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Quantum catalysis of information KOJI AZUMA, Department of Materials Engineering Science, Osaka University, MASATO KOASHI, NOBUYUKI IMOTO, Department of Materials Engineearing Science, Osaka University; CREST — In quantum information science, it has been long believed that no one can access quantum information in a system without disturbing it. In fact, the belief has been corroborated by several no-go theorems such as the no-cloning theorem and the no-deleting theorem. Here, however, we show that the belief is incorrect, by exhibiting a novel process, 'quantum catalysis of information', in which, without receiving any disturbance, a system certainly exchanges a type of information that cannot be transmitted without quantum communication channel.

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