Abstract: Visualization and Comparative Study of Carbon Allotropes

This project explores the different forms of carbon, known as allotropes, using Jmol, a free molecular visualization software. Carbon exists in various forms like diamond, graphite, graphene, fullerenes, and carbon nanotubes, each with unique properties. Understanding these differences is important in science and technology.

Jmol provides the necessary tools to view and compare these structures in 3D. This study focuses on key differences such as bonding, strength, conductivity, and shape. The methodology involves using Jmol to build and analyze models of these allotropes, helping to visualize their molecular structure clearly.

By comparing these allotropes, this project aims to highlight their unique properties and applications. The use of Jmol makes learning about molecular structures easier and more interactive, helping students and researchers understand carbon’s diverse forms.