

MOHAMMAD A. ALSORAYA THESIS DEFENSE

Laboratory for Nanobioelectronics

PI: Dr. Joseph Wang

Monday, May 21, 2018

12:00p.m.

ASML Conference Center (SME 248)

“Externally Actuated Active Colloids for Oil/Water Separation”

Abstract: In certain industry-relevant scenarios (such as enhanced-oil-recovery with the deployment of surfactants, wastewater handling, and treated-oil spills), modified oil forms elusive emulsions, with micrometer sized droplets, which are difficult to handle with conventional methods. In this study, static approaches for oil-in-water capture are compared to externally manipulated active colloids that are actuated by ultraviolet, magnetic, and ultrasound fields. The study will show the comparative strengths and weaknesses of each strategy, and provide possible takeaways for the emerging field of nanotechnology for the oil industry.

Biosketch: Mohammad Alsoraya earned a B.A. degree in Electrical Engineer from Purdue University in 2013. He is currently pursuing a Master degree in NanoEngineering at UCSD, working under the supervision of Professor Joseph Wang. His research focuses on developing novel ways to separate oil towards industrial processes. Since 2013, he has been employed as a reservoir engineer by Saudi Aramco, the national oil and gas producer of Saudi Arabia. He was awarded research funding for his MS thesis under Aramco's Young Researchers Excellence Program.