

Photon-Counting Detector Computed Tomography

- [Visibility of Intracranial Perforating Arteries Using Ultra-High-Resolution Photon-Counting Detector Computed Tomography \(CT\) Angiography](#)
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Traditional CT scanners use energy-integrating detectors while photon-counting detectors count individual X-ray photons. Photon-counting detectors offer several potential advantages, including improved image quality, reduced radiation dose, and the ability to distinguish between different energy levels of X-rays.

High-resolution photon-counting CT can very clearly image segmented DBS electrode contacts and directional markers and unambiguously determine lead orientation, with lower radiation than in conventional imaging. This obviates the need for further imaging and may facilitate anatomically tailored directional programming ¹⁾.

see [Photon-Counting Detector Computed Tomography Angiography](#).

¹⁾

Manfield J, Thomas S, Bogdanovic M, Sarangmat N, Antoniadis C, Green AL, FitzGerald JJ. Seeing Is Believing: Photon Counting Computed Tomography Clearly Images Directional Deep Brain Stimulation Lead Segments and Markers After Implantation. *Neuromodulation*. 2023 Nov 2:S1094-7159(23)00746-8. doi: 10.1016/j.neurom.2023.09.003. Epub ahead of print. PMID: 37921733.

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