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, MoS_2, WS_2, silicene, etc.) have become versatile platforms for developing novel device architectures, and researchers from diverse disciplines are pushing the frontiers of these materials by developing innovative arrays of ribbon, hybrid, functionalized, doped, and heterostructures, often resulting in dramatically new scientific and engineering directions.[17–21]

This Focus Issue is dedicated to advancing the current state-of-the-science in 2D materials through a series of articles that discuss a broad range of topics related to 2D 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.

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DOI: 10.1557/jmr.2014.4

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https://doi.org/10.1557/jmr.2014.4 Published online by Cambridge University Press

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