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**Cramer-Rao bound for time-continuous measurements in linear Gaussian quantum systems** MARCO G. GENONI, Univ of Milan — We describe a compact and reliable method to calculate the Fisher information for the estimation of a dynamical parameter in a continuously measured linear Gaussian quantum system. Unlike previous methods in the literature, that involve the numerical integration of a stochastic master equation for the corresponding density operator in a Hilbert space of infinite dimension, the formulas here derived depends only on the evolution of first and second moments of the quantum states, and thus can be easily evaluated without the need of any approximation. We also present some basic but physically meaningful examples where this result is exploited, calculating analytical and numerical bounds on the estimation of the squeezing parameter for a quantum parametric amplifier, and of a constant force acting on a mechanical oscillator in a standard optomechanical scenario.

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