

87TH COLLOID AND SURFACE SCIENCE SYMPOSIUM

S.L. Walker and F. Zaera, *Program Chairs*

MONDAY PLENARY

University Lecture Hall/University of California-Riverside
UNLH

Plenary Session I

S.L. Walker, *Organizer*

8:00 1. Plenary - Nucleation and Growth of Rationally Designed Complex Micro-Architectures.
J. Aizenberg, W. L. Noorduin

MONDAY MORNING

Highlander Union Building, University of California - Riverside
HUB 269

Colloidal Nanostructured Materials

Fabrication I

Y. Yin, *Organizer*

P. Feng, *Organizer, Presiding*

9:30 2. Self-assembly of uniform polyhedral silver nanocrystals. **P. Yang**

10:10 3. Self-assembly and aqueous phase behavior of surfactin: a peptide-based biosurfactant.
T. Imura, S. Ikeda, T. Taira, D. Kitamoto

10:30 4. Directed assembly of colloidal crystals by photoinduced thermophoresis. **Y. Kim**, A. A. Shah, M. J. Solomon

10:50 5. Magnetic assembly and patterning of general nanoscale materials through nonmagnetic templates. **L. He**, Y. Yin

11:10 6. Directed co-assembly of heteroaggregating particles into permanent chains of tunable length. **B. Bharti**, G. H. Findenegg, O. D. Velev

Highlander Union Building, University of California - Riverside
HUB 268

Fundamental Research on Colloids and Nanomaterials in Aquatic Systems

Env: Water I

J. Fortner, *Organizer*

H. Shipley, *Organizer, Presiding*

9:30 7. High Throughput and High Content Screening of Nanoparticle-Bacteria Interactions. **E. M. Hoek**, S. Mahendra, R. Damoiseaux

10:10 8. Enhancement of ion transport rates in desalination of brackish water by capacitive deionization. K. Sharma, **S. Yiaccoumi**, R. Mayes, J. Kiggans, D. DePaoli, S. Dai, C. Tsouris

10:30 9. Novel antifouling reverse osmosis membranes grafted with biocidal silver nanoparticles and antifouling polymer brushes. **S. Rahaman**, H. Therien-Aubin, C. K. Ober, M. Ben-Sasson, M. Elimelech

10:50 10. Investigations of microbial adhesion to advanced water treatment membrane materials. **T. L. Kirschling**, J. P. Killgore

11:10 11. Functionalized carbon nanotubes as a source and precursor for disinfection byproducts. **D. M. Cwiertny**, E. M. Verdugo, K. Genskow, Y. Han, C. Krause, T. E. Mattes, R. L. Valentine

Highlander Union Building, University of California - Riverside
HUB 302N

General Papers

General Papers I

D. Jassby, S. Hashmi, *Organizers*

H. Liu, *Presiding*

9:30 12. Nanoparticles At Water-Oil Interfaces: From Fundamentals to Pickering Emulsions. C. X. Luu, J. Yu, **A. Striolo**

9:50 13. Amphiphilic Janus cylinders at fluid-fluid interfaces. B. Park, C. Choi, S. Kang, K. E. Tetey, C. Lee, **D. Lee**

10:10 14. Dumbbell particles as a model for colloidal surfactants. **S. Wang**, F. Ma, N. Wu

10:30 15. Reversible assembly of ion-pair nanoparticles at the oil-water interface. X. Hua, M. Luo, M. A. Bevan, **J. Frechette**

10:50 16. Production of controlled particle-stabilized emulsion droplets using rotary membrane emulsification. **M. S. Manga**, O. J. Cayre, R. A. Williams, S. R. Biggs

11:10 17. Encapsulation of biological material in colloidosomes. **P. Keen**, A. Routh, N. Slater

Highlander Union Building, University of California - Riverside
HUB 367

Nucleation, Growth, and Interfaces of Biological and Biomimetic Materials

Biointerfaces I

J. Moradian Oldak, *Organizer*

D. Kisailus, *Organizer, Presiding*

9:30 18. Physical insights into matrix self assembly and mineralization. **J. De Yoreo**

10:10 19. Thermodynamics of calcite nucleation on organic surfaces: Classical vs. non-classical pathways. **M. H. Nielsen**, Q. Hu, L. M. Hamm, J. R. Lee, U. Becker, P. M. Dove, J. J. De Yoreo

10:30 20. Phage-assisted growth and characterization of copper sulfide nanostructures. **M. S. Zaman**, K. N. Bozhilov, E. D. Haberer

10:50 21. Preparation of calcium hydroxyapatite nanoparticles dispersible in water. **A. Ozaki**, T. Yoshida, T. Yasuda, T. Endo, K. Sakai, M. Abe, H. Sakai

11:10 22. Hierarchical Assembly of Nanostructured LiFePO_4 . **J. Zhu**, A. M. Lira, N. Kinsinger, J. Guo, D. Kisailus

Highlander Union Building, University of California - Riverside
HUB 355

Self-assembly at the Nanoscale

Self Assembly I

M. Mauter, R. Zandi, *Organizers*
C. Knobler, *Organizer, Presiding*

9:30 23. Self-assembled nanomaterials for application in energy storage and harvesting. **S. H. Tolbert**

10:10 24. Controlling the Morphology of Self-Assembled Colloidal Pattern by Ion Addition. **S. Watanabe**, J. Suzuki, Y. Arai, M. Miyahara

10:30 25. Controlling nanoemulsion rheology using polymer-surfactant self-assembly. J. Kim, Y. Gao, **M. E. Helgeson**

10:50 26. "Raft" formation by block copolymer rod micelles in aqueous solution. **G. Rizis**, T. G. van de Ven, A. Eisenberg

11:10 27. Controlling structure and stability of unilamellar vesicles by admixture of amphiphilic copolymers. **M. Gradzielski**, K. Bressel, M. Muthig, J. Gummel, T. Narayanan

Highlander Union Building, University of California - Riverside
HUB 379

Sensing for Biomedical and Environmental Applications

Sensing I

W. Zhong, *Organizer*
Q. J. Cheng, *Organizer, Presiding*

9:30 28. Making Silicon Water Friendly for Biosensing and Biolabelling Applications. **J. J. Gooding**, S. Ciampi, Y. Zhu, B. Gupta, X. Cheng, M. H. Choudhury, B. Guan, P. J. Reece, K. Gaus

10:10 29. Development of Novel Analytical Methods Based on Silver Nanoparticles. **D. Xu**

10:30 30. Metal Organic Frameworks as Nitric Oxide Producing Biocatalysts. **M. M. Reynolds,**
J. L. Harding

10:50 31. Evaluation of membrane composition for fabrication of ion channel–functionalized
sensors. **M. F. Mendoza,** M. T. Agasid, L. K. Bright, S. S. Saavedra, C. A. Aspinwall

11:10 32. Electrolyte negative differential resistance (NDR) in glass nanopores and its sensing
applications. **L. Luo,** H. S. White

Highlander Union Building, University of California - Riverside
HUB 260

Surface Science and Catalysis

Surface Science I

F. Zaera, *Organizer*

P. Christopher, *Organizer, Presiding*

9:30 33. Conversion of solar into chemical energy on plasmonic metal nanostructures. **S. Linic**

10:10 34. Carbon nanotube membrane supported nanoparticle catalysts for water treatment. **C. Na,** H. Wang

10:30 35. Structure Sensitivity of Glycerol Oxidation Catalyzed by Pt/SiO₂ under Mild
Conditions. **Y. Li,** F. Zaera

10:50 36. Bulk synthesis of catalytic nanomotors - colloidal dimers. **S. Wang,** F. Ma, N. Wu

11:10 37. Mesoporous oxides supported Pt nanoparticles as a bifunctional catalyst and their
catalytic reaction Studies. **K. An,** G. A. Somorjai

MONDAY EARLY AFTERNOON

Highlander Union Building, University of California - Riverside
HUB 269

Colloidal Nanostructured Materials

Fabrication II

P. Feng, *Organizer*

Y. Yin, *Organizer, Presiding*

12:40 38. Nanomaterials via colloidal assembly for application in energy storage and magnetoelectrics. **S. H. Tolbert**

1:20 39. Fabrication of Micelle-Like Nanoreactor for Catalysis. **Q. Zhang**, X. Shu, D. Toste, G. A. Somorjai, P. Alivisatos

1:40 40. Biomimetic synthesis of platinum multiple-twinned nanowire network with high electrocatalytic activity and durability. **L. Ruan**, E. Zhu, Z. Lin, Y. Chen, Y. Huang

2:00 41. Monodisperse PtCu@Cu Nanocrystals and Their Conversion to Hollow-PtCu Nanostructures for Methanol Oxidation. **X. Huang**

2:20 42. Orienting Shaped Metal Nanoparticles within Polymer Thin-Film Nanocomposites. **B. Gao**, C. Murthy, Y. Alvi, D. Rosen, G. Arya, A. Tao

Highlander Union Building, University of California - Riverside
HUB 268

Fundamental Research on Colloids and Nanomaterials in Aquatic Systems

Env: Water II

H. Shipley, *Organizer*

J. Fortner, *Organizer, Presiding*

12:40 43. Self-propelling particles programmed to 'dance' and collect oil on water. **R. Sharma**, L. D'Costa, S. Chang, O. D. Velev

1:00 44. Experimental and Sensitivity Analysis on the Mobility of Aluminium Oxide Nanoparticles in Saturated Sand. **H. J. Shipley**, T. Rahman

