Title:	Optimal characterization of Gaussian channels using photon-number-resolving detectors
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Abstract:	We present optimal schemes, based on photon-number measurements, for Gaussian state tomography and for Gaussian process tomography. An n-mode Gaussian state is completely specified by 2n2+3n parameters. Our scheme requires exactly 2n2+3n distinct photon-number measurements to tomograph the state and is therefore optimal. Furthermore, we describe an optimal scheme to characterize Gaussian processes by using coherent-state probes and photon-number measurements. With much recent progress in photon-number-measurement experimental techniques, we hope that our scheme will be useful in various quantum information processing protocols including entanglement detection, quantum computation, quantum key distribution, and quantum teleportation. This work builds upon the work of Parthasarathy and Sengupta [Infin. Dimens. Anal. Quantum Probab. Relat. Top. 18, 1550023 (2015)0219-025710.1142/S021902571550023X].
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