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Spin excitation velocities in multi-channel quantum wires EUGENE PIVOVAROV, MICHAEL FOGLER, UC San Diego — We investigate how an external magnetic field affects the interaction corrections to the velocities of spin collective modes in quantum wires. We show that both many-body and single- particle effects are important. The former generate logarithmic field dependence that can alter the Hartree-Fock results by up to a factor of two. On a single-particle level, the field modifies the subband wavefunctions and therefore the effective interaction strength. This theory is applied to quantum wires fabricated by the recently introduced cleaved edge overgrowth technique and the results are compared with experiments [Auslaender *et al.* Science **308**, 88 (2005)].

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