1:20 45. Effects of natural organic matter, surface water, and ground water on the fate and transport of graphene oxide nanoparticles in saturated porous media. **J. D. Lanphere**, S. L. Walker, C. Luth, B. Rogers

1:40 46. Mobility of precious metal nanoparticles in the environment. **B. Thio**, M. A. Mahmoud, A. A. Keller

2:00 47. Carbon nanoparticles mobilize hydrophobic organic contaminants in groundwater: Linking aggregation properties and contaminant-mobilizing capabilities. **W. Chen**, J. Fortner, M. Tomson

2:20 48. Clogging by colloid deposits: Fluid velocity, ionic strength, and fractal dimension. **E. J. Roth**, D. C. Mays

Highlander Union Building, University of California - Riverside
HUB 302N

General Papers

General Papers II

S. Hashmi, *Organizer*

D. Jassby, *Organizer, Presiding*

12:40 49. Nanofluidics: Wetting and spreading phenomena. **D. Wasan**, A. Nikolov

1:20 50. Experimental investigation of dynamic contact angle and capillary rise in tubes with circular and non-circular cross-sectional shapes. **M. Heshmati**, M. Piri

1:40 51. New method of phospholipid bilayer deposition on soft polymer supports using bicelles. **Q. Saleem**, A. Petretic, P. M. Macdonald

2:00 52. Wettability Characterization of Living Cell Layers Through Aqueous Biphasic Systems-Mediated Contact Angle Measurements. G. Jalalahmadi, E. Atefi, R. Mallik, **H. Tavana**

2:20 53. Surfactant imprinting of the surface of silica nanoparticles for selective adsorption of sugars with subtle structural differences. **S. Joshi**, B. Knutson, S. E. Rankin

Highlander Union Building, University of California - Riverside
HUB 367

Nucleation, Growth, and Interfaces of Biological and Biomimetic Materials

Biointerfaces II

J. Moradian Oldak, *Organizer*
D. Kisailus, *Organizer, Presiding*

12:40 54. Mimicking biomineralization using colloidal assembly. **L. B. Gower**

1:20 55. Phase Transformations and Structural Developments in the Radular Teeth of *Cryptochiton Stelleri*. **B. Weden**, Q. Wang, M. Nemoto, D. Li, J. C. Weaver, J. Stegemeier, K. N. Bozhilov, L. R. Wood, G. W. Milliron, C. S. Kim, E. DiMasi, D. Kisailus

1:40 56. Bio-inspired Magnetite Mineralization in Gel Matrix. **B. Wu**, V. Pipich, D. Schwahn, M. Helminger, H. Coelfen

2:00 57. Organic templating of zinc oxide with preferred orientation. **W. Hou**, N. Stewart, D. Kisailus

2:20 58. Amelogenin-chitosan hydrogel for enamel reconstruction via protein-directed assembly with a dense interface. **Q. Ruan**, J. Moradian-Oldak

Highlander Union Building, University of California - Riverside
HUB 355

Self-assembly at the Nanoscale

Self Assembly II

C. Knobler, R. Zandi, *Organizers*
M. Mauter, *Organizers, Presiding*

12:40 59. Formation of mesostructured polymer-surfactant films at the air-solution interface. **K. J. Edler**, M. J. Wasbrough, J. A. Holdaway, R. Jaber

1:00 60. Effect of shape anisotropy of janus microparticles on self assembly. **S. Kang**, C. Choi, J. Kim, C. Lee

1:20 61. Interfacial and Solution Self-assembly of Various Surfactant Proteins. **K. B. Vargo**, M. Cavallaro, K.J. Stebe, D. A. Hammer

1:40 62. Magnetic alignment of Co-doped ZnO nanowires in polythiophene films for ordered bulk heterojunction photovoltaics. **C. I. Pelligra**, P. W. Majewski, C. O. Osuji

2:00 63. Arrested chain growth of magnetic particles in a yield stress matrix fluid: Exploiting rheology in colloidal assembly. **J. P. Rich**, G. H. McKinley, P. S. Doyle

2:20 64. Assembly of Spherical Colloids under Electric Field - “New” Results on “Old” Experiment. **F. Ma, N. Wu**

Highlander Union Building, University of California - Riverside
HUB 379

Sensing for Biomedical and Environmental Applications

Sensing II

Q. J. Cheng, *Organizer*

W. Zhong, *Organizer, Presiding*

12:40 65. Combining Surface Enzyme Chemistries, Nanostructured Interfaces and Directed Self-Assembly For the On-Chip Synthesis, Capture and Manipulation of Nucleic Acids and Proteins. **R. M. Corn**

1:20 66. miRNA detection using alkylated γ -PNAs and ultrabright fluorescent tags in capillary electrophoresis. **J. W. Schneider**, J. M. Goldman, B. A. Armitage, D. H. Ly

1:40 67. Releasing cations from ionic nanocrystals for signal amplification in biosensing. **K. Flack**, Y. Liu, J. Yao, W. Zhong

2:00 68. Calcinated Gold Nanoparticle Films for Surface Enhanced Optical Sensing and Mass Spectrometric Analysis. **C. Chen**, S. Hinman, J. Duan, J. Kim, Q. Cheng

2:20 69. Label free detection of microRNA using p19 protein functionalized carbon nanotubes. **P. Ramnani**, Y. Gao, A. Mulchandani

Highlander Union Building, University of California - Riverside
HUB 260

Surface Science and Catalysis

Surface Science II

F. Zaera, P. Christopher, *Organizers*
J. Yarmoff, *Presiding*

12:40 70. Spectroscopic identification of surface intermediates in the dehydrogenation of ethylamine on Pt(111). I. Waluyo, J. D. Krooswyk, J. Yin, Y. Ren, **M. Trenary**

1:00 71. Catalytic Hydrogenation of Ethylene: Reducing the gap between high pressure and ultra-high vacuum conditions by employing a molecular beam doser. **M. Ebrahimi**, F. Zaera

1:20 72. Chiral propylene oxide adsorption on achiral Pt(111) surfaces. **S. Karakalos**, F. Zaera

1:40 73. Imaging a surface explosion: Autocatalytic decomposition of tartaric acid on Cu(110). **T. J. Lawton**, B. Mhatre, V. Pushkarev, B. Holsclaw, A. J. Gellman, C. H. Sykes

2:00 74. Photon induced bond activation on nanosized Pt particles. M. J. Kale, T. Avanesian, **P. Christopher**.

2:20 75. Towards a molecular level understanding of Fischer-Tropsch synthesis on cobalt nanoparticles. **E. A. Lewis**, D. Le, T. Rahman, C. Sykes

MONDAY LATE AFTERNOON

Highlander Union Building, University of California - Riverside
HUB 269

Colloidal Nanostructured Materials

Fabrication III

P. Feng, Y. Yin, *Organizers*
Q. Zhang, *Presiding*

3:00 76. Polyaniline, graphite oxide, and graphene colloids for device applications. **R. Kaner**, V. Strong, J. D'Arcy, J. Wassei, J. Y. Wang, M. El-Kady, S. Dubin, T. Farrell, J. Torres, K. Wang, L. Wang

3:40 77. Critical role of surfactants towards CdS nanoparticles: synthesis, stability, optical and pl emission properties. **S. K. Mehta**

4:00 78. Poly(vinylamine) microgels: pH-responsive particles with high primary amine contents. **B. R. Saunders**

4:20 79. Nanofluids Effect in Thermoresponsive Poly(N-isopropylacrylamide) Microgels. **T. Trongsatitkul, B. M. Budhlall**

4:40 80. pH-responsive colloidosomes and their use for controlling release. **J. P. Hitchcock, O. J. Cayre, M. S. Manga, S. Fincham, A. Simoes, R. A. Williams, S. Biggs**

Highlander Union Building, University of California - Riverside
HUB 268

Fundamental Research on Colloids and Nanomaterials in Aquatic Systems

Env: Water III

H. Shipley, J. Fortner, *Organizers*
D. Cwiertny, *Presiding*

3:00 81. Impacts of Silver Nanoparticles on the Growth and Activity of Model Microorganisms. **C. K. Gunsch, C. A. Gwin, C. L. Arnaout**

3:40 82. Chloride concentrations and ionic strength impact the toxicity and stability of silver nanoparticles in bacterial exposure media. **B. A. Chambers, L. E. Katz, M. Kirisits**

4:00 83. Phenotypic and genotypic responses of *Salmonella* exposed to groundwater environments: Changes in survival and pathogenicity. **B. Z. Haznedaroglu, M. V. Yates, M. F. Maduro, S. L. Walker**

4:20 84. Fate and transport of three dominate microorganisms in dechlorinating microbial culture KB-1 in porous media under anaerobic conditions. **H. Zhang, A. Ulrich, Y. Liu**

4:40 85. Evaluating the Effects of Outer Membrane Protein (OMP) TolC on the Transport of *Escherichia coli* within Saturated Sands. **S. Xu, L. Feriancikova, S. Bardy, L. Wang, J. Li**

Highlander Union Building, University of California - Riverside
HUB 302N

General Papers

General Papers III

S. Hashmi, *Organizer*

D. Jassby, *Organizer, Presiding*

3:00 86. Using shape anisotropy to toughen nanoparticle films and suppress shear band formation. **D. Lee**, L. Zhang, G. Feng, T. Brugarolas

3:20 87. Colloidal nanoparticles designed via radical dispersion polymerization in non-polar solvent: Towards electrophoretic display applications. **A. Richez**, O. Cayre, S. Biggs, L. Farrand, H. Wilson, M. Goulding

