Abstract Submitted
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**Anomalous Dirac charge dynamics in multilayer graphene at high optical transition energies** IMAN SANTOSO, Chemistry Department, National University of Singapore, STEFAN G. SINGER[1], SU HAIBIN, NTU Singapore, ILKA MAHNS, PELANGI SAICHU, ARNE GOOS, IAP Uni Hamburg, ALEKSEI KOTLOV, HASYLab Hamburg, HAN HUANG, Physics Dept NUS, DONGCHEN QI, PRANJAL K. GOGOI, WEI CHEN, NUS, MUHAMMAD AZIZ MAJIDI, UI Indonesia, YUNHAO LU, FENG YUAN PING, ANDREW T.S. WEE, Physics Dept NUS, THIRUMALAI VENKATESAN, Physics Dept NUS, Nanocore,ECE NUS, MICHAEL RUEBHAUSSEN, IAP Uni Hamburg, ANDRIVO RUSYDI, Nanocore, Physics Dept NUS, IAP Uni Hamburg — Almost all discussion of the optical absorption, the interlayer interaction and relationship between them in multilayer graphene is almost conclusively decided taking into account only the charge dynamic in states at K point in the hexagonal Brillouin zone while other states are relatively ignored. The lack of charge dynamic information at states beyond the Dirac cone may give us inadequate knowledge of their interaction with the lower states. Here, we present an optical conductivity study on graphene as function of layers using a combination of the dc-conductivity, optical ellipsometry, and vacuum ultraviolet (VUV) reflectance to reveal the electronic band structure and the novel interlayer interaction of graphene in pi and sigma bands over a broad energy range from 0 to 35 eV.

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