

Robust Entanglement for Multiple Trapped Ions in Thermal Motion

ZHENG Shi-Biao

Department of Electronic Science and Applied Physics, Fuzhou University, Fuzhou 350002, China
(Received: 2004-3-17; Revised: 2004-6-4)

Abstract: A robust scheme is proposed for producing maximally entangled states for many trapped ions in thermal motion. In the scheme the ions are simultaneously illuminated by two standing-wave laser fields. During the operation the phases of the lasers are inverted, which not only cancels the vibration-dependent parts in the evolution operator, but also suppresses direct off-resonant coupling of the internal states. Thus, our scheme allows the production of entanglement for hot trapped ions with laser fields of high intensity, which makes the entanglement speed extremely high.

PACS: 42.50.Dv, 42.50.Vk

Key words: entanglement, trapped ion, thermal motion

[\[Full text: PDF\]](#)

Close