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## 2-Dimensional Graphene as a route for emergence of additional dimension nanomaterials

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### Abstract

Dimension has a different and impactful significance in the field of innovation, research and technologies. Starting from one-dimension, now, we all are moving towards 3-D visuals and try to do the things in this dimension. However, we still have some very innovative and widely applicable nanomaterials, which have tremendous potential in the form of 2-D only i.e. graphene. In this review, we have tried to incorporate the reported pathways used so far for modification of 2-D graphene sheets to make is three-dimensional. The modified graphene been applied in many fields like supercapacitors, sensors, catalysis, energy storage devices and many more. In addition, we have also incorporated the conversion of 2-D graphene to their various other dimensions like zero-, one- or three-dimensional nanostructures.

**Keywords:** Graphene; metal nanoparticle; carbon nanotubes; quantum dots; 2D and 3D graphene.

### 1. Introduction

Nanomaterials are defined as the materials, which have at least one dimension in 1-100 nm range. So far, they are the most popular materials for research. Because, by changing the dimensions of nanomaterials there inherent properties will be altered very easily and we

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