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**Estimation of  $\epsilon_H$  in cuprates** JUNGSEEK HWANG, THOMAS TIMUSK, McMaster University — The quantity  $\epsilon_H$  is the contribution to the dielectric constant from all the high frequency spectral weight but excluding the low frequency free carrier or intraband contribution. Recently, the accuracy of the various methods of finding  $\epsilon_H$  has become an important issue because the optical scattering rate is very sensitive to the value of  $\epsilon_H$ , especially at high frequency. In strongly correlated systems including cuprates it is often difficult to determine where the dividing line between the free carriers and the interband absorption lies. Here we explain a reliable method to estimate  $\epsilon_H$  in Bi-based cuprates. We will show  $\epsilon_H$  of various Bi-2212 systems extracted using the method and discuss some important issues related to  $\epsilon_H$ .

Jungseek Hwang  
McMaster University

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