Low dose X-Ray detector

Ultra-sensitive, cost-effective imaging powered by perovskite technology

Positive Impact

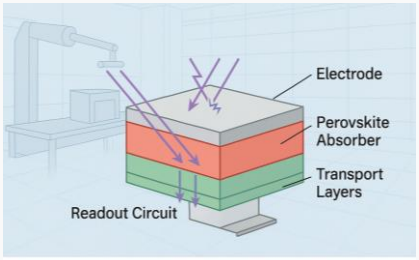
- Cost effective.
- Ultra sensitive → lower radiation dose
- Low noise / high SNR
- Any form factor (flat or curved)
- Low power

Initial Validation

Detector has been fabricated in the laboratory and x-ray detection has been demonstrated

Problem

Conventional X-ray detectors are expensive to fabricate, rely on rigid and complex architectures, and suffer from limited absorption efficiency that forces higher doses. They also face geometric mismatches and edge artifacts, leading to reduced resolution and sensitivity in real applications.



Direct perovskite X-ray detector: scalable, low-dose, high-sensitivity platform for imaging

Call to Action !!!

We are seeking technical and commercial partners to bring this technology to market. For collaboration opportunities, please contact us at:

entrepreneur@hightechxl.com

Solution

Using Perovskite materials for direct X-ray detection yield in:

- Simple, scalable processing
- Low-cost materials
- Simple detection circuit
- Fast response and higher signal/noise ratio
- Lower required radiation dose

Technology

Our technology uses direct-conversion perovskite diode detectors with a simplified charge-integration readout, minimizing layers and electronics. Because the active films are solution-processed (printing/blade/slot-die), fabrication is cheaper, faster, and scalable compared to vacuum-based alternatives. The result is high sensitivity at very low dose, enabling safer, faster screening. Critically, perovskite bandgap and chemistry are tunable, so the detector stack can be engineered for different energy ranges and application-specific absorption—unlocking tailored performance without redesigning the whole system

Potential Markets

Several markets will be benefitted from this technology such as:

→ Airport luggage detection

→ Mobile car/truck scanning (safety & military)

→ Bomb detection with mobile application

→ Metal piping in walls

→ Industrial NDT (piping, chambers, turbines)

→ Foresight: Medical applications

HIGH TECH XL