

## Diamond Detectors from Alphas to X-rays

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Diamond-based detectors can be engineered to be sensitive across a wide range of radiation species, from Alpha particles to X-rays and (nearly) everything in-between. The wide band gap of diamond inherently provides low thermal and electrical noise system. Employing doped diamond structures enhances efficiency due to the built-in electric field. Diamond's other unique physical properties enable these detectors to operate in extreme conditions that would damage similar silicon-based detectors. Advent Diamond has developed an array of semiconducting diamond detectors over a large breadth of applications: P-I-N diodes for detecting Alphas, Betas, neutrons, and protons; thin stacks of semiconducting layers to measure the mass of heavy energetic ions; lateral photoresistors for solar blind Ultra-Violet radiation; thin diamond substrates for our pixelated transparent X-rays beam monitor.