

Harnessing Physical Forces for Medical Application **Nanomaterials, NanoBio Interface, Biomedical Applications**

at CNSI Auditorium on November 15–16, 2018

November 15, Thursday

- 8:30 – 9:00 am Registration
- 8:55 – 9:00 am **Fuyu Tamanoi:** Overview of the meeting
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- 9:00 – 9:20 am Opening Remarks
Scott Waugh (Executive Vice Chancellor and Provost, UCLA)
Yasuyuki Kono (Vice President, Kyoto University)
Jeff Miller (Director, California NanoSystems Institute at UCLA)

Session I: Nanomaterials and Physical Science (Session Chair: Heather Maynard)

- 9:20 – 9:50 am **Susumu Kitagawa** (Kyoto)
New Dimensions of Porous Coordination Polymers / Metal Organic Frameworks
- 9:50 – 10:20 am **Jeffrey Zink** (UCLA)
Multifunctional Mesoporous Silica Nanoparticles Controlled by Nanomachines for Biomedical Targeting, Imaging and Drug Delivery
- 10:20 – 10:50 am **Koichiro Tanaka** (Kyoto)
Extreme nonlinear optics in solids
- 10:50 -11:05 am Coffee break

Session II: Nanomaterials and Biology (Session Chair: Dino Di Carlo)

- 11:05 – 11:35 am **Lenny Rome** (UCLA)
Vault Nanoparticles for Immuno-Oncology Therapeutics
- 11:35 – 12:05 am **Daishi Fujita** (Kyoto)
Synthetic Molecular Wireframes Reinforce Protein Stability through Molecular Chaperone-like Structural Refolding Effects
- 12:05 – 12:35 pm **Bill Gelbart** (UCLA)
In vitro reconstituted virus-like particles for RNA gene and RNA vaccine delivery
- 12:35 – 1:30 pm Lunch

Session III: Nanomaterials and Application I, Imaging and Brain (Session Chair: tbc)

- 1:30 – 2:00 pm **Shimon Weiss** (UCLA)
Nanomaterials for neuronal action potential
- 2:00 – 2:30 pm **Mineko Kengaku** (Kyoto)
High-resolution Imaging of Neuronal Migration in the Developing Brain
- 2:30 – 3:00 pm **Michael Phelps** (UCLA)
Theranostics: Integration of molecular imaging with PET and radio-isotope ablation of cancer cells
- 3:00 – 3:15 pm Coffee Break

Session IV: Nanomaterial - Bio interface I (Session Chair: tbc)

- 3:15 – 3:45 pm **Mike Teitell** (UCLA)
Cell response profiling and mitoBLAST
- 3:45 – 4:15 pm **Jun Suzuki** (Kyoto)
Phospholipid Scrambling on the Plasma Membranes
- 4:15 – 4:45 pm **Manish Butte** (UCLA)
Mechano metabolic regulation of the immune response
- 4:45 – 6:00 pm Reception

November 16, Friday

Session V: Nanomaterial - Bio interface II (Session Chair: Adam Stieg)

- 9:00 – 9:30 am **Jeff F Miller** (UCLA)
Injection Nanomachine
- 9:30 – 10:00 am **Ken Kamei** (Kyoto)
*Recapitulation of the cellular microenvironments:
Towards re-creation of living systems into a chip*
- 10:00 – 10:30 am **Andre Nel** (UCLA)
Use of Nanocarriers for Chemo-Immunotherapy for Pancreatic Cancer
- 10:30 – 10:45 am Coffee Break

Session VI: Physical Sciences; New Possibilities (Session Chair: Dolores Bozovic)

- 10:45 – 11:15 am **Toshiki Tajima** (UCI)
Laser-driven radio-therapy: Convergence of physics and medicine
- 11:15 – 11:45 am **Seth Putterman** (UCLA)
*Attempts to Harness the Forces of Cavitation and Sonoluminescence
for the Enhanced Treatment of Antibiotic Resistant Soft Tissue Infections*
- 11:45 – 12:15 am **Fuyu Tamanoi** (Kyoto/UCLA)
Boron Neutron Capture Therapy and Nanotechnology
- 12:15 – 1:00 pm Lunch

Session VII: Nanomaterial Application II Cancer and Infectious Disease (Session Chair: Karoly Holczer)

- 1:00 – 1:30 pm **Natsuko Kondo** (Kyoto)
Boron neutron capture therapy and brain tumor
- 1:30 – 2:00 pm **Hsian Rong Tseng** (UCLA)
*NanoVelcro Rare-Cell Assays for Detection and Characterization
of Circulating Tumor Cells*
- 2:00 – 2:30 pm **Ke Sheng** (UCLA)
Radiotherapy in the Era of Precision Medicine
- 2:30 – 3:00 pm **Marcus Horwitz** (UCLA)
*Functionalized Nanotherapeutics Targeting Intracellular Pathogens
and Biowarfare Agents*
- 3:00 – 3:15 pm Coffee Break

Session VIII: Macromolecules, Assembly and Biology (Session Chair: Fuyu Tamanoi)

- 3:15 – 3:45 pm **Shuhei Furukawa** (Kyoto)
Metal-organic frameworks for gas biology and therapeutic applications
- 3:45 – 4:15 pm **Heather Maynard** (UCLA)
Biomimetic Stabilizing Polymers for Protein Therapeutics
- 4:15 pm – Reception