

Time evolution of two distant SUID rings irradiated with entangled electromagnetic fields

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A system comprising of two squid rings irradiated with entangled electromagnetic fields is considered. The Hamiltonian describing the system is:

$$H = \frac{\Delta}{2} \sigma_z^A + \frac{\Delta}{2} \sigma_z^B + \omega_1 (\alpha_1^+ \alpha_1 + \frac{1}{2}) + \omega_2 (\alpha_2^+ \alpha_2 + \frac{1}{2}) + \lambda_A \sigma_x^A (\alpha_1 + \alpha_1^+) + \lambda_B \sigma_x^B (\alpha_2 + \alpha_2^+)$$

The time evolution of this system is studied numerically. Both separable and entangled electromagnetic fields are considered and their effects on the currents is calculated. It is shown that the currents in the two Squid rings are correlated.