

1077-81-1511      **Herschel Rabitz\*** (hrabitz@princeton.edu), Frick Chemistry Laboratory, Princeton, NJ 08544.  
*Are traps lurking on quantum control landscapes to impede reaching the objective?*

Seeking an optimal control for manipulating a quantum system entails searching over a landscape, which is specified by the physical objective as a function of the controls. Local suboptimal maxima acting as traps could halt a search algorithm at an undesirable objective value. The quantum control landscape critical point topology may be assessed with the conclusion that traps are not expected to exist upon satisfaction of some key physical assumptions. The validity of this conclusion is confirmed with high quality numerical calculations, and the consequences of the conclusion will be discussed. (Received September 20, 2011)