

## Quantum Fluctuation in Mesoscopic Coupled LC Electric Circuits at Finite Temperature

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**Abstract:** We consider the quantization of two coupled LC circuits with mutual inductance at a finite temperature  $T$ . It is shown that the quantum mechanical zero-point fluctuations of currents in the two circuits both increase with upgoing  $T$ . Thermal field dynamics and Weyl-Wigner theorem are used in our calculation of ensemble average of the observables.

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Key words: quantum fluctuation, mesoscopic electric circuits, finite temperature

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