

UC San Diego

JACOBS SCHOOL OF ENGINEERING
Aiiso Yufeng Li Family Department of
Chemical and Nano Engineering

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DEPARTMENT SEMINAR

Wednesday, January 29th, 2025

11:00 AM - 12:00 PM

SME 248



Dr. Joaquin Camacho, PhD

“Gas-to-particle deposition of graphenic nano-materials from high-temperature flames ”

Associate Professor
Academic Affairs
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Abstract: Flame temperatures higher than 2000 K have been shown to produce carbon nanoparticles with graphene-like crystal structures rather than the traditional soot nanostructure. New experimental observations of the transition from typical soot formation processes to the formation of graphenic nanomaterials will be presented. Details of carbon nanostructure elucidated by Raman spectroscopy indicate that the carbon bonding is of sp^2 hybridization corresponding to graphenic structures rather than typical soot structures. Interestingly, high-resolution TEM images also show the presence of graphenic nanostructure but there are significant differences in the observed particle morphology depending on how the carbon samples are collected from the flame.

Bio: Joaquin Camacho is an associate professor in the Mechanical Engineering Department at San Diego State University. His research includes soot formation, carbon materials and gas-to-particle synthesis processes. Current projects include an NSF CAREER award to study fundamental processes of carbon nanoparticle formation in high-temperature flames. Prof. Camacho obtained his BS from UC San Diego, PhD from University of Southern California and Postdoctoral Fellowship at Stanford University.

Seminar Host: Oscar Vazquez Mena