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Finite-wavevector Electromagnetic Response in Quantum Hall Systems: Lattice Corrections and Signatures of Hall Viscosity FENNER HARPER, THOMAS JACKSON, RAHUL ROY, Univ of California - Los Angeles — It has recently been shown that the electromagnetic response of a quantum Hall fluid at finite wavevector includes a dependence on the Hall viscosity, raising the possibility of measuring this quantity in an experiment. We present a new, quantum mechanical derivation of this relationship and extend the result to include lattice corrections, which may be significant in a real sample. We find that these corrections have a universal structure whose form depends only on the symmetries of the underlying lattice, and provide numerical estimates for cases of experimental interest. Finally, we consider the Hall viscosity of lattice models more generally and discuss our results in this broader context.

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