Measuring Entanglement in Electronic Interferometers

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Abstract

This talk will rely on two fundamental themes of quantum physics: the statistics of identical particles, and entanglement. The former was thrust into the limelight, given the theoretical and experimental search for anyonic (fractional) statistics. The latter is a pillar of quantum mechanics: quantum entanglement prevents us from obtaining a full independent knowledge of a subsystem. Can one, theoretically and experimentally, focus on and isolate statistics-induced entanglement? Here I will address this question, focusing on the case of fermions and bosons. The work has been done in collaboration with Gu Zhang, Changki Hong, Tomer Alkalay, Vladimir Umansky, Moty Heiblum, and Igor V. Gornyi (arXiv:2210.15520).

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