

# Measurement-induced phase transition, multipartite entanglement and critical quantum metrology

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Measurement-induced phase transition arises from the competition between a deterministic quantum evolution and a repeated measurement process. We explore the measurement-induced phase transition through the quantum Fisher information in two different metrological scenarios. We demonstrate through the scaling behavior of the quantum Fisher information the transition of the multi-partite entanglement across the phases. In analogy with standard quantum phase transition, we reveal signature of a measurement-induced phase transition in the non-analytic behaviour of the quantum Fisher information as the measurement strength approaches the critical value. Our results offer novel insights into the features of a quantum systems undergoing measurement-induced phase transition and indicate potential avenues for further exploration in the field of quantum physics.