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High energy scales in electronic self-energy imaged by optical conductivity E.J. NICOL, University of Guelph, J. HWANG, T. TIMUSK, McMaster University, A. KNIGAVKO, Brock University, J.P. CARBOTTE, McMaster University — We use a new technique to directly extract an estimate of the quasiparticle self-energy from the optical conductivity which can be easily related to both theory and angle-resolved photoemission spectroscopy (ARPES) experiments. In the high T_c cuprate Bi-2212 we find evidence for a new high energy scale at 900 meV in addition to the two previously well known ones at roughly 50 and 400 meV. The intermediate scale at 400 meV has been recently seen in ARPES as a large kink which optics finds to be weaker and shifted. In YBCO, the three energy scales are shifted to lower energy relative to Bi-2212 and we observe the emergence of a possible fourth high energy feature at 600 meV.

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