Seminar Title: Physics and Modeling of Stability of Perovskite Solar Cells

By

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Abstract:

Perovskite solar cells are known to degrade under sunlight. In this talk, we describe the physics of this degradation, showing that the creation of ions by light, as well as thermal ion concentrations, play a major role in the degradation. We also show that different interfaces lead to differences in degradation. We use experiments on degradation under different illumination intensities to develop an analytical model which matches the time series of degradation very well. We will also describe novel inorganic perovskite materials capable of high conversion efficiencies.

Biography:

Dr. Dalal is Anson Marston Distinguished Professor of Engineering at Iowa State University. He also holds the Whitney Chair in Electrical and computer Engineering at Iowa State. He has been working on photovoltaic materials and devices for over 40 years, and holds 12 U.S. patents. He has graduated 33 Ph.D. students and over 30 M.S. students. He is a Fellow of IEEE, American Physical Society and American Association for the Advancement of Science, having been recognized by all three societies for the excellence of his work on PV materials and devices. He is also a Distinguished lecturer of IEEE-EDS.