

2007 Symposium on Nano Device Technology

The Symposium on Nano Device Technology 2007 organized by National Nano Device NARL, will provide an open forum for the discussion of recent developments on nano-technology and advanced devices, materials and processes. Scientists, scholars and experts in the fields

CREATE FOR THE FUTURE

 **NNDL** National Nano Device Laboratories
國家奈米元件實驗室



時間: 中華民國96年5月9-15日

地點: 新竹市科學工業園區展業一路26號 奈米電子研究大樓 國際會議廳

奈米元件技術研討會 2007

主題

- 》後矽奈米電子元件技術
- 》奈米生物技術
- 》功能性奈米材料技術
- 》奈米檢測技術
- 》高頻技術及應用
- 》奈米光晶元件技術

High-voltage Device Modeling Solutions (HVMOS/LDMOS/Macro Modeling Approaches)

James Ma, Ph.D.,
President/CEO,
ProPlus Design Solutions

ABSTRACT

As high-voltage devices such as DeMOS and LDMOS become more widely used in the LCD driver, power management IC and so on, there is an increasing demand for the ever higher requirements of the high-voltage device models. In this talk, the Cadence's proprietary compact models HVMOS and LDMOS are introduced and discussed. The unique features of these models are illustrated and demonstrated with the good fitting versus the silicon data. Since these compact models are implemented into the BSIMProPlus extraction tool with the parameter extraction, the compact modeling approaches are also compared to the macro modeling (sub-circuit modeling) approach in the BSIMProPlus, in terms of the modeling accuracy, ease of model extraction, model simulation speeds, and simulator compatibility, etc.

James Ma received his BS and MS degrees from South China University of Technology, China, in 1986 and 1989 respectively, and his Ph.D. degree from University of Hong Kong in 1992, all in electrical engineering. He was a postdoctoral researcher in the EECS Dept. of UC Berkeley from 1992 to 1994, working for Profs. Ping Ko and Cheming Hu.

In 1994 ~ 1997 and 1998 ~ 2005, he worked for Integrated Device Technology Inc., USA, as a senior device engineer and manager, responsible for CMOS device development, device modeling, and test chip design. From 1997 to 1998, he worked for Chrontel Inc., USA, as a device technology manager. In 2005 ~ 2006, he worked for Cadence Design Systems Inc., as a senior engineering manager in charge of the worldwide device modeling service and product engineering for BSIMProPlus and NoisePro.

In late 2006, he and his colleagues found the ProPlus Design Solutions Inc. in California, USA, which specializes in advanced device modeling tool and modeling services. Soon after, his company acquired the BSIMProPlus and NoisePro product lines from Cadence, including the Advanced Modeling Service Lab. He then became the President and CEO of the company. He has published ~45 technical papers in international conferences and journals. He holds one US patent and has a few more in pending.