GRAPHENE AND BEYOND

This special issue of the Journal of Materials Research contains articles that were accepted in response to an invitation for manuscripts.

INTRODUCTION

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Quite often, when disruptive technologies come along, it is the result of a significant advancement in a specific material property or discovery of an entirely new material system, followed by the ability to link the material properties with novel device applications. The materials research community has enjoyed the opportunity to explore novel carbon nanomaterials for several decades now, with fullerenes and carbon nanotubes leading the way to novel phenomena.1,2 These discoveries stimulated the seminal work by Novoselov et al. related to graphene in 2004,3 which has found its way into nearly every facet of the materials research world, including conductive polymers, corrosion resistant coatings, transparent electrodes, chemical sensors, optical coatings, high frequency devices, nanomechanical resonators, and optoelectronic sensors.4–14 The isolation of graphene has opened up the possibility to explore the fascinating properties of atom-thick layers of various layered materials, which upon reduction to single/few atomic layers, offer functional flexibility, unprecedented properties, and novel applications.15,16

Today, the materials research community continues to discover and harness new low-dimensional allotropes, perhaps at a historically unprecedented rate. In addition to graphene, other 2-dimensional (2D) material systems (e.g., h-BN, MoS2, WS2, silicene, etc.) have become versatile materials from the very fundamental to the applied. We would like to thank the authors and reviewers of the “Graphene and Beyond” JMR Focus Issue. It is their hard work and dedication to excellence that has made this issue especially relevant to the rapidly advancing field of 2D materials.

REFERENCES


