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Carbon Nanotubes, Graphene, and Associated Devices VII

**Manijeh Razeghi
Young Hee Lee
Maziar Ghazinejad**
Editors

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Introduction

As industry demands more and more sophisticated solutions from applied sciences, there is an ever-growing need for new materials with promises that are beyond those of the traditional materials. Today, technological breakthroughs are often associated with the development of materials that can revolutionize the very nature of an industrial field. Successful implementation of these materials solution, however, often calls for reliable synthesis, characterization and device application approaches. Carbon Nanotubes and its younger sibling, graphene, are standard examples of such trend. With their versatility and unprecedented electrical, optical, thermal and mechanical attributes, graphene and carbon nanotubes are poised to become materials of choice for a wide range of industrial applications.

With the high level of scientific interest in carbon nanomaterials, we are pleased to provide SPIE members with a platform to connect and share their research across multidisciplinary frontiers that cover all aspects of nano-carbon science and engineering. In this year's conference of Carbon Nanotubes, Graphene, and Associated Devices, we have categorized the paper presentations in two main sections of Synthesis and Characterization, and Devices. In the former category we covered a variety of studies, including optoelectronics of graphene transparent conducting electrodes, industrial scale metrology of graphene materials, optical-electrical characterization of CNT doped Sol-Gel matrices, and rapidly growing subject of transition metal dichalcogenide monolayers. In the *Devices* category, we had stimulating research works with versatile topics that includes, carbon nanomaterial electronics and optoelectronic technologies, CNT-based substrates for surface enhanced Raman spectroscopy, graphene-boron nitride composites for optoelectronic devices, graphene based energy storage systems, and application of graphene materials in thermal interface products.

In our future issues we plan to enhance the scientific scope of SPIE's nano-carbon conference by including more research works from emerging areas of nano-science and engineering. The conference particularly aims to organize special sessions that will focus on contemporary subjects of new 2D materials and systems, and carbon nanomaterials for sustainable energy harvesting. Topics of interest will include current synthesis routes for 2D materials, nano carbon-based energy storage and conversion, and device application of 2D materials.

We would like to thank all of our authors and presenters for their contribution to this issue of SPIE's NanoScience + Engineering proceedings, and hope that the presented studies stimulate further innovations and research on Carbon Nanotube, Graphene and Associated Devices.

**Manijeh Razeghi
Young Hee Lee
Maziar Ghazinejad**