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Illustration of advantages of optical self-energy for understanding conductivity data on superconductors E.J. NICOL, University of Guelph, J.P. CARBOTTE, McMaster University — Over the last 20 years, it has become common to present optical data on exotic superconductors, such as high T_c and heavy fermions, in terms of a generalized optical self-energy. However, this quantity has never been fully examined in the context of conventional superconductivity and tested against experiment. We present a detailed study of the optical scattering rate and mass renormalization with emphasis upon the role of elastic and inelastic scattering, and make comparison with recent high quality data. This illustrates the usefulness of this approach and the new insights that can be obtained.

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