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Nanographite: Detailed Analysis of its Optical Properties through Excitation Photoluminescence Spectroscopy

Nanographite (NG), a nanoscale allotrope of carbon with sizes below 10 nanometers, has emerged as a fascinating material due to its unique properties in the optical and electronic fields. These nanostructures exhibit a series of intriguing characteristics that make them highly desirable for a variety of applications, ranging from advanced electronic devices to sensors and catalysts.

However, despite the growing interest in nanographite, there are still poorly understood areas, especially regarding its optical properties. Infrared shifts are a phenomenon that occurs in these nanoparticles and result from the quantum confinement effect, which occurs when the dimensions of the material are on the order of the wavelength of the incident light. Additionally, the structure and composition of nanographite play a crucial role in its optical properties. The presence of surface defects, as well as the interaction between electrons and lattice vibrations, can contribute to this phenomenon.

To address these uncertainties and advance our understanding of nanographite, various characterization techniques have been used, such as excitation photoluminescence spectroscopy (PLE), UV-Vis, Raman, infrared, and XPS.

Keywords

Nanographite, Optical properties, Excitation Photoluminescence Spectroscopy

Reference

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