

# Workshop Quantum Foundations. The physics of "what happens" and the measurement problem

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## Non-Markovian Gaussian open system dynamics

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Non-Markovian dynamics describe general open quantum systems when no approximation is made. We provide the exact map for the class of Gaussian, completely positive, trace preserving, non-Markovian dynamics. We further characterize the class of stochastic Schroedinger equations that unravel this map. Moreover, by exploiting Wick's theorem, we derive the exact non-Markovian master equation for bosonic systems. We show that the master equation for non-Markovian quantum Brownian motion is a particular case of our general result.

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