3:40 88. Vapor-liquid nanoparticle separation in photochemical reactor systems: Design, analysis, and application. **C. N. Bremer**, N. Acuna, P. Phelan

4:00 89. Novel nanostructured ceramic/polymer composite coating regulates magnesium degradation. **I. Johnson**, K. Akari, H. Liu

4:20 90. Rational design of hydrophilic and organic matter tolerant polymeric and hybrid polymer-inorganic membranes. **M. Sadrzadeh**, S. Bhattacharjee

4:40 91. Interfacial studies of pH-responsive sterically-stabilized latex particles. **M. D'Souza Mathew**, M. S. Manga, T. N. Hunter, O. J. Cayre, S. Biggs

Highlander Union Building, University of California - Riverside
HUB 367

Nucleation, Growth, and Interfaces of Biological and Biomimetic Materials

Biointerfaces III

D. Kisailus, *Organizer*

J. Moradian Oldak, *Organizer, Presiding*

3:00 92. Tailoring Surface Chemistry for Probing Biomolecular Systems. **R. Ragan**

3:40 93. Selective functionalization of large pore mesoporous silica materials capable of protein capturing. **D. M. Schlipf**, B. L. Knutson, S. E. Rankin

4:00 94. Effects of Residual Chlorine on Photocatalytic Performance of a Titanium Dioxide Membrane. **N. Dakak**, N. Kinsinger, D. Kisailus

4:20 95. In-vitro spoilation of silicone hydrogel soft contact lenses. **C. Peng**, N. P. Fajardo, C. J. Radke

4:40 96. Three Sisters: Precision Control of Cooling, Evaporation, and Antisolvent Precipitations. **I. H. Leubner**

Highlander Union Building, University of California - Riverside
HUB 355

Self-assembly at the Nanoscale

Self Assembly III

C. Knobler, M. Mauter, R. Zandi, *Organizers*
S. Tolbert, *Presiding*

3:00 97. Liquid crystal self-assembly on an amphiphilic bent-core Langmuir/Schaefer monolayer. **P. Popov**, D. J. Lacks, A. Jakli, E. K. Mann

3:20 98. Thermodynamics and kinetics of tunable colloidal self-assembly from measured energy and diffusivity landscapes. **T. D. Edwards**, M. A. Beavn

3:40 99. Surface diffusion enhancement of the kinetics of lock and key binding. **L. Colón-Meléndez**, J. Liu, D. Beltran-Villegas, M. Spellings, G. van Anders, S. Sacanna, D. J. Pine, S. C. Glotzer, R. G. Larson, M. J. Solomon

4:00 100. Dynamic Assembly of Charged Gold Nanoparticles and Its Applications. **Y. Liu**, X. Han, Y. Yin

4:20 101. One-pot Fabrication of Hierarchically Structured Nanoparticles by Self-assembly. X. Li, **C. Yang**

4:40 102. Modeling of tunable structural re-configuration of Janus colloidal particles. **D. J. Beltran Villegas**, R. G. Larson

Highlander Union Building, University of California - Riverside
HUB 379

Sensing for Biomedical and Environmental Applications

Sensing III

Q. J. Cheng, *Organizer*
W. Zhong, *Organizer, Presiding*

3:00 103. Patterned plasmonic arrays in combination with ATRP amplification for high performance SPRi analysis. **J. Cheng**

3:20 104. Control Over Aptamer-Gold Nanoparticle Interactions to Design Sensing Conjugates for Simultaneous Multi-target On-Chip Detection. **J. L. Chavez**, J. E. Smith, J. A. Hagen, N. Kelley-Loughnane

3:40 105. Microbead Patterning with Photolabile Hydrogels for Cell Capture and Release. **S. Christian**, D. Shin, J. Sutcliffe, A. Revzin

4:00 106. Colloidal artificial virus nanoparticle model system for characterizing GM3 mediated virus infection. **X. Yu**, A. Feizpour, H. Akiyama, S. Gummuluru, B. Reinhard

4:20 107. Graphene-carbon nanotubes-glucose oxidase based third generation amperometric glucose biosensor. **T. Terse**, K. Komori, A. Mulchandani

4:40 108. An electrical impedance spectroscopy based technique for sensing stability of oil-water emulsions. **S. Shahidi**, C. R. Koch, **S. Bhattacharjee**

Highlander Union Building, University of California - Riverside
HUB 260

Surface Science and Catalysis

Surface Science III

P. Christopher, *Organizer*
F. Zaera, *Organizer, Presiding*

3:00 109. Controlling Pt atomic layer deposition: From Pt nanoparticles to continuous Pt thin films. **S. M. George**

3:40 110. Surface chemistry of a Cu(I)s-butyl amidinate atomic Layer deposition (ALD) precursor on Ni and NiO surfaces. **Y. Yao, F. Zaera**

4:00 111. Surface, Adatom and Nanostructure Electronic Properties Measured by Low Energy Ion-Surface Charge Exchange. **J. A. Yarmoff**

4:20 112. Temperature dependence of ion neutralization during low energy ion scattering from nanomaterials. **A. B. Arjad, J. Yarmoff**

4:40 113. Adsorption of oxygen-containing molecules on the Ge(100)-2 × 1 surface. **B. Shong, S. F. Bent**

MONDAY EVENING POSTER SESSION

Winston Chung Hall, University of California - Riverside
WCH 205/206

General Poster Session

B. Z. Haznedaroglu, I. Wheeldon, *Organizers*

5:30 - 8:00

114. Multifaceted study on the interaction between DNA and salt-free cat-anionic vesicles. L. Xu, L. Feng, R. Dong, J. Hao, **S. Dong**

115. Determination of the crystallographic stacking at the technologically-important cobalt-copper interface. **E. A. Lewis**, C. Sykes

116. Nanoemulsions: A new media for enhancing solubility and stability of Curcumin. **K. Kaur**

117. How superhydrophobicity breaks down. P. Papadopoulos, L. Mammen, X. Deng, D. Vollmer, **H. Butt**

118. Dynamic measurement of the force required for moving a liquid drop on a solid surface. D. W. Pilat, P. Papadopoulos, D. Schaeffel, D. Vollmer, R. Berger, **H. Butt**

119. Assembly of Anisotropic Particles under Electric Fields. **F. Ma**, S. Wang, D. Wu, N. Wu

120. Development of calibrated microparticles and application to study surface charge in biological systems. **A. López de Victoria**, D. D. Lo

121. Surfactant as co-dispersant for TiO₂ particles. **X. Zhang**, B. Fillipo, D. Henderson

122. Preparation and physicochemical properties of lipid nanodiscs. **Y. Tsukui**, K. Aburai, H. Sakai, M. Abe, D. Kitamoto, T. Imura

123. Interfacial and emulsifying properties of soybean peptides. **M. Nakayama**, K. Aburai, H. Sakai, M. Abe, D. Kitamoto, T. Imura

124. Costly Myths of Crystal and Colloid Formation. **I. H. Leubner**

125. Transparent silica nano- and microchannels with circular cross-section. L. Mammen, **P. Papadopoulos**, K. Friedemann, S. Wanka, D. Crespy, D. Vollmer, H. Butt

126. Photocatalysis with Au@TiO₂ yolk@shell nanostructures. **J. Joo**, Y. Yin, F. Zaera

- 127.** Corona-treated polyethylene: phase separation and dewetting on top surface. **J. S. Bernardes**, L. P. Santos, F. Galembeck
- 128.** Nanoscale detection of acid-base sites on solid surfaces: a Kelvin force microscopy approach. **J. S. Bernardes**, R. F. Gouveia, F. Galembeck
- 129.** Ultrafast Core-Level Electron Dynamics at Photocatalytic Material Surfaces. **M. E. Vaida**, S. R. Leone
- 130.** Photo-responsive Pickering emulsions based on ion complex formation. **R. Yamazaki**, T. Endo, K. Sakai, H. Sakai, M. Abe
- 131.** Selective Chemistry for the Atomic Layer Deposition(ALD) of Alumina Oxide on Silicon Surfaces. **L. Guo**, X. Qin, F. Zaera
- 132.** Fate of carbon nanotube polymer composites in the presence of aerobic microorganisms. D. G. Goodwin, **K. L. Marsh**, I. Boyer, E. J. Bouwer, D. H. Fairbrother
- 133.** Effect of various amino acids on the interfacial properties of nonionic surfactant. **K. Yamaguchi**, T. Endo, K. Sakai, K. Sagawa, K. Sakamoto, M. Abe, S. Hideki
- 134.** Numerical analysis of selective ion transport in nano-channels with charged surfaces. **Y. Yang**, W. S. Ryoo
- 135.** Emulsification by chitosan-poly(acrylic acid) polyion complex as active interfacial modifier. **K. Sakai**, M. Ueno, Y. Takamatsu, T. Endo, H. Sakai, K. Sakamoto, M. Abe
- 136.** Effects of pressure, temperature and surfactant structure on the stability of carbon dioxide foam for Enhanced Oil Recovery. **B. Kim**, W. S. Ryoo
- 137.** Interfacial properties and the phase behavior of oil-saline emulsions formed by single- and double-tail mixed surfactants. W. S. Ryoo, **Y. Kim**
- 138.** Formation of single gold nanorod-encapsulated titania nanoparticles. **H. Yamaguchi**, K. Torigoe, T. Endo, K. Sakai, H. Sakai, M. Abe
- 139.** Silica particles as platforms for PAMAM Dendrimer immobilized metal affinity reagents. **L. Margerum**
- 140.** Characterization of cell viability through on-chip microelectrode arrays. **R. Sharma**, W. Hu, O. D. Velev
- 141.** Fabrication of Calcinated Gold Nanoparticle Films for Cross-Platform Biosensing. **S. Hinman**, C. Chen, J. Duan, J. Kim, Q. Cheng

