

## **Beyond the roadmap technology – NDL's effort on nano device architectures for post Si electronic**

**Wei-Xin Ni**

*TSMS/NCTU Chair-professor, National Nano Devices Laboratories, Hsinchu Science Park, Taiwan 300, R.O.C.*

During the passed decade, National Nano Device Laboratories (NDL) played a significant role in support of universities in Taiwan for research and development in advance semiconductor device and process technologies, and educating and training high-tech people for the microelectronics industries. With the recent development of the processing technologies into the nano-meter scale, NDL is facing many new research topics and new challenges. Therefore, NDL is further tightening up links with both the universities and relevant industries, to shift the R & D focus from sole-Si process-oriented to the new generation of nano-devices and relevant application areas.

Within this communication, I would first give a brief description on the restructuring and the strategic plan of NDL, follow by recent efforts at NDL on nano device architectures for post Si electronics, especially challenges and opportunities on the device and materials issues about what's beyond the "roadmap". Several device examples will be discussed, including high mobility channel MOSFETs, nanocrystal nonvolatile memories, single-electron transistors, and some other novel photonic and bio devices with consideration for chip integration as well.

*E-Mail: wxni@mail.ndl.org.tw*

*Website: <http://www.ndl.org.tw>*