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[413] Spin drag in a one-dimensional quantum wire

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When particles with opposite spin scatter, momentum is transferred from one spin species to the other causing a spin drag - a friction between the relative motion of the two spin components. This phenomenon is relevant for spintronics devices, and has also been explored in experiments with ultracold atoms. Motivated by recent experiments [1,2], we consider spin drag in a one-dimensional quantum wire. For attractive interactions, a nonzero spin drag is caused by pairing of fermions with opposite spin. We investigate analytically and numerically the possibility of spin drag when interactions are repulsive and the ground state is a spin density wave.

[1] S. Krinner et al., PNAS 113, 8144 (2016)

[2] M. Lebrat et al., PRX 8, 011053 (2018)

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