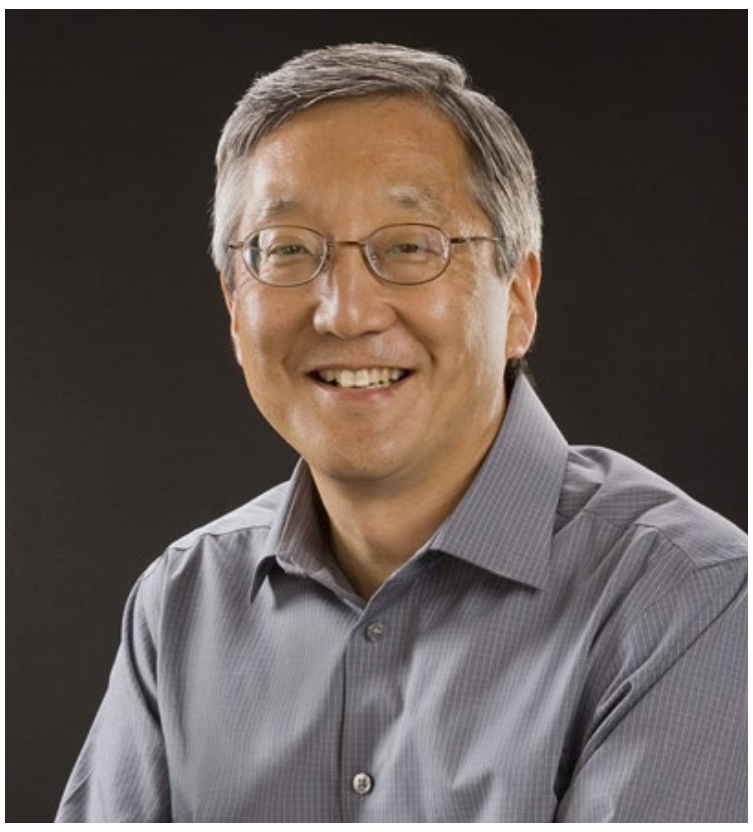
UCLA College | Physical Sciences Chemistry & Biochemistry

PHYSICAL CHEMISTRY SEMINAR



Prof. Mitchio Okumura

Division of Chemistry and Chemical Engineering
California Institute of Technology

Monday, October 9, 2023

4:00 PM | YH 4222

Mani L. Bhaumik Collaboratory -

Dongwon Yoo Seminar & Conference Hall

Combs and Mirrors: Spectroscopic Studies of Radical Reactions Important in Air and Space

Abstract: Trace gas phase free radicals play a central role in the chemistry of Earth and planetary atmospheres, as well as the interstellar medium. Laboratory studies of their spectroscopy, reaction dynamics and kinetics are important for accurate modeling of these environments. Experiments require high sensitivity, time resolution, and specificity to detect these reactive intermediates. We have pursued advances in spectroscopic techniques using optical cavities and optical frequency combs to detect free radicals in the Mid-Infrared by direct absorption. I will discuss several examples of cavity ringdown, direct frequency comb cavity-enhanced spectroscopy, and Vernier comb spectroscopy and their applications to atmospheric kinetics. In addition, I will present experiments using Uniform supersonic flows and LIF detection reveal new dynamical effects in low temperature radical kinetics.

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Please contact isaiahgtz@chem.ucla.edu for additional information.