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The Large-Area Picosecond Photon Detector (LAPPD^{TM}), an Ideal Tool for Quantum Optics

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The large-area picosecond photodetector (LAPPD^{TM}) is an ultrafast imaging detector with single-photon sensitivity.
It can supply a continuous stream of photon-detection events, resolved spatially to about 0.5 X 0.5 mm^2 on an area of 20 X 20 cm^2, and temporally to about 50 ps.
The time resolution approaches the coherence time of light filtered with dielectric-layer interference filters, and so, the detector can then resolve photon occupations in each longitudinal mode of light.
Furthermore, if used with diffraction-limited optics matched to the spatial resolution, the detector can also resolve about 400 by 400 transverse modes.
LAPPD^{TM} is thus an enabling technology for quantum optics where
photon occupation numbers in each electromagnetic-field mode in 6-dimensional phase space are relevant, for example photon-correlation experiments (Hanbury Brown - Twiss, or ghost imaging).

Reference: http://psec.uchicago.edu/

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