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The Moyal Equation for open quantum systems

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We generalize the Moyal equation, which describes the dynamics of quantum observables in phase space, to quantum systems coupled to a reservoir. It is shown that phase space observables become functionals of fluctuating noise forces introduced by the coupling to the reservoir. For Markovian reservoirs, the Moyal equation turns into a functional differential equation in which the reservoir's effect can be described by a single parameter.

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