COLLEGE OF
ENGINEERING, COMPUTER SCIENCE, & TECHNOLOGY

Seminar in Interdisciplinary STEM Research

November 7th – Thursday, 3:05-4:20 PM PST

Location: E&T C-256

HOSTED BY CREST-CATSUS AND SIKAND SITI CENTERS

Fabio Albano, PhD NantG Power, CTO

Dr. Fabio Albano is regarded as an industry expert with extensive experience in large scale energy storage and electric mobility through advanced battery technologies development and Lithium-Ion Battery manufacturing. The inventions and patents that Dr. Albano is responsible for consist of novel solid-state electrolytes and manufacturing methods for lithium-ion batteries, as well as more than 50 domestic and international patents and publications. He has held and currently holds leadership roles in established and startup companies such as NexTech Batteries (Lithium-Sulfur), NantEnergy (Metal-Air), Fisker (EVs), ZAF (Zinc-Air), XALT Energy (Li-Ion), Sakti3-Dyson (Solid-State), and currently with NantG Power (Lithium-Ion). Dr. Albano received his Ph.D. and Master's degrees in Materials Science and Engineering from The University of Michigan - Ann Arbor (USA) and Engineering Diploma from Grenoble School of Physics (France).

U.S. Based Next-Generation Lithium-Ion Battery Manufacturing

Abstract: Domestic manufacturing of lithium-ion battery cells is essential for supporting the U.S. transition from a fossil-fuel based economy to electrified drivetrains and renewable energy generation and storage and related infrastructure development. Traditionally lithium-ion battery cells have been manufactured successfully at commercial scales in Japan, Korea, and China, however the reliance on expensive transition metals like Cobalt and the instability of supply chain due to international tensions have made non sustainable to continue relying on foreign supply. NantG Power has invested the last three years developing next-generation battery materials based on graphene and sustainable locally sourced elements like Iron, Manganese and Phosphates to enable manufacturing of lithium-ion batteries economically and domestically. Instead of traditional anode and cathode materials we utilize novel LMFP and silicon based active materials that offer several advantages in energy density, cycle life, safety, sustainability and cost. We also explore the influence of scale in battery manufacturing, identifying bottle necks and the areas of innovation that can affect the success of this approach to creating a domestic battery industry. We take a materials centric approach to battery manufacturing vertically integrating materials innovation and active materials production to manufacture products that can compete with incumbent lithium-ion technologies, but without the use of problematic materials

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