: John S. McCartney

209. SEISMIC DAMAGE REDUCING STRUCTURAL COMPONENTS: ROCKING WALLS AND ISOLATING SYSTEMS
Student: Arpit Nema | Professor: Jose I. Restrepo

210. SHAKE-TABLE TESTING AND NUMERICAL MODELING OF PARTIALLY GROUTED REINFORCED MASONRY STRUCTURES
Student: Andreas Koutras | Professor: Pui-Shum Shing

211. UPDATE OF NONLINEAR MODELS FOR REINFORCED MASONRY WALLS IN ASCE 41
Student: Jianyu Cheng | Professor: Pui-Shum Shing

212. COMPOSITE STRUCTURES WITH EMBEDDED FIBER OPTIC SENSORS
Student: Anthony Joseph Whitaker | Professor: Michael D. Todd

213. ESTIMATING POWER FROM A DOWNHOLE PIEZOELECTRIC ENERGY HARVESTING SYSTEM
Student: Eric John Kjolsing | Professor: Michael D. Todd

214. EXPERIMENTAL STUDY OF PROPPANT PARTICLE-PARTICLE INTERACTION MICROMECHANICS DURING FLOW AND TRANSPORT IN THE FRACTURE
Student: Lan Luo | Professor: Ingrid Tomac

215. SAN DIEGO-TIJUANA EARTHQUAKE SCENARIO
Student: Konstantinos Kosmidis | Professor: Yael D. Van Den Einde

DEPARTMENTS AND RESEARCH CENTERS

AGILE RESEARCH CENTERS

CaliBaja Center for Resilient Materials & Systems	resilientmaterials.ucsd.edu
CHO Systems Biology Center	cho.ucsd.edu
Center for Extreme Events Research	ceer.ucsd.edu
Center for Microbiome Innovation	microbiome.ucsd.edu
Center for Visual Computing	viscomp.ucsd.edu
Center for Wearable Sensors	wearablesensors.ucsd.edu
Sustainable Power and Energy Center	spec.ucsd.edu

JACOBS SCHOOL ACADEMIC DEPARTMENTS

Bioengineering	be.ucsd.edu
Computer Science & Engineering	cse.ucsd.edu
Electrical & Computer Engineering	ece.ucsd.edu
Mechanical & Aerospace Engineering	maeweb.ucsd.edu
NanoEngineering	ne.ucsd.edu
Structural Engineering	structures.ucsd.edu

AFFILIATED RESEARCH INSTITUTES

Qualcomm Institute (Calit2 at UC San Diego)	www.calit2.net
Center for Algorithmic & Systems Biology	casb.ucsd.edu
Center for Energy Research	cer.ucsd.edu
Center for Magnetic Recording Research	cmrr.ucsd.edu
Center for Networked Systems	cns.ucsd.edu
Center for Wireless Communications	cwc.ucsd.edu
Cymer Center for Control Systems and Dynamics	ccsd.ucsd.edu
Information Theory & Applications Center	ita.ucsd.edu
Intitute for Contextual Robotics Systems	contextualrobotics.ucsd.edu
Institute of Engineering in Medicine	iem.ucsd.edu
Powell Structural Research Labs	structures.ucsd.edu
San Diego Supercomputer Center	www.sdsc.edu

POSTER JUDGES

Alex Barajas	Envision Engineering
Charles Bergan	Qualcomm
Dustin Blair	Illumina
Shane Bowen	Illumina
Jeff Brittan	SeaSpine
Kyle Bulloch	Thermo Fisher Scientific
Laura Cervino	UC San Diego
Richard Chen	Miyamoto International
Sung Hwan Cho	NanoCellect Biomedical
Ted Clowes	Cubic Defense Applications Group
Patrick Convery	Raytheon
Nolan Davis	Leidos
Silvia De Dea	Cymer, an ASML company
Nik Devereaux	ViaSat
Raheleh Dilmaghani	SPAWAR Systems Center Pacific
Gary Dorrance	SPAWAR Systems Center Pacific
Wayne Dunstan	Cymer, an ASML company
Steven Ehlers	General Atomics
Karl Francis	Accriva Diagnostics
Jeff Freedman	US Navy, FRCSW, Coronado
Donal Gavagan	Solar Turbines
Jeff Glasson	VMware
Tran Hai	Illumina
Steve Harrington	Flometrics
Kathy Herring Hayashi	Qualcomm

