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Bio:

Jian V. Li received a bachelor's degree in modern physics from the University of Science and Technology of China (USTC) in 1995. He received his master's and doctoral degrees in 1997 and 2005, respectively, both in electrical engineering, from the University of Illinois at Urbana-Champaign (UIUC). While at UIUC, he studied semiconductor lasers and photodetectors. Under the supervision of Dr. Shun-Lien Chuang, he co-invented the interband cascade photodetector, which has been adapted in IR focal plane arrays and in a new architecture of photovoltaic (PV) solar cell devices.

From 1997 to 2002, Jian V. Li developed measurement electronics as an electrical engineer at National Instruments Company. From 2004 to 2007, he investigated semiconductor lasers and photovoltaic detectors as a research engineer at the Jet Propulsion Laboratory (JPL), NASA/Caltech. From 2007 to 2015, he was senior scientist at National Renewable Energy Laboratory (NREL), DOE, where he investigates a wide range of semiconductor materials and devices (primarily PV devices but also solid-state lighting LEDs and infrared photodetectors) using electrical and optical techniques, such as capacitance-voltage (CV), deep-level transient spectroscopy (DLTS), admittance spectroscopy (AS), and current-voltage characteristics with temperature-illumination dependencies (JVTI). Since September 2015, Jian V. Li has been with the Physics Department in the Texas State University as an associate professor. In Fall 2015, he is teaching MSEC7395B "Thin-Film Photovoltaic Devices".

Jian V. Li's research interests are mainly in the electrical properties of semiconductor materials and devices, including defects, disordering, interfaces, recombination mechanisms, junction formation, carrier transport, carrier lifetimes, and their characterization as well as development of characterization techniques/instrumentation.

Abstract for the commercialization forum:

Title: Things I wouldn't know unless I have been there

Using my own experience as a data point, I will discuss and compare the three working environments – industry, government labs, and academia – in the following aspects: career path, institutional resources, style of operation, sources of stress, professional rewards, personal benefits, and, of course, commercialization activities.

Abstract for the MSEC seminar:

Title: Electrical characterization of solar-cell materials and devices

This seminar is modified from part of a tutorial that I gave at the 2015 MRS Spring Meeting in San Francisco. I will give a broad overview of electrical measurements of completed solar-cell devices, including dark and light current-voltage characteristics, quantum efficiency, recombination analysis, capacitance-voltage analysis of junction and bulk properties, as well as defect analysis by admittance spectroscopy and deep-level transient spectroscopy.