- 142.** Calcium phosphate encapsulated soy lecithin emulsion for an oxygen carrier. **K. Han**, C. Takagi, H. Mizukami, A. Ostafin
- 143.** Size reduction of stimulus-responsive biocompatible polymer microcapsules prepared with electro-capillary emulsification method. **M. Watanabe**, A. Sekita, T. Endo, K. Sakai, H. Sakai, T. Kondo, M. Abe
- 144.** Phase behaviors of ion complexes forming gemini-like surfactants. **A. Manabe**, Y. Okabe, K. Tsuchiya, T. Endo, K. Sakai, M. Abe, H. Sakai
- 145.** Optimization of nanoparticle size and count measurements using nanoparticle tracking analysis (NTA). **D. A. Griffiths**, S. Capracotta, W. Bernt, J. Smith, I. Wilson, P. Hole
- 146.** Fabrication of Tyloxapol niosomes for incorporation of anti-TB drugs: Physicochemical and spectroscopic aspects. **N. Jindal**, S. K. Mehta
- 147.** Effect of Ionic Liquid Electrolytes in DSSCs with Titanium Dioxide (TiO₂) inverse opal structures. **N. Ramesar**, I. Kretzschmar
- 148.** Flow synthesis of SiO₂@Au core-shell nanoparticles using a microreactor. **Y. Asahi**, T. Hiratsuka, S. Watanabe, M. Miyahara
- 149.** Characterizing yielding of nanoemulsion colloidal gels under large amplitude oscillatory shear (LAOS) with combined rheo-SANS/USANS. **J. Kim**, Y. Gao, M. E. Helgeson
- 150.** Superhydrophobic surfaces for protection and friction reduction in marine environment. **M. Ferrari**, L. Liggieri, F. Ravera, E. Guzman
- 151.** Controlling Gold Nanoparticle Morphology with the use of Nanosized Liposomes. **M. A. Marks**, M. Tang
- 152.** Effect of functionalization of the SiO₂ nanoparticles on the adsorption of Ru onto them and their activity in degradation of congo red. **S. Gupta**, S. K. Mehta, M. Gradzielski, C. Giordano
- 153.** Langmuir monolayers of mixed systems formed by lung surfactant-like lipid and nanoparticles: A physico-chemical approach to a toxicological problem. E. Guzman, L. Liggieri, F. Ravera, E. Santini, **M. Ferrari**
- 154.** The role of particles in stabilizing foams and solid foams: A surface tension studies. D. Zabiegaj, F. Ravera, L. Liggieri, E. Guzman, E. Santini, **M. Ferrari**
- 155.** Examination of XPS imaging as a tool for the characterization of surfaces lacking lateral features using a model miscible polymer blend. **D. E. Brylinski**, J. A. Gardella, Jr.
- 156.** Coupling plasmonics with heterogeneous catalysis for versatile solar to chemical energy conversion. **M. Kale**, P. Christopher

- 157.** Fluctuation-Induced Forces Between Inclusions Embedded in Membrane. **T. J. Caro**, J. Wagner, D. Gui, R. Zandi, U. Mohideen
- 158.** Tailoring the size and morphology of Copper nanoparticles using surfactant based templates and investigating their catalytic performance. **R. Kaur**, S. K. Mehta, M. Gradzielski, C. Giordano
- 159.** Mechanistic study of CO₂ hydrogenation on Ru catalyst surfaces using density functional theory. **T. Avanesian**, P. Christopher
- 160.** Directed Assembly of a Zinc Oxide Nanorod Network for Use as Dye-Sensitized Solar Cell Working Electrode. **R. Chang**, I. Kretzschmar
- 161.** Contact line dynamics on droplet spreading: Molecular dynamics and experiment. **S. Kono**, Y. Miyazaki, I. Ueno
- 162.** Real-time drinking water case studies. **A. Morfesis**, A. Vaisman, J. Krumrine
- 163.** Synthesis and applications of colloidal dimers. **S. Wang**, F. Ma, N. Wu
- 164.** Structure sensitivity of carbon dioxide reduction by H₂ on supported Rh, Ru, and Ni catalysts. **J. Matsubu**, P. Christopher
- 165.** Surface coordination of naphthalene on Cu(111): Cyano vs isocyno ligand groups. **K. Magnone**, Y. Zhu, J. Wyrick, C. Wang, M. Luo, S. Bobek, A. Sangkula, K. Cohen, J. Abucejo, L. Bartels
- 166.** Surfactant micelle characterization using Dynamic Light Scattering. B. McDonagh, P. Barrett, M. Kaszuba, **M. McGann**
- 167.** Effect of surfactant structure on relative position of surfactant head groups in mixed micelle of cationic-carbohydrate surfactants micelles. **S. Das**, E. Oldham, H. Lehmler, B. L. Knutson, S. E. Rankin
- 168.** Impact of water chemistry on colloidal iron and lead release from drinking water distribution system. **H. Liu**
- 169.** In-situ transformation of Single-Layer MoS₂ films: An XPS and Photoluminescence Study. **Q. Ma**, P. Odenthal, J. Mann, E. Preciado, D. Sun, W. Lu, C. Wang, K. Yamaguchi, M. Wurch, T. V. Tran, T. Chen, T. F. Heinz, R. K. Kawakami, L. Bartels
- 170.** Producing Monolayer Molybdenum Disulfide Films. **C. Wang**, **W. Lu**
- 171.** Using atomic force microscopy to investigate the material properties of HULIS aerosol particles. L. N. Hawkins, **K. R. Muller**, A. Lemire, S. Kong

- 172.** Different Approaches to CVD growth of single-layer MoS₂. **J. Mann**, E. Preciado, K. Yamaguchi, T. Tran, M. Wurch, D. Barroso, Q. Ma, V. Klee, A. Nguyen, C. Wang, L. Bartels
- 173.** Interactions between particles on the substrate and contact line of spreading droplet. **J. Fukushima**, T. Hibino, I. Ueno
- 174.** Density functional theory study of the cysteines on gold clusters: binding site specific calculation. **C. Ting**
- 175.** Controlled synthesis of gold nanoaggregates. **D. Van Haute**, J. M. Berlin
- 176.** Single Molecule Studies of the CdS nanorod and ligand interface. **X. Lin**, M. Tang
- 177.** Electrokinetic phenomena in colloidal dispersions near superhydrophobic surfaces. **P. Papadopoulos**, H. Butt, D. Vollmer
- 178.** Molecular dynamics simulation as a tool to study PEGylation in drug delivery. **A. Bunker**
- 179.** Modeling and Analysis of The Transport Phenomena in The Mammary Glands. **A. Quezada**, K. Vafai
- 180.** Tuneable resistive pulse sensing for high resolution, particle-by-particle, size and ζ -potential measurements: Applications to liposome, polymer and viral drug delivery systems. **D. M. Kozak**, W. Anderson, G. S. Roberts, R. Vogel
- 181.** Electrophoretic Deposition of HA/PLGA Composite Microspheres on Magnesium for Medical Implant/Device Applications. **Q. Tian**, H. Liu
- 182.** Can we detect albumin mutations from osmotic pressure data? **N. U. Ozaki**, V. G. Rodgers
- 183.** Synthesis of Single Crystal Sub-centimeter Size Graphene Flakes **Z. Luo**
- 184.** Tunable Self-assembled Nanoparticle Assemblies with Activity in Visible Wavelengths. **Z. Huang**, **M. Marks**, M. Tang
- 185.** Templating alignment of sequestered membrane proteins by exploiting diamagnetic anisotropy. **S. S. Klara**, M. Mauter
- 186.** Chemical Vapor Deposition of Manganese-Based Films on Silicon Oxide Substrates. **H. Sun**, X. Qin, F. Zaera
- 187.** Unraveling Fischer-Tropsch chemistry on V(100). **Y. Luo**, G. Beran
- 188.** Low energy ion scattering studies of the surface termination of bismuth selenide. **W. Zhou**, X. He, Z. Wang, J. Shi, J. A. Yarmoff

- 189.** Growth and structural and chemical characterization of single layer MoS₂ and Mo₂S₃ on Cu(111). **W. Lu**, D. Sun, Q. Ma, D. Kim, L. Bartels, J. Wyrick, J. Mann, Y. Zhu
- 190.** Investigating growth of the metal organic framework HKUST-1 in real-time using a Quartz Crystal Microbalance with Dissipation Monitoring (QCM-D). **E. Schneider**, V. Stavila, J. Volponi, A. M. Katzenmeyer, M. C. Dixon, M. D. Allendorf
- 191.** Intrusion Pressure to Initiate Flow through Pores between Spheres. **C. Extrand**, S. Moon
- 192.** Shape of a liquid drop on a microstructured surface at different length scales. **P. Papadopoulos**, X. Deng, L. Mammen, D. Drotlef, G. Battagliarin, C. Li, K. Müllen, K. Landfester, A. del Campo, H. Butt, D. Vollmer
- 193.** Oxidized cellulose gelation with alcohols and sodium dodecyl sulfate (SDS). **D. Celebi**, K. J. Edler, J. L. Scott, G. Unali
- 194.** Carbon black/water nanofluids: Preparation and characterization. **E. De Robertis**, R. S. Neves, C. E. Galhardo, C. A. Achete
- 195.** Size and count analysis of fluorescent drug delivery nanoparticles in complex biological media. **D. A. Griffiths**, S. Capracotta, W. Bernt, P. Hole
- 196.** Antimicrobial behavior of novel surfaces generated by electrophoretic deposition. **J. Quijano**, Y. S. Joung, C.R. Buie, S.L. Walker

