

Second question

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Problem 1:

How can you describe the dynamics of an open quantum system?

- a) Describe qualitatively how this dynamics would arise and how it would differ from the dynamics of a closed quantum system.
- b) Provide at least one explicit mathematical description of open quantum system dynamics.
- c) What are possible strategies for counteracting the effects of this type of dynamics? Give some explicit examples.

Problem 2:

- a) Assume a quantum system is in thermal equilibrium with a large bath. What is the state of the system?
- b) Give an explicit expression for a quantum system of your choice.
- c) What type of process could have led the system to thermalize?