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Date: Friday, Feb. 23, 2024

Time: 1:00 -- 1:50 pm

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Sustainability for Advanced Manufacturing

Abstract: In this talk, our focus is on sustainability for advanced manufacturing. The intention is to manufacture materials using Environmental and Sustainable products to promote engineering in an environmentally conscious manner to make sure that life and the environment are supported. The goal is to propose conscious manufacturing and services that care for our survival, applied to several industrial segments including oil and gas, medical, manufacturing, aerospace, and tourism. Particularly, we will discuss sustainable manufacturing transition in the following areas where I have been working collaboratively:

- (i) Manufacturing of Sustainable Catalysts for Energy Applications;
- (ii) Sustainability of Mass Transportation Systems;
- (iii) Sustainable Manufacturing Technologies for Structural Components;
- (iv) Manufacturing of Sustainable Composites, Carbon Circularity, Carbon Reutilization;
- (v) Advanced characterization for electron microscopy and other applications.

Biography: Dr Robles has a Bachelor, a Master and a PhD of Science degrees in Metallurgy and Materials Science and Engineering. He has over 20 years of research and industrial experience in Materials Science, Engineering and Manufacturing. During his career Dr. Robles worked for the Transportation Technology Center, Inc. as a Manager and a Principal Investigator. In August 2008 he moved to the University of Houston as an Assistant Professor, in 2014 he became Associated Professor and a Professor in 2020. He has joint appointments at the University of Houston at the Electrical Computer Engineering, Materials Science and Engineering departments, at Rice University in Materials Science and NanoEngineering. He has been working on advanced sustainable manufacturing in areas related to: additive manufacturing, nanostructured materials, catalysis, water splitting, ceramics, polymers, composites, carbon nanostructures, structural materials such as steels and aluminum alloys and their applications for the automotive and railway industries. He is currently establishing the center for electron microscopy at the University of Houston. In addition, he is highly skilled in characterization, electron microscopy and spectroscopy. His current research focus includes energy transition, carbon circularity and net-zero. He has a record of over 130 peer review papers, more than 150 conferences, industrial reports and over \$9 M in research funding, in addition he played a key role collecting >\$ 8.5M to establish the university wide core facility for electron microscopy.