SYMPOSIUM PROGRAM

THURSDAY, JUNE 27

9:00 a.m. - 5:00 p.m.	**Check-in and Registration**	**Leo & Dottie Kolligian Library (KL) 155, Lantern**
9:00 a.m. - 11:00 a.m.	**Exhibitor and Poster Setup**	**Classroom & Office Building 2 (COB2), 392, 3rd Floor Hallway**
11:00 a.m. - 12:00 p.m.	**Lunch**	**KL 155, Lantern**
12:00 p.m. – 12:20 p.m.	**Welcome Remarks** ARIEL ESCOBAR, PHD, UC MERCED PROFESSOR AND CHAIR, DEPARTMENT OF BIOENGINEERING MARK MATSUMOTO, PHD, BCEEM, UC MERCED DEAN, SCHOOL OF ENGINEERING	**Lakireddy Auditorium, Classroom & Office Building (COB) 102**
12:30 p.m. – 1:00 p.m.	**Plenary Talk 1** IGOR EFIMOV, PHD, THE GEORGE WASHINGTON UNIVERSITY PROFESSOR, CHAIR, DEPARTMENT OF BIOMEDICAL ENGINEERING	**Lakireddy Auditorium, COB 102**
1:15 p.m. – 2:35 p.m.	**Concurrent Oral Sessions I (Computational Bioengineering)** VICTOR MUÑOZ, PHD, UC MERCED PROFESSOR, DEPARTMENT OF BIOENGINEERING **JOSE ZAMORA, UC MERCED** STOCHASTIC SPATIAL AND TEMPORAL POPULATION-BASED MODEL FOR THE CO-EMERGENCE OF VASCULAR PATTERNS **FAN WU, UC DAVIS** DEAD BACTERIAL ABSORPTION OF ANTIMICROBIAL PEPTIDES UNDERLIES COLLECTIVE TOLERANCE **VICTOR MUÑOZ, UC MERCED** TRANSCRIPTION ANTENNAE: A NOVEL MOLECULAR MECHANISM FOR GENE TRACKING AND CONTROL BY EUKARYOTIC TRANSCRIPTION FACTORS	**COB2, 110**

ZACHARY BALLARD, UCLA
COMPUTATIONAL SENSING WITH A MULTIPLEXED VERTICAL FLOW ASSAY FOR HIGH-SENSITIVITY C-REACTIVE PROTEIN QUANTIFICATION

1:15 p.m. – 2:35 p.m. **Concurrent Oral Session I (Biomaterials and Drug Delivery I)** **COB2, 130**
ANAND SUBRAMANIAM, PHD, UC MERCED
ASSISTANT PROFESSOR, DEPARTMENT OF BIOENGINEERING

YIPING GUO, UC MERCED
A SELF-DELIVERY DRUG SYSTEM FOR CANCER THERAPY

ALEXANDER LI, UC MERCED
TEMPORALLY DECOUPLED GROWTH AND LOADING OF A PROTEIN CARGO INTO POLYMERSOMES USING CELLULOSE PAPER

SHAHIN SHAMS, UC DAVIS
THE ENCAPSULATION AND RELEASE OF LENTIVECTORS AND ADENO-ASSOCIATED VECTORS FROM DEGRADABLE ALGINATE HYDROGELS

2:40 p.m. – 4:00 p.m. **Concurrent Oral Session II (Medical Devices and Instrumentation I)** **COB2, 110**
ARIEL ESCOBAR, PHD, UC MERCED
PROFESSOR AND CHAIR, DEPARTMENT OF BIOENGINEERING

ALEX DOWNS, UCSB
TOWARDS MULTI-DAY, REAL-TIME MOLECULAR MEASUREMENTS USING ELECTROCHEMICAL APTAMER-BASED BIOSENSORS

JENNIFER WALKER, UCSB
A MEMS DEVICE FOR HIGH-THROUGHPUT TRAUMATIC BRAIN INJURY

HATICE CEYLAN KOYDEMIR, UCLA
DETECTION OF NOSEMA CERANAE IN HONEY BEES USING A MOBILE MICROSCOPE

FIELD PORTABLE SMARTPHONE-BASED READER FOR TURBIDITY ANALYSIS

2:40 p.m. – 4:00 p.m. **Concurrent Oral Session II (Molecular and Cellular Engineering I)** **COB2, 130**
EVA DE ALBA, PHD, UC MERCED
ACTING ASSOCIATE PROFESSOR, DEPARTMENT OF BIOENGINEERING

