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Influence of Bipartite Qubit Coupling on Geometric Phase

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Abstract: The geometric phase of the bipartite Heisenberg spin-1/2 system with one spin driven by rotating magnetic field is investigated. It is found that in the one-site drive case, the intersubsystem coupling can be equivalent to a static quasi-magnetic field in the parameter space. This perspective has satisfactorily explained the irregular asymptote effect of geometric phase. We discuss the property of the two-site magnetic drive spin system and discover that a stationary state with no geometric phase shift is generated.

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