

Abstract Submitted
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Optical conductivity in bromine-intercalated graphite ZAHRA NASROLLAHI, SIMA SAEIDI VARNOOSFADERANI, Physics department, University of Florida, Gainesville, Florida, SEFAATTIN TONGAY, Department of Material Science and engineering, University of California, Berkeley, California, ARTHUR F. HEBARD, DAVID B. TANNER, Physics department, University of Florida, Gainesville, Florida — Graphite intercalation compounds have a long and interesting history, with surprising thermal, electrical, and magnetic properties. In this study highly oriented pyrolytic graphite (HOPG) samples were exposed to bromine vapor for times between 20 and 100 minutes. The reflectance was measured using FTIR spectrophotometer, in the far and mid infrared at temperatures between 10 K and 300 K. With increasing the bromination time the reflectance in infrared region increases significantly, that gives rise to the increase of optical conductivity of the material calculated by Kramers-Kronig technique. The variation of scattering rate and charge carrier density in different temperatures for different intercalation times can lead to better understanding of the drastic enhancement of electrical conductivity in the material.

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