

---

*The Mork Family Department  
of Chemical Engineering and  
Materials Science*

**Eleventh Annual  
Student Research Symposium**

**Friday, November 6, 2015**  
Doheny Memorial Library  
DML 240

# Schedule

9:00 am      **OPENING REMARKS**

9:15 am      **RESEARCH TALKS**

9:15 AM      Krisna Bhargava  
**A Modular Microscale Laboratory**  
*(with Prof. Malmstadt)*

9:30 AM      Devang Dasani  
**Study of Adsorption, Desorption and Flow Phenomena of Methane - Ethane Binary Gas Mixtures in Shale Samples and Cores**  
*(with Profs. Jessen/Tsotsis)*

9:45 AM      Khush Desai  
**Characterization of Flow-back of Fracturing Fluids with Upgraded Visualization of Hydraulic Fracturing Treatment & its Implications on Overall Well Performance**  
*(with Prof. Aminzadeh)*

10:00 AM      Leonardo Valesco Estrada  
**The formation of highly nanotwinned Cu alloys: Synthesis and Characterization**  
*(with Prof. Hodge)*

10:15 AM      Robert Frank-Finney  
**Formation and Growth Mechanism of Polymer Nanoparticles at the Liquid Surface by Vapor Phase Polymerization**  
*(with Prof. Gupta)*

10:30 AM      Hui Gui  
**Facile and low-cost length sorting of single-wall carbon nanotubes by precipitation and applications for thin-film transistors**  
*(with Prof. Zhou)*

10:45 AM      Pankaj Rajak  
**Asperities, Crack Front Waves and Crack Self Healing**  
*(with Prof. Vashishta)*

11:00 PM      Alberto Schroth  
**Numerical Simulation of Heat Transfer and Oscillating Fluid Flow In a Cryogenic System with Pulse Tubes**  
*(with Prof. Sahimi)*

11:15 pm      **LUNCH AND POSTER SESSIONS**

1:30 pm      **AWARDS CEREMONY**

# Graduate Posters

Sahar Bakhshian  
**Numerical Simulation of Compaction of Granular Porous Media and Fluid Flow Therein**  
*(with Prof. Sabimi)*

Hassan Dashtian  
**Pore Network Simulation of Salt Precipitation in Porous Media**  
*(with Prof. Sabimi)*

Mark De Luna  
**Modification of Parylene-C substrates using Photo-Initiated Chemical Vapor Deposition**  
*(with Prof. Gupta)*

Golnaz Dianat  
**Vapor Phase Fabrication of Hydrophilic and Hydrophobic Asymmetric Membranes**  
*(with Prof. Gupta)*

Vinh Diep  
**Flexible UV-Sensitive Zinc Oxide Nanotetrapod/PDMS Composite Material**  
*(with Prof. Armani)*

Alireza Divsalar  
**A Novel Reactive Separations Process for The Clean-up of Landfill Gas and Other Gaseous Renewable Fuels**  
*(with Prof. Tsotsis)*

Siavash Hakim Elahi  
**Characterization of Channelized Reservoirs Using the PCA based Ensemble Smoother and Distance Transform**  
*(with Prof. Jafarpour)*

Xin Fang  
**Flexible and ultra-light lithium ion batteries**  
*(with Prof. Zhou)*

Ashkan Garshasbi  
**Preparation and Characterization of Supported Carbon Molecular Sieve Membranes, and their Field-Testing for Process Intensification during Power Generation**  
*(with Prof. Tsotsis)*

Shima Haghight  
**Light-induced proton conductivity in a photo-acid doped polymer**  
*(with Prof. Dawlaty)*

Seyed Mehran  
**Hosseini Effect of the Earth Characteristics on Induced Seismicity Potential**  
*(with Prof. Aminzadeh)*

Dongseok Kang  
**Flexible Opto-fluidic Fluorescence Sensors Based on Heterogeneously Integrated Micro-VCSELs and Silicon Photodiodes**  
*(with Prof. Yoon)*

Malak Khojasteh  
**Investigating the variation of Manganese cluster size distribution based on DC Magnetron Plasma Sputtering source**  
*(with Prof. Kresin)*

Michele Lee  
**UV Light-Activated Polymer Photocleavage Kinetics**  
*(with Prof. Armani)*

Wenlan Long  
**Pseudo-Density Log Generation Using Artificial Neural Network**  
*(with Prof. Aminzadeh)*

Kaihang Luo  
**Periodic multilayer coatings for water window region**  
*(with Prof. Ravichandran)*

Mohammad Mehdi Mollanouri Shamsi  
**The Effect of Differential Stress on Proppant Conductivity**  
*(with Prof. Jessen)*

---

## Graduate Posters

Nareh Movsesian  
**Engineered Hydrophobicity of Discrete Microfluidic Elements for Double Emulsion Generation**  
(with Prof. Malmstadt)

Shanyuan Niu  
**Perovskite Chalcogenides for Thermoelectrics and Photovoltaics**  
(with Prof. Ravichandran)

Zumra Peksaglam  
**Controlling Enzyme Structure, Dynamics, and Function with Photoresponsive Surfactants**  
(with Prof. Lee)

Shalene Sankhagowit  
**Oxidation of membrane curvature-regulating phosphatidylethanolamine lipid results in formation of near-micron-scale cubic structures**  
(with Prof. Malmstadt)

Chunyang Sheng  
**Combined Quantum and Reactive Molecular Dynamics Simulations of Nanocarbon Synthesis by High-Temperature Oxidation of Nanoparticles**  
(with Prof. Vashishta)

Marjan Sherafati  
**Mass Transfer and Equilibrium Considerations in Tight Oil Formations**  
(with Prof. Jessen)

Pok Lam Tse  
**Sb<sub>2</sub>Te<sub>3</sub> Nanowires: Synthesis and Characterizations**  
(with Prof. Lu)

Yu Wang  
**Synthesis and characterization of Co based magnetic nanowire**  
(with Prof. Lu)

Lu Wang  
**Nanoparticle interactions with giant vesicles fabricated from inverted headgroup lipids**  
(with Prof. Malmstadt)

Yimin Wang  
**Light-Controlled Protein Dynamics Observed with Neutron Spin Echo Measurements**  
(with Prof. Lee)

Phillip Weiner  
**Nanostructured Silicon Photocathodes for Solar Water Splitting Enabled with Block Copolymer Lamellar Nanopatterns**  
(with Prof. Yoon)

Size Zheng  
**Dynamics of Aggregation of Proteins**  
(with Profs. Shing/Sabimi)

---

## Undergraduate Posters

Kylee Mansfield  
**Kinetics of Hydrogel Assisted Giant Unilamellar Vesicle Formation**  
(with Prof. Malmstadt)

Gurmukh Sethi  
**Synthesis of Gain Medium for an Ultraviolet Upconversion Laser**  
(with Prof. Armani)

Ravi Bhandia  
**Modification of Parylene-C substrates using Photo-Initiated Chemical Vapor Deposition**  
(with Prof. Gupta)

Rebeca Thweatt  
**Investigating Age-Related Macular Degeneration (AMD) Through Oxidation of Giant Unilamellar Vesicles (GUVs)**  
(with Prof. Malmstadt)