ISABELLA BAGDASARIAN, UC RIVERSIDE
AUTONOMOUS AND NON-AUTONOMOUS HIPPO SIGNALING IN SENESCENCE

GEORGE WAY, UC RIVERSIDE
A HIGH-SENSITIVE FRET LABELING ASSAY IDENTIFIES A NOVEL SUMOYLATION SITE IN THE INFLUENZA A VIRUS NS1 PROTEIN

YI-YEN TSAI, UC MERCED
EFFECTS OF ROCK DUST ON AIRWAY MUCIN SWELLING AND AGGREGATION

CHIH-WEN NI, UC MERCED
IDENTIFICATION OF NOVEL FLOW-SENSITIVE GENES DURING VASCULAR DEVELOPMENT IN ZEBRAFISH

4:10 p.m. - 4:25 p.m. **Memorial in Honor of Dimitri Morikis PhD** **COB2, 130**

4:30 p.m. – 6:30 p.m.	**Poster Session I**	**COB2, 392, 3rd Floor Hallway**
4:30 p.m. – 5:40 p.m.	**Rapid-Fire Poster Presentations I** MARIA-ELENA ZOGHBI, PHD, UC MERCED ASSISTANT PROFESSOR, SCHOOL OF NATURAL SCIENCES **CHRISTIAN BURNS, UC MERCED** IN VIVO THYMUS IMAGING AND HEMODYNAMICS IN MICE **NEGAR TEHRANI, UC MERCED** NEW APPROACHES TO STUDY THYMIC SEEDING & REGENERATION **NOAH GOSHI, UC DAVIS** A PRIMARY CELL CULTURE MODEL FOR NEUROINFLAMMATION **HAKEEM OMOTAYO, UC RIVERSIDE** STEM ANALYSIS OF EARLY INFLAMMATORY PATHWAYS IN RAT BRAINS FOLLOWING MCAO **DANIEL LEWIS, UC DAVIS** ENGINEERED STOCHASTIC ADHESION BETWEEN MICROBES AS A PROTEC-TION MECHANISM AGAINST ENVIRONMENTAL STRESS **BASHARAT JAHAN, UC MERCED** DIFFERENTIATION AND EXPANSION OF ENDOTHELIAL CELLS: DIFFERENCES AND CONSISTENCIES ACROSS MULTIPLE HUMAN PLURIPOTENT STEM CELL LINES **NOAH PACIFICI, UC DAVIS** ENVIRONMENT-RESPONSIVE TWO-FLUOROPHORE REPORTER SYSTEM: A POTENTIAL TOOL TO MONITOR PARTICULATE VOMOCYTOSISA **LINSHAN ZHU, UC DAVIS** A TEMPERATURE SENSITIVE GENE EXPRESSION CASSETTE IN MAMMALIAN CELLS **ALFREDO HERNANDEZ, UC DAVIS** INTERMEDIATE MONOCYTE ACTIVATION IN CARDIOVASCULAR DISEASE MEDIATED THROUGH CD11C	**COB2, 392**
6:30 p.m. – 6:45 p.m.	**Break**	**KL 155, Lantern**
6:45 p.m. – 7:15 p.m.	**Plenary Talk 2** HEIKE WULFF, PHD, UC DAVIS PROFESSOR, DEPARTMENT OF PHARMACOLOGY	**Lakireddy Auditorium, COB 102**
7:30 pm – 8:30 pm	**Mixer**	**Yablokoff-Wallace Dining Center**
7:30 pm – 9:30 pm	**Dinner**	**Yablokoff-Wallace Dining Center**

