

Abstract Submitted  
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**Environmental Change in UV Absorption by Single-Walled Carbon Nanotubes** YOICHI MURAKAMI, SHIGEO MARUYAMA, Univ. of Tokyo  
— We investigated the UV absorption of single-walled carbon nanotubes (SWNTs) in the 4 - 6 eV range, which has been customarily referred to as the “pi-plasmon” as a whole. The optical absorption spectra of aligned SWNTs were measured in different dielectric environments. The experimental results unambiguously show that, for the two different UV absorption components existing in the 4 - 6 eV range, only the feature at 5.0 - 5.3 eV exhibits remarkable spectral changes, while the other feature at  $\sim 4.5$  eV remains unchanged. We attribute the former (5.0 - 5.3 eV) to a dipolar surface plasmon in the radial direction of SWNTs. On the other hand, the experimental result raises a fundamental question as to whether it is appropriate to classify the UV feature at  $\sim 4.5$  eV as a pi-plasmon. We will discuss its relation with the UV absorption at  $\sim 4.5$  eV in graphite/graphene that has long been recognized as the interband transition at M point of the Brillouin Zone.

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