

## **Negative Pattern Scheme (NPS) design for nanowire formation using scanning electron microscope based electron beam lithography technique**

### **Abstract**

In this work, we report the used of Negative Pattern Scheme (NPS) by Electron Microscope Based Electron Beam Lithography (EBL) Technique in connection with scanning electron microscope (SEM) for creating extremely fine nanowires. These patterns have been designed using GDSII Editor and directly transferred on the sample coated with ma-N 2400 Series as the negative tone e-beam resist. The NPS designs having line width of approximately 100 nm are successfully fabricated at our lab. The profile of the nanowire can be precisely controlled by this technique. The optical characterization that is applied to check the nanowires structure using SEM and Atomic Force Microscopy (AFM).

**Keywords;** Electron Beam Lithography, ma-N2400 Negative Resist, Negative Pattern Scheme, Silicon Nanowire