POSTER JUDGES

Matthew Hedayat	STG
Lazarro Herrara	Solar Turbines
Leo Holland	General Atomics
Roger Hoyt	Hoyt Associates
David Hutches	UC San Diego
Robin Ihnfeldt	General Engineering & Research
Rahul Kapadia	Cymer, an ASML company
Mike Kappes	IQ-Analog
Jesse Keller	Space Exploration Technologies
Craig Kirkpatrick	Verizon Telematics
Dan Kline	Novo Engineering
Sam Knight	LocationSmart
Arne Knudsen	Kyocera America
Michael Krupp	Von Liebig Center
Senmao Lin	CliniComp, Intl.
James Lu	Helix
Gene Marsh	Qualcomm
David McElfresh	Oracle
Sami Megally	Kleinfelder
Dwight Navis	Motivate!
Adam O'Neill	Georgetown University
Michael Paquette	Qualcomm
Luis Pineda	Retired, Qualcomm
William Proffer	Leidos
Naomi Ramos	Northrop Grumman

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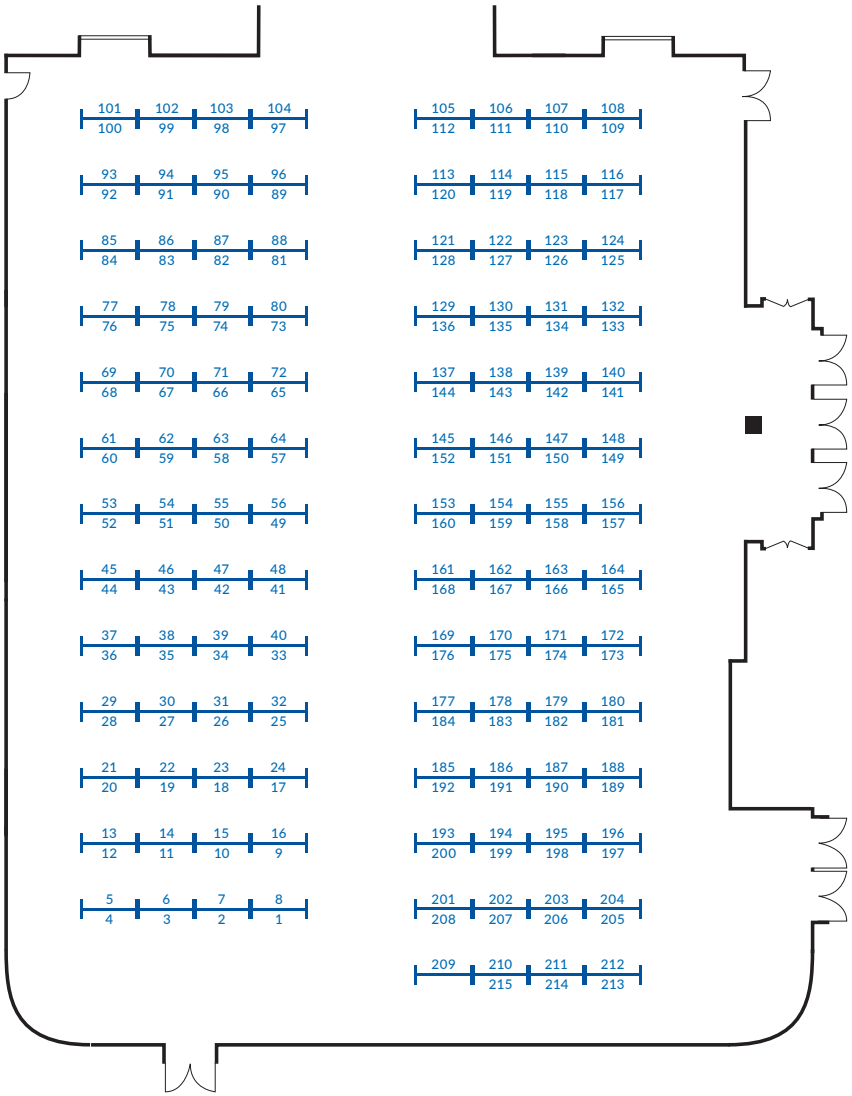
Enrico Ros	Qualcomm Technologies
Tim Rueth	UC San Diego
Maurice Sabado	Leidos
Jeff Sandubrae	UC San Diego
Aaron Sathrum	General Atomics
Edward Savarese	ImageTech
Gail Slemon	Northrop Grumman
Jason Steiner	Natera
Tricia Sur	ATA Engineering
Eric Takeuchi	Daylight Solutions
Aref Tehranian	Illumina
Devang Thakkar	DCM Consulting
Mayank Tiwari	Qualcomm Technologies
William Townsend	General Atomics - ASI
Jim Wilk	Northrop Grumman
Ryan Woods	Xenco Medical
Jim Wurzbach	Raytheon
True Xiong	Samsung
Yohei Yamamuro	Simplexity Product Development

