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【138】Direct Path State Characterization in Neutron Interferometry

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Quantum state tomography is an approach to reconstruct a quantum state but involves a lot of computational post-processing. So in 2011 a novel more direct method was established, without the post processing, using so called weak measurements. However, because of this *weakness* the information gain is very low. Now we managed to combine these two methods and got the benefits from both. Our procedure is based on the method established in 2011, without the need of computational post processing, but at the same time uses strong measurements, which makes it possible to determine the quantum state with higher precision and accuracy, which is demonstrated in a neutron interferometric experiment.

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