

ECE 600 Seminar
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1610 Engineering Hall
3:30PM - 5:00PM

High efficiency III-V multi-junction solar cells technology

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Abstract:

Solar cell which converts solar energy into electrical energy has been one of the most important alternative renewable energy source for many years. Researchers worldwide have constantly been putting efforts for making this clean energy source as efficient and cheap. Compared with conventional Si solar cells, III-V compound semiconductor multi-junction solar cells have excellent properties such as higher power conversion efficiency, light weight, and better resistance to radiation damage. It is also possible to fabricate the concentrating III-V multi-junction solar cells to further improve the performance of the device. The world record conversion efficiency of 43.5% is based upon concentrating multi-junction solar cell structures, monolithically integrating III-V semiconductors with different band gap energies. In this presentation, we will cover the current status and future prospect of III-V solar cell technology including various details of the design, fabrication, and characterization of the III-V solar cells.

Bio:

Jaejin Lee received his B.S. from Seoul National University in Korea and graduated with Ph.D. in Electrical Engineering from the Northwestern University in 2000. He performed postdoctoral research in the Department of Electrical and Computer Engineering at the University of Wisconsin-Madison from 2000-2001 and was as an Assistant Scientist in the same department from 2001-2003. Jaejin Lee is currently an Associate Professor in the Department of Electrical and Computer Engineering at Ajou University and is the Founding Director of the Joint Ajou-KANC (Korea Advanced Nanofab Center) Research Center in Korea. Jaejin Lee's research interests include MOCVD growth of semiconductors, nano structures, and optoelectronic devices such as III-V solar cells and GaN-based light emitting diodes. He has authored or coauthored more than 50 technical papers.