

The Department of Mechanical Engineering/College of Engineering and Applied Sciences  
Stony Brook University

## Mechanical Engineering Seminar



**Yun Young Kim**

Postdoc Research Fellow  
Center for Quality Engineering and Failure Prevention  
Northwestern University

### **Lecture Title: Photothermally-assisted Self-assembly of Ordered Nanopatterns for Solar-cells**

Friday, June 17, 2011, 11AM, Room 173 Light Engineering

#### **Abstract**

The present talk will discuss an assisted bottom-up approach that perturbs the instability of thin-film morphology and guides the growth of surface nanopatterns through photothermal modulation. The technique will be demonstrated in different material systems such as organic/inorganic multilayers and lattice-mismatched heteroepitaxial structures to show the generality of the concept even if specific mechanisms of deformation are not identical. The proposed technique will provide a path to a novel fabrication process in which a simple post-deposition laser-treatment leads to self-organization of ordered nanostructures for applications in science and engineering, including optoelectronic devices for energy conversion as an example.

#### **Biography**

Yun Young Kim is currently a postdoctoral research fellow in the Center for Quality Engineering and Failure Prevention at Northwestern University, where he has received his Ph.D. degree in Mechanical Engineering in 2010. He has also earned his M.S. and B.S. degrees in Mechanical Engineering from Yonsei University in Republic of Korea. Dr. Kim's research interests are in thin-film technology, especially for fabrication of surface nanostructures with applications to nanophotovoltaics and photoacoustic characterization of material properties. He is a recipient of the 6th 'Inside Edge' international paper competition award by Samsung electro-mechanics as well as the Walter P. Murphy fellowship from Northwestern University.

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