NOTES

NOTES

Poster Session Map

WEST BALLROOM



ENTRANCE

Poster Numbers

AGILE RESEARCH CENTERS

Sustainable Power and Energy Center	1-8
Center for Wearable Sensors	9-20
Center for Visual Computing	21-29
CaliBaja Center for Resilient Materials & Systems	30-40
Center for Extreme Events Research	41-45

ACADEMIC DEPARTMENTS

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Computer Science & Engineering	62-83
Electrical & Computer Engineering	84-127
Mechanical & Aerospace Engineering	128-172
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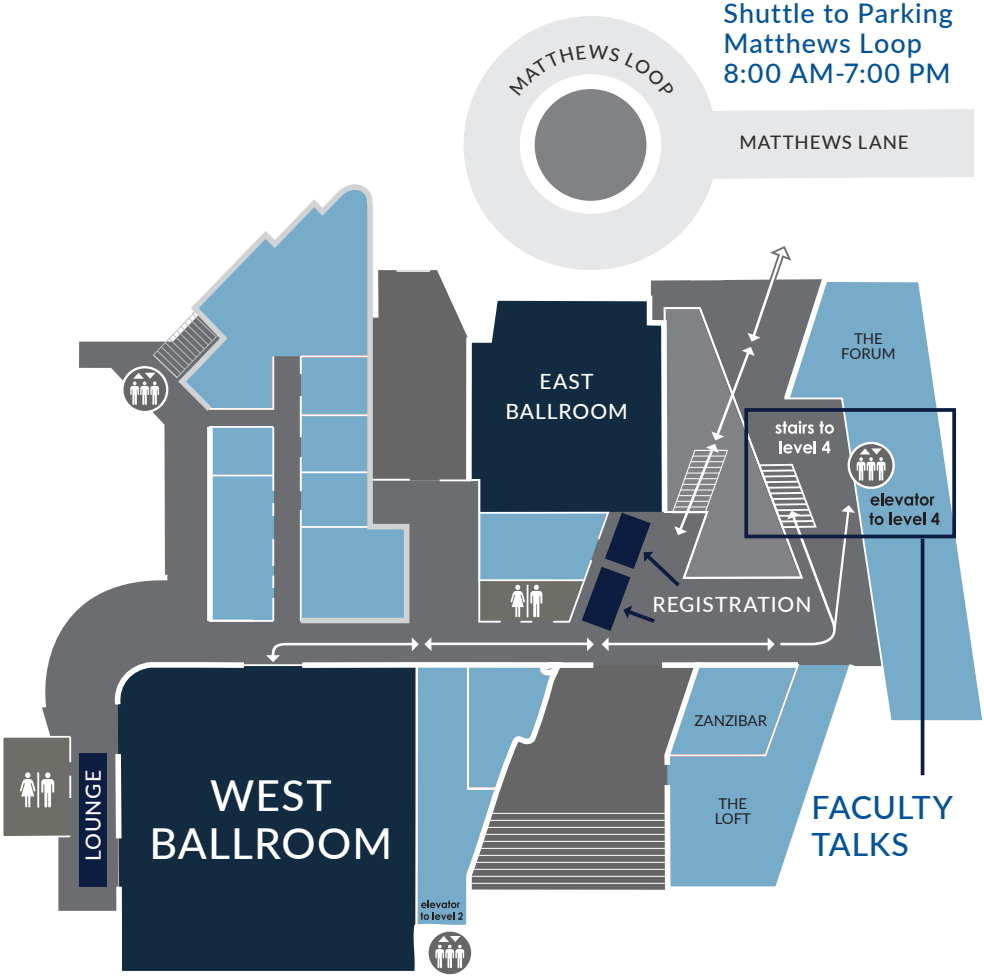
Structural Engineering	194-215

Price Center Map

Poster Session: Level 2 (West Ballroom)
Faculty Talks: Level 4 (the Forum)
Networking Reception: Level 2 (East Ballroom)
Parking Shuttle: 8:00 AM–7:00 PM