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Generalized coherence vector: definition and applications

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A notion of coherence vector of a general quantum state is introduced on the framework of quantum coherence resource theory [1]. This generalized coherence vector completely characterizes the notions of being incoherent, as well as being maximally coherent. Moreover, using this notion and the majorization relation, a necessary condition for the conversion of general quantum states by means of incoherent operations is obtained. Finally, a new family of coherence monotones based on the coherence vector is introduced.

[1] G.M. Bosyk, *et al.*, Phys. Rev. A 103, 012403 (2021)

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