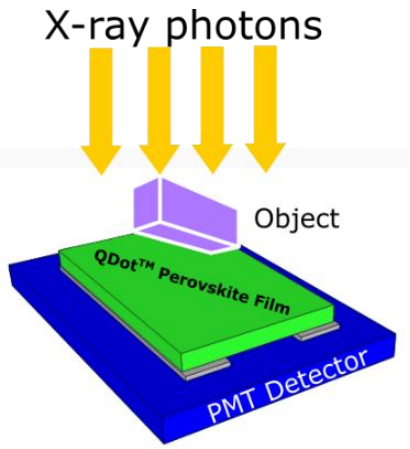
Perovskite Quantum Dots for X-Rays

Scintillators, which are capable of converting ionizing radiation into visible photons, are very important for such areas as: inspection, failure/cracks detection, security X-ray imaging, nuclear cameras, and computed tomography. QDot™ Perovskite Quantum Dots can be used as an efficient X-ray scintillation material. It exhibits strong luminescence (tunable in the range of 450-685 nm) under X-rays that is readable by the conventional silicon imaging camera. It is also compatible with PMT detectors, silicon photodiodes or photomultipliers.

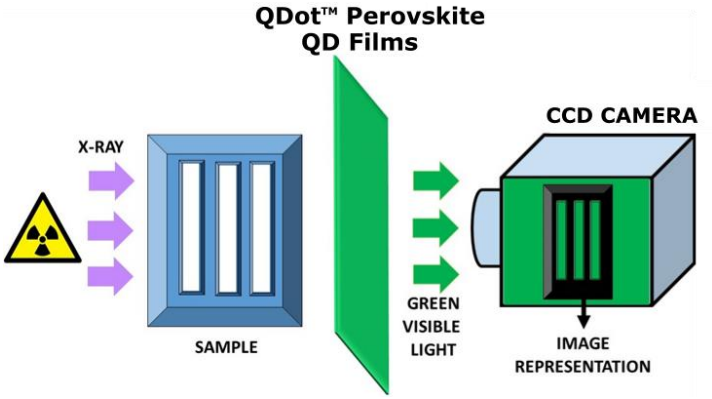
BENEFITS:

- High sensitivity (from 13 nGy/s)
- High light output (50 % of CsI:Tl)
- Short decay time (40 ns)
- High stopping power
- Solution processable
- Enable flexible X-ray detector



DEVICE EXAMPLE:

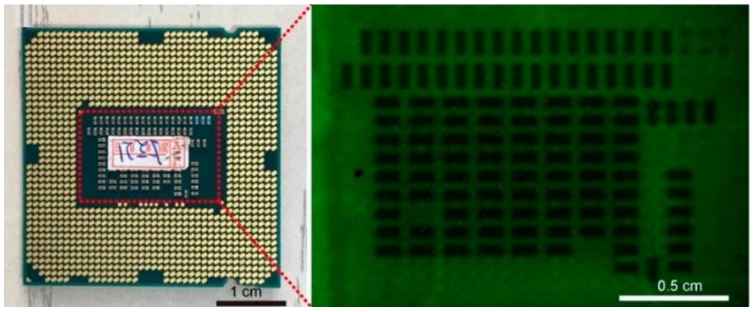
QDot™ Perovskite QDs are a novel superior X-ray scintillator material with an exceptional sensitivity. The fast response to X-ray photons is critical especially in medical radiography and also industrial inspection.



PERFORMANCE:

QDot™ Perovskite Quantum Dots	
Emission peak	410 – 685 nm
FWHM	< 20-25 nm
Decay time under 661 keV	< 50 ns
Light output at 10kV (% of CsI:Tl)	50 %
Detection limit	13 nGy/s

QDot™ Perovskite QDs as an X-ray scintillator can convert X-ray photons to visible light which can be easily detected by commercial available photodetector (CCD camera). Solution process ability and good compatibility with photodetector make it appealing for commercial application.



Products portfolio:

QDot™ Perovskite ABX3 Quantum Dots

QDot™ SharpGreen Perovskite QDs

QDot™ SharpGreen Perovskite QDs Film

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Quantum SOLUTIONS™