



Detective quantum efficiency (DQE) of high X-ray absorption $\text{Lu}_2\text{O}_3\text{:Eu}$ thin screens : the role of shape and size of nano- and micro-grains.

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Kolekcja

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Streszczenie

The study concerned with the current work is to provide a comparative investigation of the detective quantum efficiency (DQE) of $\text{Lu}_2\text{O}_3\text{:Eu}$ phosphor screens, prepared with different grain shape/size grains, specifically spherical grains, with sizes 50 nm, 200 nm, and 5 μm and two screens with rod-like shape grains and sizes 500 nm and 1–8 μm . The phosphors were deposited by the sedimentation method. It was found that the influence of the grains shape on image quality is more important than the grain size. The rod-like grains show higher noise levels, at low frequencies. The influence of grains size, between 50 nm, 200 nm, and 5 μm , is negligible on the normalize noise power spectrum (NNPS) at higher spatial frequencies due to structural non-uniformities. The spherical grains exhibited higher DQE values.

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