TUESDAY PLENARY

University Lecture Hall/University of California-Riverside
UNLH

Plenary Session II

S. Walker, *Organizer*

8:00 197. Plenary - Mechanisms of formation and growth of airborne particles. **B. J. Finlayson-Pitts**

TUESDAY MORNING

Highlander Union Building, University of California - Riverside
HUB 269

Colloidal Nanostructured Materials

Fabrication IV

P. Feng, Y. Yin, *Organizers*
F. Zuo, *Presiding*

9:30 198. Colloidal Plasmonics. **A. R. Tao**, B. Gao, S. Hsu

10:10 199. Tailoring Molecular Recognition Toward Inorganic Surfaces: the Case of Pt. **Y. Huang**

10:50 200. Confined growth of silver nanoplates in hollow nanospheres. **J. Goebel**, V. Hatharasinghe, Y. Yin

11:10 201. Site-specific synthesis of metal nanoparticles entrapped in hollow polymer nanocapsules. **S. Shmakov**, Y. Jia, E. Pinkhassik

Highlander Union Building, University of California - Riverside
HUB 268

Fundamental Research on Colloids and Nanomaterials in Aquatic Systems

Env: Water IV

J. Fortner, *Organizer*

H. Shipley, *Organizer, Presiding*

9:30 202. Predicting environmental transformations of nanomaterials from their intrinsic properties. **G. V. Lowry**

10:10 203. Heteroaggregation of engineered nanoparticles and natural colloids: Method development using gold nanoparticles and hematite. **J. A. Nason**, B. M. Smith

10:30 204. Environmentally relevant nanoparticle surfaces and their interaction with lipid bilayers studied by vibrational sum frequency generation and second harmonic generation. **F. Geiger**

10:50 205. Stabilization of carbon nanotubes by oil droplets in water. **C. Na**, T. Wu

11:10 206. Adhesion of magnetic nano-particles on a membrane surface. **E. Chung**, S. Lee

Highlander Union Building, University of California - Riverside
HUB 302N

General Papers

General Papers IV

S. Hashmi, *Organizer*

D. Jassby, *Organizer, Presiding*

9:30 207. Controlling the stability of colloidal dispersions using charged nanoparticles. **J. Y. Walz**, F. Guzman

10:10 208. Direct, simultaneous measurements of colloidal energy and diffusivity landscapes in macromolecular solutions. **M. A. Bevan**, D. Beltran-Villegas, T. Edwards

10:30 209. Synergistic effects of polymers and nanoparticles on depletion forces. **S. Ji**, J. Y. Walz

10:50 210. Stabilization of weakly-charged microparticles using highly-charged nanoparticles. **D. Herman**, J. Y. Walz

11:10 211. Direct measurement of the depletion force produced by ionic micellar solutions. **G. K. James, J. Y. Walz**

Highlander Union Building, University of California - Riverside
HUB 367

Nucleation, Growth, and Interfaces of Biological and Biomimetic Materials

Biointerfaces IV

J. Moradian Oldak, *Organizer*
D. Kisailus, *Organizer, Presiding*

9:30 212. Interfacial water: A key reactant to biomineralization. **J. R. Dorvee, A. Veis**

9:50 213. Chiral hierarchal self-assembly in Langmuir monolayers of diacetylenic lipids. **E. K. Mann, P. B. Basnet, P. Mandal, D. W. Malcolm, S. Chaieb**

10:10 214. Evaporation-induced shape change and fission of droplet interface bilayers. **C. P. Collier, J. B. Boreyko, P. Mruetusatorn**

10:30 215. Toughening mechanisms of biological and biomimetic composites via interfacial engineering. **L. K. Grunenfelder, C. Salinas, S. Herrera, C. Huang, D. Kisailus**

10:50 216. Anti-predation adaptations in an ultrahard and bioluminescent marine snail. **C. Salinas, D. Kisailus, D. Deheyn, R. Shimada**

11:10 217. Bioinspired Hybrid Materials by Gluing of Anisotropic Nanocrystals. **U. Tritschler, I. Zlotnikov, P. Zaslansky, P. Fratzl, H. Schlaad, H. Cölfen**

Highlander Union Building, University of California - Riverside
HUB 379

PHASE TRANSITIONS AT INTERFACES

Wetting I

J. Wu, M. Mueller, *Organizers*
B. Laird, *Presiding*

9:30 218. Wetting of superamphiphobic surfaces. **H. Butt**, P. Papadopoulos, X. Deng, F. Schellenberger, C. Semprebon, M. Brinkmann, M. Ciccotti, L. Chen, D. Vollmer

10:10 219. Experimental study of the effect of geometry on equilibrium and nonequilibrium contact angles on textured surfaces. **B. Koch**, A. Amirfazli, **J. A. Elliott**

10:30 220. Thin films of partially fluorinated bolaamphiphiles at the air-water interface and on solid substrates. **J. Paczesny**, K. Sozanski, P. Niton, A. Zywockinski, R. Holyst, B. Glettner, R. Kieffer, C. Tschierske, D. Pocięcha, E. Górecka

10:50 221. Water drops dancing on ice: how sublimation leads to drop rebound. **C. Antonini**, I. Bernagozzi, S. Jung, D. Poulidakos, M. Marengo

11:10 222. Wettability engendered templated self-assembly (WETS) for the fabrication of multiphase particles. **S. P. Kobaku**, G. Kwon, P. Wong, A. Tuteja

Highlander Union Building, University of California - Riverside
HUB 355

Self-assembly at the Nanoscale

Self Assembly IV

C. Knobler, M. Mauter, *Organizers*
R. Zandi, *Organizer, Presiding*

9:30 223. Incompleteness in immature HIV-Gag particles: kinetic or thermodynamic? **B. Dragnea**

10:10 224. Optical Characterization of GAG protein Induced Plasma Membrane Budding in In-vitro Systems. **U. Mohideen**, S. Gupta, D. Gui, R. Zandi

10:30 225. Selfassembly of viral shells under non-equilibrium conditions. **J. Wagner**, A. Jarjour, G. Erdemci-Tandogan, R. Zandi

10:50 226. In vitro packaging of RNA by CCMV capsid protein. **R. F. Garmann**, M. Comas-Garcia, C. M. Knobler, W. M. Gelbart

11:10 227. Self-assembly of virus particles: The role of genome. **G. Erdemci-Tandogan**, J. Wagner, R. Podgornik, R. Zandi

Highlander Union Building, University of California - Riverside
HUB 265

Wet and Dry Atmospheric Aerosols

Env: Air I

P. Ziemann, *Organizer*

A. Asa-Awuku, *Organizer, Presiding*

9:30 228. Water surfaces and impact on aerosol: nitrates, sulfates, and carbonates with mono and divalent counter cations. **H. C. Allen**, W. Hua, D. Verreault, E. M. Adams, D. M. Telesford

10:10 229. Organic Aerosol from the Deepwater Horizon Oil Spill: Chemical and Microphysical Properties. **R. Bahreini**, A. M. Middlebrook, C. A. Brock, J. A. de Gouw, S. A. McKeen, L. R. Williams, K. E. Daumit, A. T. Lambe, P. Massoli, M. R. Canagaratna, R. Ahmadov, A. J. Carrasquillo, E. S. Cross, B. Ervens, J. S. Holloway, J. F. Hunter, T. B. Onasch, I. B. Pollack, J. M. Roberts, T. B. Ryerson, C. Warneke, P. Davidovits, D. R. Worsnop, and J. H. Kroll

10:30 230. Measuring water diffusion coefficients in mixtures of long-chain alcohols. **A. M. Edwards**, D. Widmer, D. Calhoun

10:50 231. Understanding the Hygroscopicity of Multi-component Secondary Aerosol from Precursor Mixtures. S. Gao, **A. Asa-Awuku**

11:10 232. Pollen Detachment from Surfaces: Effects of Surface Roughness, Ornamentations and Pollenkitt Coating. **H. Lin**, J. C. Meredith

Highlander Union Building, University of California - Riverside
HUB 260

Surface Science and Catalysis

Surface Science IV

F. Zaera, P. Christopher, *Organizers*
M. Trenary, *Presiding*

9:30 233. Effect of interlayer slippage on the scanning tunneling microscope image of graphite. **D. Pullman**, M. G. Moreno-Armenta

9:50 234. Bonding of anthracene derivatives to a Cu (111) surface: A combined STM and DFT study. **J. Wyrick**, Y. Zhu, D. Salib, C. Holzke, L. Bartels

10:10 235. *In situ* synthesis of metal nanoparticle assemblies on functionalized surfaces and catalytic application towards oxidation of alcohols. **K. Bandyopadhyay**

10:30 236. High temperature adsorption of Helium on ZSM-5. **H. Lee**

10:50 237. Effect of gas type and humidity levels on the collisions of gas molecules with solid and liquid surfaces. **D. Seo**, D. Mastropaetro, W. A. Ducker

11:10 238. Physical-chemical aspects of the adsorption of charged Conditioning Polymers on hair Surfaces. J. M. Herve, C. Cazeneuve, N. Baghdadli, C. Drummond, R. G. Rubio, **G. S. Luengo**

TUESDAY EARLY AFTERNOON

Highlander Union Building, University of California - Riverside
HUB 269

Colloidal Nanostructured Materials

Fabrication V

P. Feng, Y. Yin, *Organizers*

12:40 239. Titanium alkoxide-ethylene glycol mixed precursors for coating TiO₂ on nanoparticles. **M. Dahl**, Y. Yin

1:00 240. Anisometric supraparticles from colloidal building blocks by an evaporation method. **M. Gradzielski**, M. Sperling, O. Velev

1:20 241. Formation of amphiphilic molecular capsule through dynamic self-assembly process. **T. Taira**, D. Ajami, J. Rebek, Jr.

