

IST-060
Modeling and Characterization of RF Power Transistors

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Industry Participants

Agere Systems Inc.

Abstract

The main objective of this project is to assist Agere in the product and process design and optimization of radio-frequency (RF) power transistors that can be used in both wireless communication infrastructures and wireless sensor networks of large structure systems. The transistors will be fabricated by Agere. Through modeling and characterization of the transistors, Lehigh contributes to their product and process design and optimization. The deliverables include test data for rapid feedback for product/process design/optimization and transistor models for circuit design by Agere and Agere's customers. The transistors represent a new line of products with so much growth potential that Agere formed a new division called Analog Products Division to concentrate on it. Through this project we can help Agere retain jobs now and create jobs later within the semiconductor and wireless communications industries that traditionally offer high pays.

In addition to research and development, this project has also a strong education component. Due to the explosive growth in wireless communications, there has been a worldwide shortage of RF engineers. Because the training of RF engineers involves unique skill sets and expensive facilities, the shortage is not likely to be eased in the foreseeable future. Lehigh's Compound Semiconductor Technology Lab is in a fortunate position to be able to train RF engineers to help ease the shortage. After training through this collaborative effort with Agere, the students are likely to join Agere thereby helping to retain highly-educated students in the Commonwealth and to enhance the competitiveness of the industry in the Commonwealth.