9.4: Maupertuis' Principle and the Time-Independent Schrödinger Equation

Recall that the action, multiplied by *[Math Processing Error]* is equivalent to the phase in quantum mechanics. The case we're discussing here is evidently related to the time-*independent* Schrödinger equation, the one for an energy eigenstate, with the time-dependent phase factored out. In other words, imagine solving the time-independent Schrödinger equation for a particle in a potential by summing over paths. In the classical limit, the abbreviated action gives the total phase change along a path. Minimizing this to find the classical path exactly parallels our earlier discussion of Fermat's principle of least time, paths close to Maupertuis' minimum have total phase change along them all the same to leading order, and so add coherently.