

Compton PET
Yet Another Liquid Xenon PET?

K.L. Giboni
Columbia Astrophysics Lab

The present quality of PET images is limited by background. These events reduce the contrast of the image and diminish the statistical significance of any observed structure. One large class of background events have at least one of the photons Compton scattering in the body of the patient. These events can be identified by the reduced energy of the scattered photon, but the energy resolution of crystal scintillator PET is not sufficient. A liquid xenon detector with combined charge and light read out provides a significant improvement in energy resolution. Besides more efficient tagging of background events, many of these events can be correctly reconstructed by using Compton kinematics.