Optimal parametrizations of adiabatic paths

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The parametrization of adiabatic paths is optimal when tunneling is minimized. Hamiltonian evolutions do not have unique optimizers. However, dephasing Lindblad evolutions do. The optimizers are simply characterized by an Euler-Lagrange equation and have a constant tunneling rate along the path irrespective of the gap. Application to quantum search algorithms recovers the Grover result for appropriate scaling of the dephasing. Dephasing rates that beat Grover imply hidden resources in Lindblad operators.