Coulomb drag in coupled quantum wells: effects of bandstructure and q-dependent scattering[1] RICHARD W. DENEEN III, University of Akron, BEN YU-KUANG HU, University of Akron — We study the effects of non-parabolicity of the band-structure and wavevector-dependent scattering rates on the Coulomb drag in coupled quantum wells, using a theoretical formulation that takes these effects into account [K. Flensberg and B. Y.-K. Hu, Phys. Rev. B **52**, 14796(1995)]. We examine the conditions in which this formulation reduces to the result given by von Oppen *et al.* [F. von Oppen, S. Simon and A. Stern, Phys. Rev. Lett. **87**, 106803 (2001)], in which the effects of band-structure are included through the terms $d\hat{\sigma}_i/dn_i$, where $\hat{\sigma}$ is the (single-layer) conductivity tensor and n is the (single-layer) density and i is the layer index. The effect of scattering that is strongly wavevector-dependent will also be discussed.

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