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강연제목: 심혈관 질환 모델의 무표지 다기능 광학영상기법 연구

(Label free selective optical imaging for cardiovascular disease)

#### Abstract:

Although the mortality rate of acute myocardial infarction has decreased with the development of continuous drug treatment and percutaneous coronary intervention, the incidence of chronic ischemic heart failure, a complication, is on the rise, which is a major cause of the increase in the health care budget. In the course of acute myocardial infarction, cholesterol is deposited on the walls of the coronary arteries and a fibrous cap surrounds it to form an atherosclerotic plaque. Atherosclerosis occurs when the coronary arteries are completely blocked by sudden rupture. In this study, we tried to confirm the applicability of the optical technique using an animal model with atherosclerotic plaques. A light source in a wavelength band that reflects the optical properties of the lipid core and fibrous membrane well was developed and an optical imaging technique (polarization sensitivity OCT, dichroism sensitivity photoacoustic imaging) was applied. Image processing was performed to obtain specific indicators (degree of birefringence, sensitivity to light absorption by polarization) from the acquired optical images, and compared with judgment techniques based on histological images used in clinical practice.

#### Brief Biosketch

Dr. Tae Joong Eom is currently associated professor of Department of Optics and Mechatronics Engineering at Pusan National University in Republic of Korea. He received his Ph.D. degree in Electronics from Gwangju Institute of Science and Technology, Gwangju, Republic of Korea. Since then he moved to Advanced Photonics Research Institute in GIST. His research interests are the development of novel biomedical imaging techniques including clinical optical coherence tomography, label-free photoacoustic microscopy tomography.