

The magnitude of quanta from variance and intensity measurements

by Wilfred K. Fullagar and Andrew M. Kingston

Applied Mathematics, RSPE Mills Road ANU, Canberra ACT 2601, Australia

This presentation indicates how measurements of intensity and noise relate to the size and spectrum of contributing quanta under favourable noise conditions. It is useful to determine these aspects of quanta in pileup situations where their contribution dominates, and does not require other information. Its consistency with spectral information including partial registry and the role played by bandgaps in radiation detectors is similarly powerful and revealing. Obviously it also has broad scope to be usefully revealing of intervening samples, while its earlier developments were for the assistance of polychromatic and especially time resolved X-ray work at several different levels. Some examples of its use are shown in energetic particle, photon/X-ray, and other applied measurements.