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Orbital Entanglement and Violation of Bell Inequalities in the Presence of Dephasing

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 [Keywords](#)
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Abstract: We discuss orbital entanglement in mesoscopic conductors, focusing on the effect of dephasing. The entanglement is detected via violation of a Bell Inequality formulated in terms of zero-frequency current correlations. Following closely the recent work by Samuelsson, Sukhorukov and Büttiker [1], we investigate how the dephasing affects the possibility to violate the Bell Inequality and how system parameters can be adjusted for optimal violation.

Key Words: orbital entanglement, dephasing, Bell Inequalities, mesoscopic physics



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