BILKENT UNIVERSITY

unam - INSTITUTE of MATERIALS SCIENCE & NANOTECHNOLOGY

FACULTY OF SCIENCE

MATERIALS SCIENCE and NANOTECHNOLOGY GRADUATE PROGRAM SEMINAR

"Single Crystal Semiconductor Devices on Amorphous Substrates for Efficient and Low-cost Energy Conversion, Sensing and Displays"

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This talk will present an experimental method to fabricate devices on single crystal substrates in the shape of micro-nano-pillars via both top-down and bottom-up techniques and then transferring them to low cost carrier substrates while simultaneously preserving the integrity, order, shape and fidelity of the transferred device arrays. The original substrates are repeatedly used for continual production of new devices and are minimally consumed. We are also developing advanced flexible electrodes and studying the interfaces between semiconductor devices and electrode materials such as composite of metal and conducting polymer (CP), metallization pastes, transparent conducting oxide, metal nano-particle and graphene enforced CP. This heterogeneous integration technique potentially offers the ability to integrate any kind of single crystal semiconductor materials and devices on any arbitrary surface maintaining low physical fill factor to ensure low dark current, reduced parasitic capacitance and higher efficiency of light absorption. The technology enables high performance multi-material integration for large-scale applications in the areas of energy devices and micro/nanophotonics.

Date : June 24, 2010 - Thursday
Time : 15:40
Place : Faculty of Science Building, A Block, Seminar Room (SA 240)