

Materials Science & Engineering and Metallurgical Engineering Graduate Seminar

Wednesday, November 28, 2018, 4:10-5:00PM, WEB 1230

Dr. Jim Steppan

Vice President of Research & Development
HiFunda LLC

Industrial Applications of Chemistry, Electrochemistry, Materials Science, and Engineering

Dr. Jim Steppan will discuss how chemists, materials scientists, and engineers contribute to multidisciplinary teams to solve complex technical and materials challenges for aerospace, medical, chemical, and energy applications. A number of different case histories will be presented along with lessons learned and guidance for students going to work in industry. In addition, Jim will provide an overview of HiFunda LLC, a company that specializes in the development of advanced materials for unique applications.

Dr. Steppan is Vice President of Research and Development at HiFunda, LLC in Salt Lake City, Utah. Jim has extensive experience in design, development, fabrication, scale-up, and testing of ceramic membranes for gas separation, proton conducting fuel cells (PCFC), methane to benzene and other applications at Ceramtec and CoorsTek Membrane Science (CTMS). At EmiSense, Jim played a key technical and leadership role in this successful startup company that develops and demonstrates robust exhaust gas sensors for detection of particulate matter (PMTrac[®]), NO_x (NOxTrac[®]), and O₂. Prior to joining Ceramtec, he was engaged in the (R&D) of chemical and electrochemical processes for unique applications at Lockheed Martin (LM) Missiles and Fire Control in Orlando, Florida.



He received his B.E. degree in chemical engineering and chemistry, his M.S. and Ph.D. degrees in chemical engineering from Vanderbilt University. His master's thesis focused on the development of a new accelerated test utilizing thin film electrodes and test chamber (U.S. Patent 4,770,031) to characterize the effects of atmospheric pollutants upon electronic components. His doctoral dissertation focused on characterizing the mechanism, kinetics, and mass transfer of copper electrochemistry in polyethylene glycol – water solutions using rotating ring disk electrodes. Dr. Steppan has served on Vanderbilt University's Chemical Engineering Department's Industrial Advisory Committee. Dr. Steppan is co-author of 14 issued patents and over 50 technical papers.