



Maximum-likelihood reconstruction of photon returns from simultaneous analog and photon-counting lidar measurements

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We present a novel method for combining the analog and photon-counting measurements of lidar transient recorders into reconstructed photon returns. The method takes into account the statistical properties of the two measurement modes and estimates the most likely number of arriving photons and the most likely values of acquisition parameters describing the two measurement modes. It extends and improves the standard combining ("gluing") methods and does not rely on any ad hoc definitions of the overlap region nor on any ackground subtraction methods.

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