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## Dissipative in quantum mesoscopic RLC circuits

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### Abstract

The quantum theory for a mesoscopic electric circuit with charge discreteness is investigated. Taking the Caldirola-Kanai Hamiltonian in studying quantum mechanics of dissipative systems, we obtain the persistent current and the energy spectrum of a damped quantum LC-design mesoscopic circuit under the influence of a time-dependent external field.

**Keywords:** charge discreteness, mesoscopic electrical circuits, dissipative systems, persistent current

For the full article refer to the Persian section