SYMPOSIUM PROGRAM

FRIDAY, JUNE 28

7:00 a.m. - 5:00 p.m.	**Registration**	**Leo & Dottie Kolligian Library (KL) 155, Lantern**
7:00 a.m. – 8:00 a.m.	**Breakfast**	**KL 155, Lantern**
7:00 a.m. – 8:00 a.m.	**The BIC Steering Committee Meeting**	**KL 232**
7:00 a.m. - 9:00 a.m.	**Exhibitor and Poster Setup**	**Classroom & Office Building 2 (COB2), 392, 3rd Floor Hallway**
8:00 a.m. – 8:30 a.m.	**Plenary Talk 3** RAMSEY D. BADAWI, PHD, UC DAVIS MEDICAL CENTER PROFESSOR, VICE-CHAIR, DEPARTMENT OF RADIOLOGY, CHIEF OF THE DIVISION OF NUCLEAR MEDICINE	**Lakireddy Auditorium, Classroom and Office Building (COB) 102**
8:40 a.m. – 9:55 a.m.	**Plenary Talk 4** **DR. SHU CHIEN** HONOREE SPEAKER SESSION & REMARKS FROM ARTHUR ELLIS, PHD, VICE PROVOST OF UCOP & SCOTT SIMON, PHD, PROFESSOR, DEPARTMENT OF BIOMEDICAL ENGINEERING, UC DAVIS	**Lakireddy Auditorium, COB 102**
10:00 a.m. – 11:15 a.m.	**Concurrent Oral Sessions III (Biomedical Imaging I)** CHANGQING LI, PHD, UC MERCED ASSOCIATE PROFESSOR, DEPARTMENT OF BIOENGINEERING **IGNACIO ROMERO, UC MERCED** TIME-DOMAIN X-RAY LUMINESCENCE COMPUTED TOMOGRAPHY: NUMERICAL SIMULATIONS **YICHEN WU, UCLA** DEEP LEARNING-BASED PARTICLE AGGREGATION SENSOR FOR HIGH-THROUGHPUT VIRUS DETECTION MOBILE LABEL-FREE BIO-AEROSOL SENSING USING DEEP NEURAL NETWORKS	**COB2, 110**

10:00 a.m. – 11:15 a.m.	**Concurrent Oral Session III (Neuroengineering)** FRED WOLF, PHD, UC MERCED ASSISTANT PROFESSOR, BIOENGINEERING DEPARTMENT **BETH LOPOUR, UCI** DATA-DRIVEN ANALYSIS OF HIGH FREQUENCY OSCILLATIONS TO IMPROVE SEIZURE LOCALIZATION **HEATHER BORTFELD, UC MERCED** CORTICAL ACTIVATION CORRELATES WITH SPEECH UNDERSTANDING AFTER COCHLEAR IMPLANTATION **RAMEN SAHA, UC MERCED** TWO FUNCTIONALLY DISTINCT SIGNALING CASCADES ARE REQUIRED TO EFFICIENTLY COUPLE NEURONAL ACTIVITY WITH IMMEDIATE EARLY GENE TRANSCRIPTION **XUECAI GE, UC MERCED** DISCOVERY OF NEW SIGNALING TRANSDUCERS IN THE PRIMARY CILIUM WITH PROXIMITY BIOTINYLATION	**COB2, 130**
11: 15 a.m. – 11:30 a.m.	**Break**	**KL 155, Lantern**
11:30 a.m. – 12:10 a.m.	**BIC 2020 Vision for California-wide BME**	**KL 232**
11:40 a.m. – 1:20 p.m.	**Lunch**	**KL 155, Lantern**
1:20 p.m.– 3:20 p.m.	**Poster Session II**	**COB2, 392, 3rd Floor Hallway**
1:20 p.m. – 2:00 p.m.	**Rapid-Fire Poster Presentations II** MARK MATSUMOTO, PHD, BCEEM, UC MERCED DEAN, SCHOOL OF ENGINEERING **DENIZ AKPINAROLGLU, UC MERCED** EMERGENT DYNAMICS OF ELASTIC FILAMENTS ANIMATED BY DIRECTIONAL MOTOR INDUCED FORCES STUDIED USING BROWNIAN DYNAMICS SIMULATIONS **RAYMOND YEUNG, UC RIVERSIDE** MODELING PARTICLE-PARTICLE INTERACTIONS IN THE TRANSPORT OF FLAT PLATE PARTICLES IN MICROCHANNEL FLOWS **PARVEEN KUMAR, UC MERCED** SINGLE AND MULTI-PARTICLE TRACKING TO STUDY TRANSPORT PROPERTIES AND VISCOELASTICITY OF BIOPOLYMER SOLUTIONS **HOWARD WINET, UCLA** MIGHT CORRELATION BE CAUSALITY? THE CRITERIA OF BRADFORD HILL **ALI RAHIMPOUR, UC MERCED** TRACKING DIFFERENTIAL ACTIVATION OF PRIMARY AND SUPPLEMENTARY MOTOR CORTEX ACROSS TIMING TASKS: AN FNIRS VALIDATION STUDY **JAGVEER SINGH, UC DAVIS** MACHINE LEARNING BASED DESIGN OF PEPTIDE NANOMATERIALS FOR BIOMEDICAL APPLICATIONS	**COB2, 392**

