

Simulation of Cone Beam Computed Tomography of Core Samples from Oil and Gas Taking into Account Spectral Information in Geant4

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With the advent of photon counting matrix detectors it is become possible to take into account spectral information in CBCT. It gives benefits of improving contrast, reducing beam hardening artifact and separation of components with similar effective X-ray attenuation. In this study the positive effect of spectral analysis on tomography of core samples from oil and gas fields is estimated by simulating experiment in Geant4. In case of ideal tube focus and experiment geometry, radiograms of PMMA cylinder with mineral insertions are obtained to perform reconstruction and compare the result with that got by typical CBCT.

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