## INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS WAVES AND DEVICES - Phoenix Chapter



Meeting Free & Open to Non-IEEE Members <u>6:00 to 7:00PM, Wednesday, October 5, 2011</u> Agilent Offices, 4330 West Chandler Blvd, Chandler (East side of Stellar Business Center Office Park)



## Wide Bandgap Semiconductors for Microwave Power Devices Charles (Chuck) Weitzel, PhD Independent Semiconductor Professional

## Abstract

Over the last 20 years WBG (wide bandgap) semiconductor devices have matured from laboratory curiosities to mature technology platforms that enable a wide variety of commercial products. This is most evident in the rapid growing acceptance of blue, green, and white GaN based LED's. Less evident but also of importance is the development of microwave power devices based on WBG technologies. WBG microwave devices have achieved impressive performance benchmarks: very high power density (>10 W/mm), high output power (250W), and high frequency operation (fmax >100 GHz). This presentation will focus on four important WBG topics: wide bandgap material properties and how they affect device performance, SiC microwave devices (MESFET's, MOSFET's, and SIT's), field-plate structures for higher breakdown voltage and increased RF gain, and AlGaN-GaN microwave power devices, the SiC MESFET killer.

## **Biography**

During his 35-year career in the semiconductor industry Chuck Weitzel has contributed to and led a wide variety of R&D projects and technology transfers to manufacturing focusing on advanced compound semiconductor devices employing GaAs, GaN, and SiC for microwave and switch-mode power applications. He led efforts to certify GaAs FET and HBT technologies in the Motorola/Freescale manufacturing facility. For 25 years he has held leadership positions in international and Phoenix area IEEE committees, and has contributed to the International Technology Roadmap for Semiconductors (ITRS) and the International Electronic Manufacturing Initiative (iNEMI). He holds a PhD in electrical engineering from NC State University, has published over 80 technical papers, and holds 42 US patents. He was elected to the grade of IEEE Fellow in 2009. Since leaving Freescale in 2009 he has increased his involvement with the IEEE and has consulted on several wide bandgap semiconductor projects.

Date: Wednesday, October 5th, 2011

Time: 6:00 PM Presentation, Pizza will be served following the Seminar

Location: Agilent Office, Suite 367, 4330 West Chandler Blvd., Chandler AZ 85226 (In Stellar Business Center on North side of Chandler Blvd west of McClintock Rd.)

For more information, contact: Steve Rockwell (WAD Chapter Chair) Haolu Xie (Chapter Publicity)

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