

Abstract Submitted
for the OSF16 Meeting of
The American Physical Society

An alternative approach to extended Drude model N.J. GANTZLER, S.V. DORDEVIC, The University of Akron — The original Drude model, proposed over a hundred years ago, is still used to determine optical properties of solids. Within this model both the plasma frequency and quasiparticle scattering rate are constant, which makes the model rather inflexible. In order to circumvent this problem, the so-called extended Drude model was proposed, which allowed for the frequency dependence of both the quasiparticle scattering rate and the effective mass. In this work we will propose an alternative approach to the extended-Drude model. In the new approach we will assume that the quasiparticle effective mass is frequency independent, but the plasma frequency is frequency dependent. The new model is applied to several different materials, such as a high-T_c superconductor Bi₂Sr₂CaCu₂O_{8+δ} (Bi2212) with T_c= 92K and a conventional superconductor 2H-NbSe₂ with T_c= 72 K.

S.V. Dordevic
The University of Akron

Date submitted: 01 Sep 2016

Electronic form version 1.4