The Mork Family Department of Chemical Engineering and Materials Science

Eighth Annual Student Research Symposium

Friday, November 9th, 2012
Schedule

10:00 AM opening remarks

10:05 AM research talks

10:05 AM Yasaman Dayani
Biomimetic lipid-based nanostructures
(with Noah Malmstadt)

10:20 AM Lessa Grunenfelder
Ambient aging of composite prepregs
(with Steven Nutt)

10:35 AM Dongseok Kang
Carbon-doped GaAs single junction solar cells grown in multilayer epitaxial assemblies
(with Jongseung Yoon)

10:50 AM Philip Kwong
Vapor phase polymer deposition for integrated paper-based microfluidic applications
(with Malancha Gupta)

11:05 AM Ashley Maker
Developing high refractive index materials for integrated optics applications
(with Andrea Armani)

11:20 AM Saber Naserifar
Towards a molecular model of SiC nanoporous membranes: Application of a reactive force field to the study of the pyrolysis of hydridopolycarbosilane
(with Muhammad Sahimi and Theodore Tsotsis)

11:35 AM Adarsh Shekhar
Mechano-chemical behavior of nanobubble collapse: Billion-atom reactive molecular dynamics simulations
(with Ken-ichi Nomura, Rajiv Kalia, Aiichiro Nakano, and Priya Vashishta)

11:50 PM Tayeb A. Tafti
Integrated workflow for characterizing fracture networks in unconventional reservoirs using microseismic data
(with Fred Aminzadeh)

12:05 PM lunch and poster session

2:30 PM awards ceremony
Posters

Graduate student posters

Laura Bradley
Encapsulation of ionic liquids via vapor phase deposition
(with Malancha Gupta)

Benny Chen
Formation of polymer welds for stabilized self-assembly
(with Malancha Gupta)

Maria V. Chistiakova
Undoped silica microsphere Raman lasing in air and aqueous environments
(with Andrea Armani)

Hassan Dashtian
Correlation and cross-correlations between different parameters of large-scale porous media
(with Muhammad Sahimi)

Wangxue Deng
Highly permeable porous silicon carbide sintered supports for fabrication of nanoporous membranes
(with Theodore Tsotsis and Muhammad Sahimi)

Xin Fang
Graphene-oxide-coated LiNi$_{0.5}$Mn$_{1.5}$O$_4$ as high voltage cathode for high energy density lithium ion batteries
(with Chongwu Zhou)

Robert Frank-Finney
Vapor-phase polymerization with low-vapor pressure liquids
(with Malancha Gupta)

Mingyuan Ge
Porous structured silicon for lithium ion battery anode
(with Chongwu Zhou)

Nima Jabbari
Application of statistical analysis in evaluation of stress and rock properties to delineate the fractured areas
(with Fred Aminzadeh)

Mahdi Khademi
Molecular dynamics simulation of flow of mixtures in SiC nanotubes
(with Muhammad Sahimi)

Arman Khodabakhshnejad
Stimulated reservoir volume estimation using seismic velocity models
(with Fred Aminzadeh)

Kelvin Kuo
Microlaser for specific single molecule detection
(with Andrea Armani)

Ying Li
Oxidation dynamics of aluminum nanorods
(with Priya Vashishta)
Simin Mehrabani
Humidity sensor based on polymer coated microtoroids
(with Andrea Armani)

Gary Newsom
Changes in lipid phase behavior by asymmetric cholesterol depletion with methyl-β-cyclodextrin
(with Noah Malmstadt)

Carson Riche
Engineered microfluidic mixing for green nanocrystal manufacturing
(with Noah Malmstadt and Malancha Gupta)

Kristina Runas
Effects of oxidized lipid species on permeability of giant unilamellar vesicle membranes
(with Noah Malmstadt)

Shalene Sankhagowit
Oxidation of rhodamine-labeled unsaturated giant unilamellar vesicles
(with Noah Malmstadt)

Scott Seidel
One-pot fabrication of porous polymer membranes via vapor phase polymerization
(with Malancha Gupta)

Ce Shi
Two-photon luminescence of gold nanorods excited by whispering gallery mode microtoroid
(with Andrea Armani)

Hasan Shojaei
Mixing and mass transfer in multicontact miscible displacements
(with Kristian Jessen)

Sahar Soltani
Methanol synthesis in a membrane reactor
(with Theodore Tsotsis and Muhammad Sahimi)

Congyue Wang
Molecular dynamics simulation of gases in a boron nitride nanotube-polymer composite
(with Muhammad Sahimi)

Xiaomin Zhang
Serpentine low loss trapezoidal silica waveguides on silicon
(with Andrea Armani)
Undergraduate student posters

Garrison Crouch
Block copolymers on silica/silicon microtoroid photoresonators
(with Andrea Armani)

Audrey Harker
UV-sensitive polymer coated microtoroid sensors
(with Andrea Armani)

Catherine Higley
Gold nanorods: Batch synthesis to microfluidic fabrication
(with Noah Malmstadt)

Valerie Ives
Stability of polymer-ionic liquid composites
(with Malancha Gupta)

Sheldon Kwok
Visualization of large-scale molecular dynamics simulation dataset
(with Priya Vashishta)

Daniel Lee
Deposition of nanosphere monolayers on a Si/SiN substrate
(with Dan Dapkus)

D.J. Mares
Single-molecule analysis of lipid phase behavior on supported membranes
(with Noah Malmstadt)

Emma Meinke
Controlling the density of binding sites on silica based biosensors
(with Andrea Armani)

Di Mo
Acrylamide’s metabolite, glycidamide, induces cII mutations in the ovary of Big Blue mice
(with Nan Mei)

Nicolas Murillo
Enhancing optical microresonator sensitivity with porous silica thin films
(with Andrea Armani)

Colin Nozaki
Patterning polymer deposition within paper-based microfluidic devices for fabrication of a pH-responsive smart gate
(with Malancha Gupta)

Antonis Papantoniou
Towards microfluidic fabrication of giant lipid vesicles
(with Noah Malmstadt)

Christian Sanchez
Synthesis of [emim][BF₄] and pHEMA composite by initiated chemical vapor deposition
(with Malancha Gupta)