

## **Fabrication of silicon nano-ribbon and nano-FETs by using AFM anodic oxidation**

황민영, 최창용, 정지철, 안정준, 구상모  
광운대학교

**Abstract :** AFM anodic oxidation has the capability of patterning complex nano-patterns under relatively high speeds and low voltage. We report the fabrication using a atomic force microscopy (AFM) of silicon nano-ribbon and nano-field effect transistors (FETs). The fabricated nano-patterns have great potential characteristics in various fields due to their interesting electronic, optical and other profiles.

The results shows that oxide width and the separation between the oxide patterns can be optimally controlled. The subsequently fabricated silicon nano-ribbon and nano-FET working devices were controled by various tip-sample bias-voltages and scan speed of AFM anodic oxidation. The results may be applied for highly integration circuits and sensitive optical sensor applications.

**Key Words :** AFM, nano-ribbon, nano-FETs, oxidation, SiNWs

### **Acknowledgement**

This work was supported by National Research Foundation of Korea Grant funded by the Korean Government(2009-0066544)