

Accessible Information for Equally-Distant Partially-Entangled Alphabet State Resource

HAO San-Ru,^{1,2} HOU Bo-Yu,² XI Xiao-Qiang² and YUE Rui-Hong²

¹ Calculating Physics Division, Department of Computer Teaching, Hunan Normal University, Changsha 410081, China

² Institute of Modern Physics, Northwest University, Xi'an 710069, China
(Received: 2001-4-19; Revised: 2001-6-12)

Abstract: We have proposed a quantum system with equally-distant partially-entangled alphabet states which has the minimal mutual overlap and the highly distinguishability, these quantum states are used as the "signal states" of the quantum communication. We have also constructed the positive operator-valued measure for these "signal states" and discussed their entanglement properties and measurement of entanglement. We calculate the accessible information for these alphabet states and show that the accessible information is closely related to the entanglement of the "signal states": the higher the entanglement of the "signal states", the better the accessible information of the quantum system, and the accessible information reaches its maximal value when the alphabet states have their maximal entanglement.

PACS: 03.65.Bz, 03.67.-a, 89.70.+c

Key words: accessible information, alphabet states, POVM, entanglement

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

Close