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“This book by Dr. Sheka aptly serves the purpose of securing the graphene promise in being a reliable structural support, a versatile easy-to-integrate tool, and a means through which the wave–corpuscular complementary nature of nanomatter finally finds its true representative in both fundamental science and intelligent nanotechnologies. The book is a compendium and an open book alike: It provides ultimate structural information and orients the graphenic framework for the real application by employing the spin (true quantum) nature of the electronic structure on the graphenic-landia.”

Prof. Dr. habil. Mihai V. Putz
West University of Timișoara, Romania

“Speckled with the resourceful cogitations of Roald Hoffmann, the tome is an excellent guidebook in the mysterious world of graphene, its derivatives, and its analogues. It explains the chemistry and physics of this seemingly magical material by systematic application of Löwdin’s unrestricted approach in quantum chemistry, avoiding the introduction of periodic boundary conditions. The narrative is captivating and easy to follow without excessive formalism or oversimplification.”

Prof. Dr. Alia Tadjer
Sofia University, Bulgaria

“This book represents something very new with respect to the immense editorial scenario devoted to the ‘miracle material’ graphene. It cannot simply be considered as a different point of view useful to look at a material under scientific or technological light, because for the first time, physics and chemistry of graphene have really been interlaced.”

Prof. Maria Letizia Terranova
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Graphene, nicknamed miracle material, is a material with superior properties. However, all its characteristics are only the outward manifestations of the wonderful nature of graphene. The real miracle of graphene is that the species is a union of two entities, a physical and a chemical one, each of which is unique in its own way.

This book concerns the close interrelationship between graphene physics and chemistry as expressed via typical spin effects of a chemical physics origin. Based on quantum-chemical computations, it addresses the reflection of physical reality and the constitution of graphene as an object of materials science—*sci* graphene—on the one hand, and as a working material—*high tech* graphene—for a variety of attractive applications largely discussed and debated in the press, on the other. It presents the chemical physics of graphene based on the results of extended computational experiments in tight connection with their relevance to physical and chemical realities.



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