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## **【407】 A Keldysh Path Integral Approach to Input-Output Theory**

*Tuesday 5 September 2023 15:45 (15 minutes)*

Input-output theory is a well-known tool in cavity electrodynamics and ubiquitous in the description of quantum systems interacting with the environment. We present a new approach to input-output theory using the Keldysh path integral formalism. This approach allows us to get perturbative results for non-linear systems. We apply this novel approach to a single mode in a cavity solvable through standard input-output theory and then treat a Kerr oscillator to showcase the specific strength of our approach to yield perturbative results.

### **Theoretical Work**

Theory

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