

Dr. Kailash Nemade: Graphene Based Electronics Application

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- Dr. Gajendra Singh
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Contents

Sr. No.	Chapter Name	Page No.
1.	Spectral Studies and Thermal Decomposition Kinetics of Copper (II) Sesame Thiourea Complex Asha Meena, Dr. Rashmi Sharma, Vandana Sukhadia	1
2.	Estimation of Cadmium in Vegetable Foodstuffs in Jaipur (India) Dr. Ashok Kumar	10
3.	Study of Physico-chemical Characteristics with Special Emphasis on Fluoride in Ground Water of Sarwar tehsil in Ajmer District, Rajasthan Dr. Bharti Prakash	15
4.	Removal Studies of Toxic Heavy Metals from Contaminated Water: A Review Deepthi Rangnani, Dr. R. K. Tak	24
5.	Photocatalytic Degradation of Reactive Orange M,R Dye in Aqueous Solution by Photo- Fenton's Reagent Dr. Gajendra Singh	30
6.	Financial Statement Analysis of Bharti Airtel Limited and Vodafone Idea Limited: A Comparative Study Dr. Hanuman Sahai Kumawat	42
7.	Graphene Based Electronics Applications Dr. Kailash Nemade	60
8.	Assessment of Nickel (Ni) Content in Vital Human Organs: A Case Study on Lung and Liver Autopsy Samples of Ajmer District, India Kavita Kumari, Dr. Laxmi Kumari Yadav Dr. R. K. Tak	68

Graphene Based Electronics Applications

Dr. Kailash Nemade*

ABSTRACT

Graphene is a single atomic layer of sp^2 hybridized carbon atoms, covalently bonded in a regular hexagonal pattern. It is the thinnest material in the universe, which is first really two-dimensional crystalline material stable at room conditions. Graphene is one of the most exciting materials, not only due to academic interest but also for its potential applications. Graphene has showed a variety of exciting properties including high electron mobility at room temperature, outstanding thermal conductivity and better mechanical properties with high Young's modulus.

KEYWORDS- Graphene; Sensor; Field Effect Transistor; Photovoltaic Cell

1. INTRODUCTION

Graphite is made up of many stacked graphene sheets, and graphene was first isolated by removing a single sheet from a graphite crystal. This first separation was achieved in 2004 by Andre Geim and Konstantin Novoselov from the University of Manchester, who were awarded the Nobel Prize in Physics in 2010 for the revolutionary work on graphene. The model of a perfect graphene lattice is shown in Figure 1.

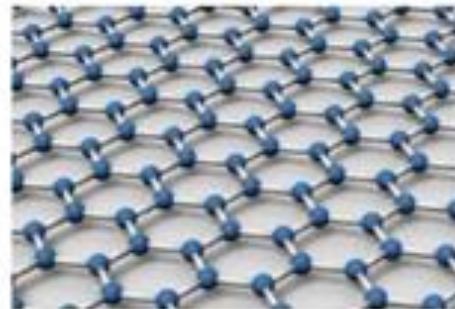


Figure 1. Model of a perfect graphene lattice.

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