CLAIRE BISPO, UCSC
POPPY: PORTABLE PROGESTERONE PRODUCTION IN YEAST

SUHANI NAGPAL, UC MERCED
A NOVEL MOLECULAR LEGO APPROACH TO MEASURE THE MARGINAL FOLDING COOPERATIVITY OF INTRINSICALLY DISORDERED PROTEINS

3:20 p.m. – 3:40 p.m.	**Break**	**KL 155, Lantern**
3:40 p.m. – 4:55 p.m.	**Concurrent Oral Session IV (In vivo ex vivo microscopy)** JOEL SPENCER, PHD, UC MERCED ASSISTANT PROFESSOR, DEPARTMENT OF BIOENGINEERING, UC MERCED A NOVEL MOLECULAR LEGO APPROACH TO MEASURE THE MARGINAL FOLDING COOPERATIVITY OF INTRINSICALLY DISORDERED PROTEINS **ZOLTAN GOROCS, UCLA** LABEL-FREE MONITORING OF ALGAE USING A HIGH THROUGHPUT, FIELD-PORTABLE IMAGING FLOW CYTOMETER **AREL ESCOBAR, UC MERCED** THERMODYNAMICS OF INTRACELLULAR CA2+ DYNAMICS ASSESSED BY FLUORESCENCE LOCAL FIELD OPTICAL MAPPING (FLOM) REVEALS MOLECULAR MECHANISMS OF CA^{2+} ALTERNANS GENESIS	**Lakireddy Auditorium, COB 102**
3:40 p.m. – 4:55 p.m.	**Concurrent Oral Session V (Stem Cells and Tissue Engineering I)** ANNA E. BEAUDIN, PHD, UC MERCED ASSISTANT PROFESSOR, DEPARTMENT OF BIOMOLECULAR NESTOR OVIEDO, PHD, UC MERCED ASSOCIATE PROFESSOR, DEPARTMENT OF MOLECULAR CELL BIOLOGY **MAHA ZAMAN, UC MERCED** CELL CULTURE AND REPROGRAMMING OF ORAL MUCOSAL EPITHELIAL CELLS INTO INDUCED PLURIPOTENT STEM CELLS **WILL LEINEWEBER, UCSD** INTEGRATED BIOPHYSICAL ANALYSES OF CELL-ECM INTERACTIONS TOWARDS A SYSTEMS UNDERSTANDING **NESTOR OVIEDO, UC MERCED** ELECTRIC REGULATION OF STEM CELLS BEHAVIOR	**COB 105**
5:00 p.m. – 6:20 p.m.	**Concurrent Oral Session V (Molecular and Cellular Engineering II)** ARVIND GOPINATH, PHD, UC MERCED ASSISTANT PROFESSOR, DEPARTMENT OF BIOENGINEERING **VASILIOS MORIKIS, UC DAVIS** TENSILE FORCE TRANSMITTED THROUGH LFA-1 BONDS MECHANOREGULATE NEUTROPHIL INFLAMMATORY RESPONSE **EMMET FRANCIS, UC DAVIS** INVESTIGATING HUMAN NEUTROPHIL PHAGOCYTIC SPREADING DYNAMICS AND CALCIUM SIGNALING BY VARYING OPSONIN DENSITY	**Lakireddy Auditorium, COB 102**