1:40 242. Synthesis and characterization of environmentally benign nanoparticles. **A. P. Richter**, J. Brown, V. N. Paunov, S. Stoyanov, S. Gangwal, E. A. Cohen Hubal, O. D. Velev

2:00 243. Perovskite Oxide Nanocrystals: Room Temperature Synthesis and Crystal Structure. **F. Rabuffetti**, R. Brutchey

2:20 244. Bioinspired Hybrid Materials by Gluing of Anisotropic V₂O₅ Nanoparticles. **U. Tritschler**, I. Zlotnikov, P. Zaslansky, P. Fratzl, H. Schlaad, H. Cölfen

Highlander Union Building, University of California - Riverside
HUB 268

Fundamental Research on Colloids and Nanomaterials in Aquatic Systems

Env: Water V

H. Shipley, J. Fortner, *Organizers*
B. Z. Haznedaroglu, *Presiding*

12:40 245. Effect of surface charge segregation on the transport in fluidic nanochannels. M. Fleharty, F. van Swol, **D. N. Petsev**

1:00 246. Characterization of a silica surface modified with an antimicrobial Moringa protein. **T. M. Bechtel**, D. Velegol, J. Riley, R. D. Tilton, S. B. Velegol

1:20 247. Transport of fluid and particles into-and-out of dead end pores. **A. Kar**, T. Chiang, I. Ortiz Rivera, A. Sen, D. Velegol

1:40 248. Attachment efficiency of TiO₂ nanoparticles in sand under low seepage velocity. **S. Lee**, E. Chung

2:00 249. Titanium Dioxide Nanoparticle Removal: Role of Solution Chemistry, Natural Organic Matter, Coating, and Source Water. **R. Honda**, S.L. Walker

2:20 250. Transport behavior of nanoparticles, aqueous solutions in porous media vs. T. L. Wang, **M. B. Tomson**, A. T. Kan

Highlander Union Building, University of California - Riverside
HUB 302N

General Papers

General Papers V

D. Jassby, S. Hashmi, *Organizers*

D. Lee, *Presiding*

12:40 251. Microcapsules from double emulsions: Control of capsule morphology and release kinetics. **A. Shitta**, H. Auweter, W. Xu, S. H. Behrens

1:00 252. Bottom-up nanoemulsification of hydrocarbons in water from hydrothermal homogeneous solutions. **S. Deguchi**, N. Ifuku

1:20 253. Interfacial shear Rheology of crude oil-water interface: Impact of aqueous phase ionic strength and composition on interfacial elasticity. **M. Moradi**, V. Alvarado

1:40 254. Stability analysis of microdrop shrinkage during concentrating processes. F. Eslami, **J. A. Elliott**

2:00 255. Gravity driven advective motion during sessile drops merging on a surface. Y. Zhang, S. Oberdick, **S. Garoff**, S. L. Anna

2:20 256. Thin film drainage between micro- drops and bubbles under applied cyclical drives to mimic micro-fluidic pumping scenarios. **R. Dagastine**, R. Tabor, C. Wu, F. Grieser, D. Chan

Highlander Union Building, University of California - Riverside
HUB 367

Nucleation, Growth, and Interfaces of Biological and Biomimetic Materials

Biointerfaces V

D. Kisailus, *Organizer*

J. Moradian Oldak, *Organizer, Presiding*

12:40 257. Protein conformational flexibility as a prerequisite for the formation of crystalline nuclei. **P. G. Vekilov**, M. Vorontsova, W. Pan, V. Lubchenko

1:20 258. Biophysical studies on the structural adaptation of porcine amelogenin in micelles and vesicles. **K. Balakrishna Chandrababu**, S. Lokappa, J. Moradian-Oldak

1:40 259. Forces between micro-bubbles in the presence of novel responsive peptide surfactants. T. Balasuriya, **R. Dagastine**

2:00 260. *In-situ* multi-photon microscopy characterization of the effect of ionic strength on collagen fiber formation within hydrogels. **X. Lang**, J. Lyubovitsky

2:20 261. Integration of alpha helical peptides to lipid-polymer microbubbles. **J. V. Badami**, R. S. Tu

Highlander Union Building, University of California - Riverside
HUB 379

PHASE TRANSITIONS AT INTERFACES

Wetting II

J. Wu, M. Mueller, *Organizers*

L. Macdowell, *Presiding*

12:40 262. Ice Release Coatings. **D. Gao**

1:20 263. Which Controls Wetting? Contact Line versus Interfacial Area: Simple Experiments on Capillary Rise. **C. Extrand, S. Moon**

1:40 264. How superhydrophobicity breaks down. **P. Papadopoulos**, L. Mammen, X. Deng, D. Vollmer, H. Butt

2:00 265. Dynamic defrosting via spontaneous dewetting on nanostructured superhydrophobic surfaces. **J. B. Boreyko**, B. R. Srijanto, T. Dac Nguyen, M. Fuentes-Cabrera, C. P. Collier

2:20 266. Polymeric coatings for ultra-low ice adhesion. **K. B. Golovin**, A. Tuteja

Highlander Union Building, University of California - Riverside
HUB 355

Self-assembly at the Nanoscale

Self Assembly V

C. Knobler, M. Mauter, R. Zandi, *Organizers*
J. Wagner, *Presiding*

12:40 267. Molecular Model for the Thermodynamic Stability of Virus. **J. Kim**, R. Zandi, J. Wu

1:00 268. Controlled liposome fusion mediated by lipidated coiled-coil peptides. **A. Kros**

1:20 269. Nanometer range liposome synthesis via hydration in packed beds. **S. S.K.**, M. Tirumkudulu

1:40 270. Entrapment of integral membrane proteins in nanoporous silica gels via nanolipoprotein particles. **W. F. Zeno**, M. L. Longo, S. H. Risbud, M. A. Coleman

2:00 271. Molecular modeling approaches for self-assembly processes of amphiphilic compounds and their interaction with carbon nanoparticles. **A. Jusufi**

2:20 272. Tunable nano-patterns from polymer brushes: Molecular dynamics simulations. **T. Lee**, C. Neto, S. Hendy

Highlander Union Building, University of California - Riverside
HUB 265

Wet and Dry Atmospheric Aerosols

Env: Air II

A. Asa-Awuku, *Organizer*
P. Ziemann, *Organizer, Presiding*

12:40 273. Aerosol Particles from Southern Finland, Amazonia, and California Studied by Vibrational Sum Frequency Generation. **F. Geiger**

1:20 274. Secondary Organic Aerosol Formation from Naphthalene and Methylnaphthalene Photooxidation. **C. Chen**, M. Fishell, D. Cocker III

1:40 275. Radioactivity-induced charging and its influence on aggregation of radioactive particles in air. Y. Kim, S. Yiacoumi, I. Lee, J. McFarlane, **C. Tsouris**

2:00 276. Effect of bursting bubbles on the fate of spilled oil. **P. Avij**, V. Dugas, I. Woodson, X. Shu, T. Liyana-Arachchi, F. Ehrenhauser, F. Hung, K. Valsaraj

2:20 277. Effects of gas-wall partitioning on the yields of alkyl nitrates measured for reactions of n-alkanes with OH radicals in a Teflon film chamber. **P. J. Ziemann**, G. K. Yeh

TUESDAY LATE AFTERNOON

Highlander Union Building, University of California - Riverside
HUB 269

Colloidal Nanostructured Materials

Fabrication VI

P. Feng, Y. Yin, *Organizers*
A. Tao, *Presiding*

3:00 278. Assembling two-directionally percolated particle networks using orthogonal electric and magnetic fields. **B. Bharti**, O. D. Velev

3:20 279. Carbon nanotube ponytails as rapid settling sorbent particles. **C. Na**, H. Wang, H. Ma

3:40 280. Characterisation of particle morphology and dispersion stability via compressive rheology. **H. Yow**, S. R. Biggs

4:00 281. Fluorescence Correlation Spectroscopy as a tool to directly study coalescence during nanoparticle preparation. **D. Schaeffel**, R. H. Staff, H. J. Butt, K. Landfester, D. Crespy, K. Koynov

4:20 282. Engineered-micelles and engineered-membranes: a novel concept for specific conjugation of detergent micelles and lipid bilayers. **G. Patchornik**

4:40 283. Physical stability of nanoparticle dispersion. G. Smart, **J. Denis**, C. Tisserand

