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

Mechanical Engineering Seminar

Yun Young Kim

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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 nanophotovotaics and photoacoustic characterization of material properties. He is a recipient of the 6th '1nside Edge' international paper competition award by Samsung electro-mechanics as well as the Walter P. Murphy fellowship from Northwestern University.

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