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General Galilei Covariant Gaussian Maps

Giulio Gasbarri, Marko Toroš, and Angelo Bassi  
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ABSTRACT

We characterize general non-Markovian Gaussian maps which are covariant under Galilean transformations. In particular, we consider translational and Galilean covariant maps and show that they reduce to the known Holevo result in the Markovian limit. We apply the results to discuss measures of macroscopicity based on classicalization maps, specifically addressing dissipation, Galilean covariance and non-Markovianity. We further suggest a possible generalization of the macroscopicity measure defined by Nimmrichter and Hornberger [Phys. Rev. Lett. **110**, 16 (2013)].

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