



IEEE Electron Devices Society

Northern Virginia Chapter

invites you to hear a talk on

Implications of Trends in the Si Industry on the Compound Semiconductor Industry: Do We Need a Technology Roadmap for Compound Semiconductors?

By

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Date: Tuesday, October 19, 1999
Refreshments: 6:30 PM – 7PM
Talk: 7 PM – 8 PM
Place: Room #320, Science and Technology Building II,
George Mason University, Fairfax, VA.

Directions: <http://www.gmu.edu/gmu/Directions-to-GMU.html>
Parking: Tuesday evenings are busy at GMU; please use the parking deck near the Center for Performing Arts (\$1.25 per hour). If the deck is full, there will be a sign directing you to elsewhere on the campus (no charge).

Contact: Prof. Dimitris Ioannou at (703) 993-1580 or
Dr. Frederick Brady at (703) 367-3954

Note: We are trying to rejuvenate the Northern Virginia Chapter of the EDS and hope that you can join us and meet colleagues in your field, share information and network. If you would like to take a more active part in the Chapter activities, please contact Murty Polavarapu at murty.polavarapu@lmco.com. Please feel free to circulate the meeting notice.

ABSTRACT

During the last five or so years, a compound semiconductor industry that is distinct from the silicon semiconductor industry has emerged.

The competitiveness among silicon CMOS manufacturers is shifting from an emphasis on technology and fabrication to a much greater emphasis on product design and architecture. A similar shift may occur for one or two major applications of compound semiconductors; particularly, in applications for which compound semiconductors and elemental silicon co-exist.

Given this context of change, the co-existence of Si and compound semiconductors for some applications, and the success of consensus-based planning in the silicon CMOS industry, we ask the question "How much value would an International Technology Roadmap for Compound Semiconductors (ITRCS) add?" Other obvious questions include: "Does the compound semiconductor industry need its own roadmap?" "Is this community ready to undertake the challenge of formulating an ITRCS?" "And who will provide the necessary resources?"

The roles cited for compound semiconductors in public versions of existing technology roadmaps from OITDA, MEL-ARI-OPTO, NEMI, and OIDA will be discussed and compared. In particular, the extent to which these technology roadmaps treat compound semiconductors at the materials processing and device levels will be presented. For example, OITDA's Optical Communications Technology Roadmap directly connects the need of 100 Mbps to the home for delivering HDTV to 200 GHz HBTs with 30 nm bases and InP HEMTs with 100 nm gates. This OITDA roadmap also contains challenges for CMOS. The value added by an ITRCS will depend on how industry leaders respond. Some metrics for measuring this value will be given. And some initial actions for progress towards an ITRCS will be suggested.

ACRONYMS

CMOS	Complementary Metal Oxide Semiconductor
HBT	Heterojunction Bipolar Transistor
HDTV	High Definition Television
HEMT	High Electron Mobility Transistor
IC	Integrated Circuit
ITRCS	International Technology Roadmap for Compound Semiconductors
ITRS	International Technology Roadmap for Semiconductors
MEL-ARI-OPTO	Microelectronics Advanced Research Initiative Optoelectronics
NEMI	National Electronics Manufacturing Initiative
NTRS	National Technology Roadmap for Semiconductors
OIDA	Optoelectronics Industry Development Association
OITDA	Optoelectronic Industry and Technology Development Association
SELETE	Semiconductor Leading Edge Technologies
SIA	Semiconductor Industries Association
SRC	Semiconductor Research Corporation