JIAYU LIAO, UC RIVERSIDE
DEVELOP QFRET ASSAYS AS A TOOLBOX FOR QUANTITATIVE SYSTEMS BIOLOGY AND DRUG DISCOVERY

6:30 p.m. – 7:00 p.m.	**Plenary Talk 5** **CRYSTAL RIPPLINGER, PHD, UC DAVIS** ASSOCIATE PROFESSOR, DEPARTMENT OF BIOENGINEERING AND PHARMACOLOGY	**Lakireddy Auditorium, COB 102**
7:30 p.m. – 10:00 p.m.	**Reception**	**Vista Ranch**

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SYMPOSIUM PROGRAM

SATURDAY, JUNE 29

7:00 a.m. – 12:00 p.m.	**Registration**	**Leo & Dottie Kolligian Library (KL) 155, Lantern**
7:00 a.m. – 8:30 a.m.	**Exhibitor and Poster Setup**	**Classroom & Office Building (COB2), 392, 3rd Floor Hallway**
7:00 a.m. – 8:00 a.m.	**Breakfast**	**KL 155, Lantern**
8:00 a.m. – 8:30 a.m.	**Plenary Talk 6** ZEV BRYANT, PHD, STANFORD UNIVERSITY ASSOCIATE PROFESSOR, DEPARTMENT OF BIOENGINEERING AND STRUCTURAL BIOLOGY	**Lakireddy Auditorium, Classroom and Office Building (COB) 102**
8:40 a.m. – 11:00 a.m.	**Poster Session III**	**COB2, 392, 3rd Floor Hallway**
8:40 a.m. – 9:40 a.m.	**Rapid-Fire Poster Presentations III** HEATHER BORTFELD, PHD, UC MERCED PROFESSOR, DEPARTMENT OF PSYCHOLOGY **JUN FANG, UCLA** A NANOPARTICLE-MICROGEL DRUG DELIVERY SYSTEM FOR TREATING MYOCARDIAL INFARCTION **JENNIFER YANG, UC RIVERSIDE** DIRECT DELIVERY OF NEUREGULIN-1 TO THE SURFACE OF THE BRAIN FOLLOWING DECOMPRESSIVE CRANIECTOMY **LILIAN DAVILA, UC MERCED** TOWARD EFFICIENT BIO-INSPIRED EYE DRUG DELIVERY DEVICES **MARINA GABRIEL , UC DAVIS** MANIPULATING ELECTROSTATIC INTERACTIONS AND MECHANICAL PROPERTIES OF ALGINATE-CHITOSAN HYDROGELS USING THAW-INDUCED GELATION (TIG) STRATEGY	**COB2, 392**

FERESHTEH MEMARIAN, UC MERCED
BUCKLING AND COLLECTIVE MOTION OF MICROTUBULES DRIVEN BY MOTOR ACTIVITY

LAILA RAD , UCLA
DIRECTING NEURAL STEM CELL DIFFERENTATION USING A 3D HYALURONIC ACID-BASED HYDROGEL CULTURE PLATFORM

GUSTAVO GARCIA , UC DAVIS
THE EFFECT OF STAPHYLOCOCCUS AUREUS TARGETING MAGNETIC NANOPARTICLES ON INNATE IMMUNITY

LUIS EDUARDO CONTRERAS-LLANO , UC DAVIS
DROPLET PRINTED ARTIFICIAL CELLS TO MIMIC TISSUE-LIKE BEHAVIOR

11:00 a.m. – 11:10 a.m.	**Break**	**KL 155, Lantern**
11:10 a.m. –11:40 a.m.	**Plenary Talk 7** **BRUCE J. TROMBERG, PHD** DIRECTOR OF THE NATIONAL INSTITUTE OF BIOMEDICAL IMAGING AND BIOENGINEERING (NIBIB)	**Lakireddy Auditorium, COB 102**
11:50 p.m. – 1:00 p.m.	**Lunch**	**KL 155, Lantern**
1:15 p.m.– 2:30 p.m.	**Concurrent Oral Session VI (Biomedical Imaging II)** **ARIEL ESCOBAR, PHD, UC MERCED** PROFESSOR AND CHAIR, DEPARTMENT OF BIOENGINEERING	**COB2, 110**

