

Special Program in Applied Mathematics and Applied Mechanics

Approaches for the Biomedical Diagnosis and Detection in Resource-Limited Settings

2015 - 03 - 04 (Wed.)

14:20 - 15:50

308, Mathematics Research Center Building (ori. New Math. Bldg.)

Attention toward health care in developing countries has grown intensively in recent years. Researchers have contributed extraordinary efforts to fight major diseases, enabled by the availability of cost-effective and high sensitive diagnostic systems for early discovery, timely treatment and prognosis monitoring to improve vector control. However, classic laboratory tests require costly and complex infrastructures, well-trained personnel, and a stable power source that are lacking in resource-constrained settings. In order to solve abovementioned difficulties, we address the need using a platform that is based on affordable, sensitive, specific, user-friendly, rapid and robust, equipment-free and deliverable to end-users manners using different approaches that combine nanocarbon field-effect transistors with cyclo olefin polymer based and paper-based analytical devices. In addition, different sensing mechanisms including device fabrication, surface chemistry and biomolecular recognition are also investigated to discern potential use for future applications.