Highlander Union Building, University of California - Riverside
HUB 268

Fundamental Research on Colloids and Nanomaterials in Aquatic Systems

Env: Water VI

H. Shipley, *Organizer*

J. Fortner, *Organizer, Presiding*

3:00 284. How can magnetic resonance imaging (MRI) help understanding particle transport in the subsoil. **E. Michel**, P. Faure, S. Rodts, F. Lafolie, P. Guillet, A. Polidori, S. Neveu

3:20 285. Effect of Carbon Nanotubes on the Transport and Retention of Bacteria in Saturated Porous Media. **H. Yang**, M. Tong, H. Kim

3:40 286. Theoretical predictions of operating conditions to accelerate particle adsorption kinetics. **K. Savaji**, A. Couzis

4:00 287. Dynamics of wet colloids under mechanical load studied by 3D confocal microscopy. J. Wenzl, M. Roth, R. Stangenberg, **G. K. Auernhammer**

4:20 288. Electrolyte dependent aggregation of colloidal particles near electrodes in a low frequency oscillatory electric field. **T. J. Woehl**, C. S. Dutcher, K. Heatley, W. D. Ristenpart

4:40 289. Using QCM-D to characterize the size of engineered nanoparticles. **A. L. Olsson**, D. He, I. Quevedo, M. Basnet, N. Tufenkji

Highlander Union Building, University of California - Riverside
HUB 302N

General Papers

General Papers VI

D. Jassby, S. Hashmi, *Organizers*

D. Lee, *Presiding*

3:00 290. The diffusion of nanoparticles and molecules at the water-oil interface. D. Wang, S. Yordanov, C. Y. Li, K. Muellen, H. Mohan Paroor, A. Mukhopadhyay, **H. Butt**, K. Koynov

3:20 291. Hexatic-to-disorder transition in colloidal crystals near electrodes. C. S. Dutcher, T. J. Woehl, N. H. Talken, **W. D. Ristenpart**

3:40 292. Hydrodynamic Behavior of Carbon Nanotubes and Characterization of Length Distributions. **C. A. Silvera Batista**, C. Y. Khripin, M. Zheng, X. Tu, J. A. Fagan

4:00 293. Solvent relaxation NMR studies of polymer competition in aqueous systems. **C. L. Cooper**, T. Cosgrove, J. S. van Duijneveldt, M. Murray, S. W. Prescott

4:20 294. Self-assemblies of highly methyl-branched hydrocarbon surfactants in supercritical carbon dioxide. **M. Sagisaka**, K. Kudo, J. Oasa, S. Nagoya, S. Narita, M. Niwase, T. Narumi, A. Yoshizawa

4:40 295. Experimental study of immiscible fluid replacement in a heterogeneous microfluidic pore-network. **P. He**, S. Tarimala, A. I. Abdel-Fattah, J. W. Carey, H. Boukhalfa

Highlander Union Building, University of California - Riverside
HUB 265

Medicine and Drug Delivery

Medical Apps I

D. Lo, *Organizer*

V. Rodgers, *Organizer, Presiding*

3:00 296. Topical ophthalmic drug delivery. C. Peng, **C. J. Radke**

3:40 297. Doubly crosslinked microgel / polyelectrolyte complexes: Three simple methods to tune and improve gel mechanical properties for regenerative medicine applications. **B. R. Saunders**

4:00 298. Engineered peptides for breast cancer targeted delivery of doxorubicin. **K. Kaur**, R. Soudy, M. Shahin, A. Lavasanifar

4:20 299. Optimizing nanoparticles for brain tumor immunotherapy. Y. Weng, H. Wang, A. Carvalho da Fonseca, E. White, H. Ren, A. K. Suresh, L. Zhang, I. Zhang, X. Chen, B. Badie, **J. M. Berlin**

4:40 300. Cavitand-mediated endocytosis into live cells. **Y. Ghang**, R. J. Hooley

Highlander Union Building, University of California - Riverside
HUB 379

PHASE TRANSITIONS AT INTERFACES

Wetting III

J. Wu, M. Mueller, *Organizers*
F. van Swol, *Presiding*

3:00 301. Molecular simulation study of wetting and drying behavior. **J. R. Errington**

3:40 302. The interfacial free energy of a hard-sphere fluid at a curved surface. **B. B. Laird**, R. L. Davidchack

4:00 303. Interface potential and film thick dependent surface tension of adsorbed liquid films. **L. G. MacDowell**, J. Benet, N. A. Katcho, E. M. Fernández, E. Chacón, P. Tarazona

4:20 304. Solvent cavitation under solvophobic confinement. **H. S. Ashbaugh**

4:40 305. Drops and bubbles on curved surfaces. **M. Soleimani**, R. J. Hill, T. G. van de Ven

Highlander Union Building, University of California - Riverside
HUB 355

Self-assembly at the Nanoscale

Self Assembly VI

M. Mauter, R. Zandi, *Organizers*
C. Knobler, *Organizer, Presiding*

3:00 306. The Impact of Geometric Anisotropy on Colloids under Electric Fields. **F. Ma**, S. Wang, D. T. Wu, **N. Wu**

3:20 307. Effect of Network Geometry on Electron Transport in a TiO₂ photoanode of a Dye-sensitized Solar Cell (DSSC). S.S. Mathew, **I. Kretzschmar**.

3:40 308. Location specific self-assembly of vertical nanowire arrays via lithographic micro-features. **D. J. Kirby**, B. D. Smith, C. Keating

4:00 309. Silica nanoparticles grafted with a weak polybasic brush: Ionic strength and pH-dependent adsorption to the silica/aqueous interface. **J. K. Riley**, R. D. Tilton

4:20 310. Tuning the morphology of surfactant surface aggregates. **B. Bharti**, G. H. Findenegg

4:40 311. From multi-ring and radial spoke to spider net and foam: Pattern formation from drying colloidal drop. **X. Yang**, C. Li, Y. Sun

TUESDAY EVENING AWARD LECTURE

University Lecture Hall/University of California-Riverside
UNLH

Unilever Award Lecture

S. Somasundaran, *Organizer*

K.P. Ananth, *Presiding*

5:10 312. Chemical Transformations on the Nanoscale. **P. K. Jain**

WEDNESDAY MORNING AWARD LECTURE

University Lecture Hall/University of California-Riverside
UNLH

Victor K. LaMer Award Lecture

J. Schneider, *Organizer, Presiding*

8:00 313. Self-assembly of Nanoparticles using External Stimuli. **R. Klajn**

WEDNESDAY MORNING

Highlander Union Building, University of California - Riverside
HUB 268

Dynamics of Fluids and Complex Fluids

Rheology I

J. Wan, *Organizer*

V. Vullev, *Organizer, Presiding*

9:10 314. Biological and chemical insights from physical measurements of objects in fluid. **W. H. Grover**

9:50 315 . Influence of relative humidity on spreading, pattern formation and adhesion of a drying drop of whole blood. **D. Brutin**, W. Bouzeid

10:10 316. Brownian Coagulation Kinetics in Concentrated Dispersions. **A. V. Kelkar**, E. I. Franses, D. S. Corti

10:30 317. Measurement of rotation and translation of polydisperse spherical particles in cohesive colloidal systems. J. Wenzl, R. Seto, M. Roth, H. Butt, **G. K. Auernhammer**

10:50 318. Microfluidic Space-Domain Time-resolved Emission Spectroscopy of Terbium (III) and Europium(III) Chelates with Pyridine-2,6-dicarboxylate. **V. Nunez**, S. Upadhyayula, B. Millare, A. Hadian, S. Shin, P. Vandrangi, J. Larsen, S. Gupta, H. Xu, A. Lin, G. Georgiev, V. I. Vullev

Highlander Union Building, University of California - Riverside
HUB 269

Energy Conversion and Storage

Energy I

C. Bardeen, *Organizer*
J. Guo, *Organizer, Presiding*

9:10 319. Developing quantum dot solids for thin-film photovoltaics. **M. Law**

9:50 320. Correlating Spectroscopy with Photocatalytic Activity of Au@TiO₂ Core-Shell Nanostructures. **R. J. Dillon**, J. Joo, F. Zaera, Y. Yin, C. J. Bardeen

10:10 321. Flexible TiO₂ three-dimensional nanowire array for visible light photoelectrochemical water splitting. **F. Zuo**

10:30 322. Converting light into mechanical work using molecular crystal nanostructures. **C. Bardeen**, T. Kimi

10:50 323. Electrochemical measurements on colloidal TiO₂ nanoparticles. **M. A. Alpuche-Aviles**, A. Fernando, S. Parajuli

Highlander Union Building, University of California - Riverside
HUB 302N

General Papers

General Papers VII

D. Jassby, S. Hashmi, *Organizers*
H. Liu, *Presiding*

9:10 324. Effect of micellization on conductivity enhancement and surface charging in nonpolar media. **J. W. Schneider**, Y. Chu, L. D'Costa, B. Yezer, P. J. Sides, D. C. Prieve

9:30 325. Surfactant induced charging of PMMA in nonpolar solvents . **G. N. Smith**, S. E. Rogers, R. Kemp, J. Eastoe

9:50 326. Diffusiophoresis arising from multiple ions. T. Chiang, **D. Velegol**

10:10 327. Effects of Image Charges on Double Layer Structure and Forces. **R. Wang**, Z. Wang

10:30 328. Irreversible electrostatic adsorption of silica nanoparticles at solid-liquid interface. **X. Li**, O. Niitsoo, A. Couzis

10:50 329. Surface charge of gold-water and gas-water interfaces: Surface chemistry surprises. **R. F. Tabor**, F. Grieser, D. Y. Chan, R. R. Dagastine

