Superadditivity of Fisher Information: Classical vs. Quantum

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Superadditivity of Fisher information concerns the relation between the Fisher information in a composite system and those of its constituent parts, and is a surprisingly subtle issue: While the classical Fisher information is superadditive and thus is in accordance with our intuition, various versions of quantum Fisher information, which are natural generalizations of the classical one, may violate superadditivity, as illustrated by F. Hansen for the Wigner-Araki-Yanase skew information. This stands in sharp contrast to many authors belief. In this talk, we review several aspects of superadditivity, discuss its implications and applications, and highlight some related problems.