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Chemistry Colloquium | Complex Structured Molecules Probed at Surfaces and Interfaces, Dec. 3

Ohio University College of Arts & Sciences

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Categories: Events
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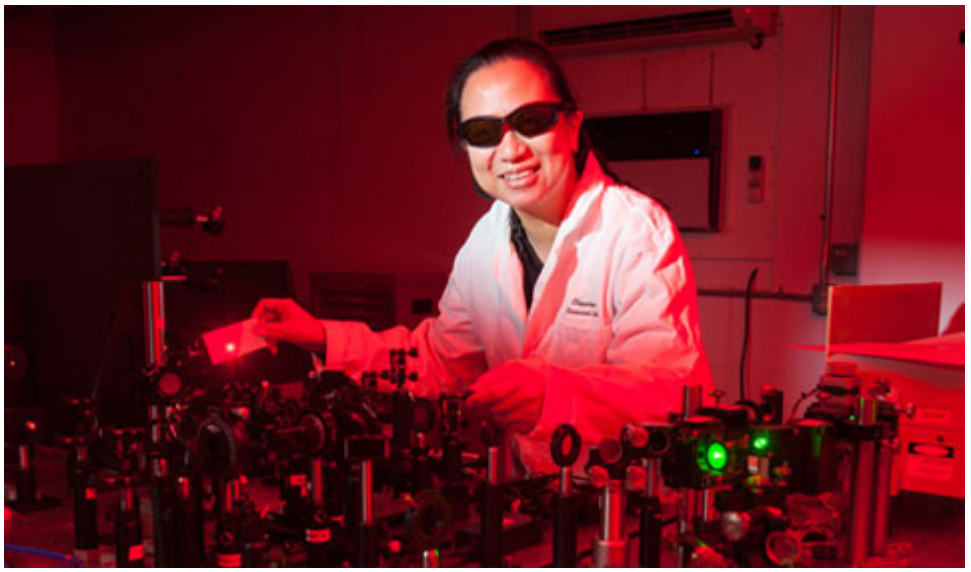

Dr. Katherine Cimatu in her lab in Clippinger Hall.

Ohio University's Chemistry and Biochemistry Colloquium Series presents **Dr. Katherine Cimatu**, on "Complex Structured Molecules Probed at Surfaces and Interfaces" on Monday, Dec. 3, at 4:10 p.m. in Clippinger 194.

Abstract: In this talk, I will highlight our research activities on probing conformational changes of simple and complex structures of molecules at different interfaces using multiple techniques, primarily sum frequency generation (SFG) spectroscopy. First, we want to study and synthesize monomers at air-monomer and solid-monomer interfaces strategically. One relevance of such monomers is in methacrylate-based polymers where the presence of monomer residues can make the polymer ineffective for commercial use due to its impact on health- and industrial-related issues. Conformational data on their polymeric versions at the air and liquid surfaces are also presented. Another project in the lab uses SFG spectroscopy to investigate surfactants at air-liquid and liquid-metal interfaces which are designed as model corrosion inhibitors. Preliminary data on the conformation of surfactants and water molecules showed dependence on tail length and salt concentration. Lastly, a collaborative project was initialized by monitoring and evaluating successive surface reactions on a quartz substrate to immobilize the ethanolamine-modified magnesium ferrite nanoparticles for further surface characterization. These magnetic nanoparticles have previously shown great potential in wastewater treatment specifically for heavy metals. In conclusion, the results of the three studies justify the need for SFG spectroscopy as a surface-sensitive technique to monitor conformational changes undergone by molecular groups in different environments.