# APPLICATIONS OF GENERALIZED SCHMIDT

# DECOMPOSITION IN QUANTUM COHERENCE THEORY

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## ABSTRACT

Based on the standard form of generalized Schmidt decomposition of three qubit pure states, we discuss the super-additive relation, sub-additive relation, monogamy relation and other trade-off relations of quantum coherence measure. We first present correct proofs of super-additive relation and strong super-additive relation of $l_1$ norm coherence, then prove two sub-additive relations of $l_1$ norm coherence. We also present the conditions of the monogamy relations about $l_1$ norm coherence and the square of $l_2$ norm coherence separately, and finally establish their corresponding trade-off relations respectively.

**Keywords:** Generalized Schmidt decomposition; $l_1$ norm coherence; $l_2$ norm coherence; super-additive relation; sub-additive relation; monogamy relation.