MICHAEL LUN, UC MERCED
A METHOD FOR SPATIAL RESOLUTION IMPROVEMENT IN NARROW-BEAM X-RAY LUMINESCENCE COMPUTED TOMOGRAPHY (XLCT) IMAGING

YILIN LUO, UCLA
DEEP LEARNING ENABLES 3D RECONSTRUCTION OF A HOLOGRAM WITH BRIGHT-FIELD CONTRAST

HONGDA WANG, UCLA
VIRTUAL HISTOLOGICAL STAINING OF UNLABELED TISSUE VIA DEEP LEARNING TOMOGRAPHY (XLCT) IMAGING

1:15 p.m.– 2:30 p.m.	**Concurrent Oral Session VI (Biomaterials and Drug Delivery II)** **WEI-CHUN CHIN, PHD, UC MERCED** ASSOCIATE PROFESSOR, DEPARTMENT OF BIOENGINEERING	**COB2, 130**

VAISHNAVI GIRISH, UC MERCED
GROWING GIANT UNILAMELLAR VESICLES ON WOVEN SUBSTRATES

AVNI SINGHAL , UC BERKELEY
INJECTABLE CROSSLINKED HYALURONIC ACID-BASED MICROSPHERES FOR TISSUE REGENERATION

ALMA HERNANDEZ , UC RIVERSIDE
INHIBITION GROWTH OF E. COLI AND S. AUREUS BY ZNO NANOPARTICLE TREATMENT ASSISTED WITH FEMTOSECOND LASER LIGHT

2:35 p.m. – 3:50 p.m.	**Concurrent Oral Session VII** **(Medical Devices and Instrumentation)** VICTOR G. J. RODGERS, PHD, UC RIVERSIDE PROFESSOR GRADUATE ADMISSIONS CHAIR, DEPARTMENT OF BIOENGINEERING **HATICE CEYLAN KOYDEMIR , UCLA** FIELD-TESTING OF A MOBILE-PHONE MICROSCOPE FOR LABEL-FREE SCREENING OF SCHISTOSOMA EGGS LABEL-FREE AND HIGH-THROUGHPUT DETECTION OF MOTILE PARASITES IN BODILY FLUIDS USING TIME-RESOLVED SPECKLE IMAGING **JOVANA VESELINOVIC, UC DAVIS** ANOMALOUS TRENDS IN NANOSTRUCTURED NUCLEIC ACID – BASED ELECTROCHEMICAL BIOSENSORS **EMILY HUYNH, UCB** FRACTAL: ACOUSTIC FRACTURE DETECTION AND MONITORING	**COB2, 110**
2:35 p.m. – 3:50 p.m.	**Concurrent Oral Session VII** **(Molecular and Cellular Engineering III)** CHIH-WEN NI, PHD ASSISTANT PROFESSOR, DEPARTMENT OF BIOENGINEERING, UC MERCED **CARLOS VAZQUEZ, UC MERCED** EFFECTS OF ROCK DUST PARTICLES AND NICOTINE ON AIRWAY MUCUS RHEOLOGICAL PROPERTIES **PETER YINGXIAO WANG, UCSD** MOLECULAR IMAGING AND CELLULAR REPROGRAMMING IN IMMUNO-ENGINEERING **CONARY MEYER , UC DAVIS** VERSATILE, HIGH-YIELD PROTEIN PRODUCTION EX VIVO	**COB2, 130**
4:00 p.m. – 4:30 p.m.	**Late abstract submission**	**Lakireddy Auditorium, COB 102**
4:35 p.m. – 5:30 p.m.	**Student Awards and Closing Remarks** ARIEL ESCOBAR, PHD, UC MERCED PROFESSOR AND CHAIR, DEPARTMENT OF BIOENGINEERING	**Lakireddy Auditorium, COB 102**