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Distillation of Genuine Tripartite Quantum Steering

Motivated from the work on distillation of Einstein-Podolsky-Rosen steering by Nery et al, we present a distillation scheme that extracts perfect genuinely steerable assemblages of GHZ/W type from the 'N' partly genuinely steerable assemblages of GHZ/W type by applying free operations. We first introduce free operations in the context of genuine tripartite steering and show that 2W-LOCC and 1W-LOCC operations do not create genuine steering in one-sided device independent (1SDI) and two-sided-device-independent (2SDI) scenario respectively. Our distillation protocol works in 1SDI as well as 2SDI scenario when the input resource is of GHZ type. When the input resource is of W type, distillation is possible only for the 1SDI scenario. This provides a useful scheme for distinguishing two kind of genuinely steerable correlations in tripartite scenario. Later, we illustrate steering distillation of GHZ/W type in n-partite scenario using our protocol.

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