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Modeling III-V Devices for Advanced Communication Systems

Prof. Ilcho Angelov

Chalmers University, Sweden

Date: Wednesday, December 11, 2013

Time: 5:30 Reception, Dinner (Optional) 6:00 pm, Lecture 7:00

Place: American Center for Physics, One Physics Ellipse, College Park, MD 20740

Directions: [Map](#)

Free parking.

All IEEE members and guests are welcome to attend.

Cost: Lecture and reception free, optional Dinner \$10

Please RSVP (Dinner only) to Roger Kaul, 301-394-3568 r.kaul@ieee.org by December 10th

Abstract:

This talk discusses specifics of modeling and efficient extraction procedure for largesignal (LS) models for GaAs, GaN microwave transistors used in advanced communication systems. We try to link the model parameters directly to experimental data, focus on critical issues to trace process variations and get good quality LS models. By optimizing measurement sequence, the extraction procedure is speeded up. Accurate models, suitable for CAD tools, working at high frequencies, can be obtained by combining direct extraction of basic parameters and fine tuning the optimization using the LS VNA waveforms. The GaN HEMTs modeling is difficult task (we push the device to the limits) so special attention is paid on the consistency of the DC, smallsignal and LS waveforms. Examples of large signal modeling of GaAs and GaN transistors will be reported.

Speaker:

Photo



Dr. Angelov was born in Bulgaria. He received MSc. in Electronics (Honors) and PhD. in Physics and Mathematics from Moscow State University. From 1969 to 1992 he was with Inst. Electronics, Bulgarian Acad.

Sciences(IE BAS) Sofia as Researcher, Res. Prof. and Head of Dep. Microwave Solid State Devices (1982). Since 1992 he is with Chalmers Univ., Goteborg, Sweden as a Research Prof. As a researcher he worked with various microwave devices: Impatt, Gunn, BJT, FET, low noise & power amplifiers, oscillators, synchronization & phase modulation, frequency dividers, multipliers and low noise receivers up to 220 GHz. In the recent years his main activity is related to FET and HBT modeling. Together with CAD companies FET GaAs, and later GaN HEMT model was implemented in various CAD tools.

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