

SESSION 2

COMPOUND SEMICONDUCTOR TRENDS

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Compound semiconductor technologies continue to progress at a very rapid rate, in diverse areas such as mobile devices, wide bandgap power devices, and optoelectronics. In Session 2 we are very pleased to showcase several emerging trends in compound semiconductors, with four talks focusing on diverse aspects of this industry. Wireless applications are a large and continually growing aspect of the compound semiconductor industry. Explosive growth in this market segment has placed enormous challenges on the requirements of virtually all wireless device and module technologies. The first talk is by James Young of Skyworks, who will share expertise and insights on the increasing complexity and integration required in front end mobile phone applications. System-on-chip and system-in-package implementations are compared as potential solutions for these increasing demands on front end mobile designs. Growth in the wireless industry also necessitates improved solutions for packaging technology, with drivers especially related to package performance, size, time-to-market and cost. The second talk, given by Robert Darveaux of Skyworks, explores the emerging challenges and potential solutions for packaging technology in the wireless industry. Wide bandgap materials such as SiC and GaN have emerged as the compound semiconductor materials of choice for a wide variety of power electronic devices. The market drivers and technology trends in these wide bandgap materials are explored in the third paper in Session 2. In this paper, Hong Lin of Yole Developpement describes SiC and GaN materials and markets, progressing to other emerging WBG materials and their potential role in fulfilling the rapidly growing demands of power electronics. Optoelectronics device technology is a fundamental and growing segment of the overall compound semiconductor market. GaAs-based VCSELS in particular are a rapidly growing technology due to their increasing use in sensing, gesture recognition, and other optical illumination applications. In the fourth and final talk of Session 2, David Cheskis of Anadigics describes the economics of a 6 inch VCSEL wafer fabrication foundry, and its role in enabling continued growth of VCSEL use in a wide variety of emerging laser applications.

