

# ***COLLOQUIUM (2015-1)***

## ***School of Materials Science & Engineering***

**“Various functional nano-scaled structures fabricated using nanoimprint for highly efficient optoelectronic devices”**

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**(Dept. of Materials Science and Engineering, Korea Univ.)**

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**APRI 1F, Auditorium Hall**

*Various functional nano-scaled structures fabricated using nanoimprint for highly efficient optoelectronic devices*

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**Abstract**

Recently, nanoimprint lithography (NIL) has gained great attention as an effective patterning technology in the fields of light emitting diodes (LEDs), solar cells, and other optical devices, because of its simplicity and cost effectiveness. The aim of this research is the development of NIL based direct printing process with an imprint resist containing dispersed various metal oxide (ZnO, TiO<sub>2</sub>, and ATO) nano-particles. A functional nano pattern can be easily fabricated by this direct printing of functional materials. The properties of substrates, such as transmittance, diffraction, refractive index, and hydrophobicity, was successfully controlled by forming the functional nano-patterns. Finally, the efficiency of optoelectronic devices, such as solar cell and light-emitting diodes was drastically enhanced.

**Keywords:** Nanoimprint lithography, Functional nano structure, Optoelectronic device,

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### **Research interests:**

- Nanoimprint Lithography and Direct transfer technology for nano-fabrication
- Nano particle/wire based device fabrication
- Nano-pattern based Optoelectronic devices
- Nano-pattern based Metamaterials

**Author and Inventor of 150+ SCI papers and 100+ patents**