Subtraction Imaging Analysis by X-Ray Photoacoustic Spectroscopy

S.Kawano*1, T.Masujima*1, T.Toyoda*2, H.Shiwaku*3
M.Ando*3, Y.Amemiya*3, T.Hinoue*4, Y.Yokoyama*4
H.Imai, G.Tamai, M.Kadoyama*1
T.Hiraga*1, I.Wada*1, K.Ikeda*1

ABSTRACT Relatively complex model sample was measured by X-ray photoacoustic imaging using synchrotron radiation as a light source. Images of photoacoustic signal amplitude and phase value were obtained at above and below Cu K-edge respectively, and subtraction between them were carried out. 2-Dimentional distribution was shown by the change in signal amplitude corresponding to that of absorption coefficient. Thickness of surface layer (polyethylene terephthalate) was estimated by the phase image. Subtraction Image of the phase has possibility for depth profiling by the complementary use of the photoacoustic imaging and phase analysis.
*1 Hiroshima University School of Medicine 広島大学医学部
*2 University of Electro-Communications 電気通信大学
*3 National Laboratory of High Energy Physics 高エネルギー物理学研究所
*4 Osaka University, Faculty of Science 大阪大学理学部