

Study of ultraviolet-visible light absorbance of exfoliated Graphite forms

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Despite the fact that there have been many studies of graphite exfoliation, none really addresses the issue of starting form of graphite. To address this issue various graphite forms (solid, powder and sooth) and graphite oxide (powder) are exfoliated in acetonitrile and studied via ultraviolet- visible (UV-Vis) spectroscopy. In different graphite forms two major absorbance peaks are observed at 223 nm and 273 nm corresponding to graphene oxide and graphene dispersions, respectively. The intensity change of the peaks refers to the layer number change. The intensity ratios of these peaks give information about the concentration of the exfoliation products. We observed that graphite oxide sample has the thinnest graphene dispersions among the compared samples, whereas graphite rod has the thickest. It appears that few layer graphene oxide dispersions exist more in graphite sooth and graphite oxide samples.

Graphite oxide UV-Vis spectrum reveals two new absorbance peaks at 312 nm and 361 nm in addition to the graphene oxide and graphene dispersion peaks. To our knowledge these peaks were not observed before we think that these new peaks are formed due to conjugate polyenes that affect $\pi \rightarrow \pi^*$.

Biography:

Abdullah Alhani Alghamdi done his Masters in MS, Physics Pittsburg State University in 2016 and B. A, Physics in Al Baha University, 2010. He is working as a Lecturer in Physics Dept., Faculty of Sciences, Al Baha University from 2011 to present.