

# **Microwave Performance Of Optically Controlled MESFETs**

Alsunaidi, M.A.A. Al-Absi, M.A.; Dept. of Electr. Eng., King Fahd Univ. of Pet. & Miner., Dhahran, Saudi Arabia;  
**Electronics, Circuits and Systems, 2003. ICECS 2003. Proceedings of the 2003 10th IEEE International conference; Publication Date: 14-17 Dec. 2003; Vol: 3, On page(s): 1304- 1307 Vol.3; ISBN: 0-7803-8163-7**  
King Fahd University of Petroleum & Minerals

**<http://www.kfupm.edu.sa>**

## **Summary**

This paper presents the characterization of illuminated high-frequency active devices using a time domain physical simulation model. The model is based on Boltzmann's Transport Equation (BTE), which accurately accounts for carrier transport in microwave and millimeter wave devices with sub-micrometer gate lengths. Illumination effects are accommodated in the model to represent carrier density changes inside the illuminated device. The simulation results are compared to available experimental records for a typical MESFET for validation purposes. The calculated y-parameters of the device show the profound effect of illumination on the microwave characteristics. These findings make the model an important tool for the design of active devices under illumination control.

For pre-prints please write to: [abstracts@kfupm.edu.sa](mailto:abstracts@kfupm.edu.sa)