Highlander Union Building, University of California - Riverside
HUB 265

Medicine and Drug Delivery

Medical Apps II

V. Rodgers, *Organizer*

D. Lo, *Organizer, Presiding*

9:10 330. Self-Dispersing drug carriers for pulmonary delivery. A. Khanal, R. Sharma, T. E. Corcoran, **S. Garoff**, E. R. Swanson, T. M. Przybycien, R. D. Tilton

9:30 331. What makes M cells efficient at the uptake of invasive microbes? A role for microvilli at the mucosal barrier. **K. M. Bennett**, S. L. Walker, D. D. Lo

9:50 332. Adsorptive and covalent modifications of colloidal magnetic nanoferrites for targeted drug delivery systems. **P. Kryszinski**, K. Nawara, A. M. Nowicka, M. Donten, Z. Stojek, E. Augustin, Z. Mazerska

10:10 333. Physiological properties of polymer brush-afforded nanoparticles prepared by surface-initiated living radical polymerization. **K. Ohno**, Y. Tsujii, Y. Tabata

10:30 334. Photodynamics of colloidal aggregates of sunscreen molecules in water. **C. Bardeen**, K. Hanson

10:50 335. Development of Anti-HER2 Functionalized Optical Viral Ghosts for Targeting of Ovarian Cancer Cells. **Y. Guerrero**, B. Bahmani, S. P. Singh, V. Vullev, V. Kundra, B. Anvari

Highlander Union Building, University of California - Riverside
HUB 379

PHASE TRANSITIONS AT INTERFACES

Wetting IV

M. Mueller, *Organizer*

J. Wu, *Organizer, Presiding*

9:10 336. Geometry-controlled interface localization-delocalization transition in block copolymers. **M. Mueller**

9:30 337. Elastic Property and Line Tension of Self-Assembled Membranes. **A. Shi**

9:50 338. Reactive Wetting at Planar Interfaces. **F. van Swol**

10:10 339. Liquid bridge stability with a free contact line: Catenoid limit. **A. Akbari**, R. J. Hill, T. G. van de Ven

10:30 340. Dynamic wetting of water nano-droplets with non-surfactant and Janus nanoparticles: a molecular dynamics study. G. Lu, **Y. Sun**, Y. Duan

10:50 341. Coil-globule transition of a strongly-charged polyelectrolyte chain in a salt-free solvent: A Replica Exchange Monte Carlo Study. **B. Li**

Highlander Union Building, University of California - Riverside
HUB 355

Self-assembly at the Nanoscale

Self Assembly VII

C. Knobler, R. Zandi, *Organizers*

M. Mauter, *Organizer, Presiding*

9:10 342. Photo-rheological response of aqueous wormlike micelles with photocleavable surfactant. **H. Sakai**, S. Aikawa, K. Fukuda, S. G. Rekha, T. Endo, K. Torigoe, K. Sakai, K. Sakamoto, M. Abe

9:30 343. Dual pH-triggered physical gels prepared from self-assembly in mixed dispersions of oppositely charged pH-responsive microgels. **B. R. Saunders**, J. McParlane, D. Dupin, S. P. Armes

9:50 344. Surface patterning of conjugated polyelectrolytes through self-assembly with lipid membrane domains. **D. Y. Sasaki**, C. C. Hayden, H. Wang, A. N. Parikh, A. P. Shreve

10:10 345. Monitoring intermolecular reactions on nanoparticle-modified supported lipid bilayer platforms. **Y.K. Lee**, S. Kim, J.M. Nam

10:30 346. Tunable self-assembled nanoparticle assemblies with activity in visible wavelengths. **Z. Huang**, M. Marks, M. Tang

10:50 347. Controlled enantioselectivity in hydrogenation of ethyl pyruvate with platinum catalysts by using self-assembled monolayers. **Z. Weng**, F. Zaera

WEDNESDAY MID-DAY

Highlander Union Building, University of California - Riverside
HUB 268

Dynamics of Fluids and Complex Fluids

Rheology II

V. Vullev, *Organizer*

J. Wan, *Organizer, Presiding*

11:30 348. Design, Synthesis, and Characterization of Smart and Multifunctional Hydrogels. **J. Zheng**, C. Zhao, Q. Chen, L. Li

12:10 349. Direct visualization of step stress deformation in attractive colloidal glasses and gels. **H. K. Chan**, A. Mohraz

12:30 350. Gel point determination thanks to microrheology. **G. Smart**, C. Tisserand, R. Ramsch

12:50 351. Structure and dynamics of microemulsion networks with end-capped star polymers of low functionality. **P. Malo de Molina**, C. Herfurth, A. Laschewsky, M. Gradzielski

1:10 352. Probing arrested spinodal decomposition in attractive nanoemulsions en route to gelation. **Y. Gao**, M. E. Helgeson

Highlander Union Building, University of California - Riverside
HUB 269

Energy Conversion and Storage

Energy II

J. Guo, *Organizer*

C. Bardeen, *Organizer, Presiding*

11:30 353. Synthesis, crystallinity control, and photocatalysis of mesoporous TiO₂ shell nanostructures. **J. Joo**, F. Zaera, Y. Yin

11:50 354. Polystyrene-Graphene oxide Pickering emulsions for electronics. **S. Muralidhara**, M. J. Sobkowicz-Kline, B. M. Budhlall

12:10 355. Isothermal ice-crystallization kinetics in catalyst layers of proton-exchange-membrane fuel cells. **T. J. Dursch**, G. J. Trigub, J. F. Liu, C. J. Radke, A. Z. Weber

12:30 356. Silicon nanoparticle and carbon nanotube composite anodes for lithium-ion batteries. **L. Zhong**, L. Mangolini

12:50 357. Bicontinuous battery electrodes derived from bijels. **J. A. Witt**, D. R. Mumm, A. Mohraz

1:10 358. Silicon-carbon composite Li-ion anode materials via seeded dispersion polymerization of acrylonitrile. **J. Guo**

Highlander Union Building, University of California - Riverside
HUB 302N

General Papers

General Papers VIII

D. Jassby, S. Hashmi, *Organizers*

H. Liu, *Presiding*

11:30 359. New method for determining the Hamaker constant of a solid with atomic force microscopy. J. Dong, Y. Zhao, H. Ng, E. I. Franses, **D. S. Corti**

11:50 360. Variable wavenumber cutoff for modelling van der Waals dispersion energy. **N. A. Shardt**, S. Bhattacharjee, **J. A. Elliott**

12:10 361. Single Molecule Measurements Using Correlation Force Spectroscopy. **M. Radiom**, B. Robbins, J. Walz, M. Paul, W. Ducker

12:30 362. Hydrodynamic boundary condition of water on hydrophilic and hydrophobic surfaces. D. Schaeffel, S. Yordanov, M. Schmelzeisen, T. Yamamoto, M. Kappl, R. Schmitz, B. Duenweg, **H. Butt**, K. Koynov

12:50 363. Parametric Investigation of Microprinting Resolution and Stability Using Polymeric Aqueous Biphase Systems. **D. Petrak**, H. Tavana

Highlander Union Building, University of California - Riverside
HUB 265

Medicine and Drug Delivery

Medical Apps III

D. Lo, *Organizer*

V. Rodgers, *Organizer, Presiding*

11:30 364. Short peptide of BMP-7 and nanophase hydroxyapatite-PLGA composite enhance human mesenchymal stem cell osteogenic differentiation. **J. Y. Lock**, H. Liu

11:50 365. Stimuli-responsive poly(amino acid)s nanogels for drug delivery. C. Park, **J. Kim**

12:10 366. Bioconjugation of quantum dot encapsulated in polystyrene colloids for cellular targeting. **S. Muralidhara**, K. M. Malu, P. Gaines, **B. M. Budhlall**

12:30 367. Effects of metal oxide nanoparticles on a model colon gut microbiome. **A. A. Taylor**, I. M. Marcus, R. L. Guysi, S. L. Walker

12:50 368. Gauging colloidal and thermal stability in human IgG1 – sugar solutions through diffusivity measurements. J. Rubin, L. Linden, A. S. Bommarius, **S. H. Behrens**

1:10 369. Small angle neutron scattering studies of PLGA-PEG nanoparticle internal structure and its effects on in vitro drug release. **B. Yang**, J. P. Lowe, K. J. Edler

PHASE TRANSITIONS AT INTERFACES

Highlander Union Building, University of California - Riverside
HUB 379

Wetting V

J. Wu, *Organizer*

M. Mueller, *Organizer, Presiding*

11:30 370. Electrowetting: mechanisms for the nano to the macroscale. M. Luo, R. Gupta, **J. Frechette**

11:50 371. Influence of proximal charged groups on interactions mediated by hydrophobic hydration. **D. Ma**, C. Acevedo, S. Gellman, N. Abbott

12:10 372. Carbon sequestration in deep saline aquifers: Interfacial tension and wettability of sc-CO₂/brine/quartz systems. **S. Saraji**, L. Goual, M. Piri

12:30 373. Determining supported lipid bilayer phase transitions using a quartz crystal microbalance with dissipation monitoring. **A. Wargenau**, N. Tufenkji

12:50 374. Hygro-responsive membranes for energy-efficient separation of liquid mixtures. **G. Kwon**, A. K. Kota, W. Choi, J. M. Mabry, A. Tuteja

1:10 375. Accurate Measurement of Ultralow Interfacial Tensions of Aqueous Biphasic Systems. **E. Atefi**, J. A. Mann, H. Tavana