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Civil, Environmental, and
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Arizona State University

Host: Prof. Ron Willey
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Chemical Engineering
for Enhanced
Environmental
Sustainability

Friday, October 7th
105 Shillman Hall
11:45am-1:00pm

Sponsored by the
Department of Chemical
Engineering

Abstract:

Prof. Andino will provide an overview of her group's research, focusing on recent work concerning the reactions of nitrogen-containing compounds as well as in the area of carbon dioxide (CO₂) control using photocatalytic materials. The two themes are linked through the overarching theme of environmental sustainability, particularly of energy-generating systems.

Nitrogen-containing compounds such as hydrazine and its derivatives are currently utilized as fuels, and are gaining renewed interest as components of fuel cell systems. However, the degradation pathways of these species are not fully understood, and may impact the utilization of these species in energy-generating systems. In addition, the subsequent atmospheric fates of these species may impact climate and ambient modeling scenarios. The Andino group has focused on elucidating the chemical kinetics and reaction mechanisms of hydrazine-containing species. Carbon-containing compounds are important in conventional energy-generating systems, and have increased in significance because of recent policy changes by the US Environmental Protection Agency in regulating carbon emissions from stationary sources. This presentation will focus on the Andino group's recent work in the area of CO₂ control using photocatalytic materials, as well as the broader environmental applications of this technology to stationary

sources such as power plants where other impurities (e.g. NO) may be present.

Speaker Biography:

Prof. Andino is a faculty member in the Chemical Engineering program at Arizona State University (ASU), with a graduate faculty appointment in Civil, Environmental, and Sustainable Engineering. She is graduate of Harvard (Bachelor of Science in Engineering Sciences) and the California Institute of Technology (PhD in Chemical Engineering), and her research group focuses broadly on chemical kinetics and mechanisms as applied to air quality (atmospheric chemistry and air pollution control) and energy-related themes. Between her undergraduate and graduate school years, she worked for two years as part of the Chemical Engineering and Chemistry departments of the Research Staff at Ford Motor Company. As a faculty member, Prof. Andino has obtained more than \$17 Million in single or collaborative external funding to support research and students. She earned a National Science Foundation CAREER award at the very start of her career on the engineering faculty at the University of Florida, and, in 2012, while on sabbatical from her current position on the faculty at ASU, earned a prestigious Fulbright US Scholar award in Renewable Energy for teaching and research at the Universidad Tecnológica de Panamá.