



Friday, February 10th, 2012, 2:00 P.M.

Room No. 109, DASAN bldg. 1st Floor

(Host: Prof. HyukSang Kwon / Language: English)

Developing Intravital Multiphoton Microscopy for Biomedical Research

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Traditionally, the difficulty of accessing internal organs has often limited the study of complex cellular physiology to *in vitro*, monolayer systems. While *in vitro* studies using techniques such as optical imaging and electron microscopy have provided a wealth of dynamic and structural information of cells and tissues, the critical components of biophysical phenomena in complex three-dimensional tissues are missing. Therefore, much of our efforts have been focused at developing microscopy techniques leading to the study of physiological phenomena *in vivo*. In this presentation, I will discuss the efforts we have made in developing intravital multiphoton microscopy (IMM) for investigating biophysical and physiological events in living mouse animal models. In the process, we found that multiphoton microscopy can be useful for medical diagnostic purposes, quantification of tissue thermodynamic properties, evaluation of tissue engineering products, and the elucidation of hepatic metabolism *in vivo*. Future developments and impacts of our studies for biomedical engineering will be discussed.