This book introduces the basic concepts, synthesis techniques, and applications of vertically-oriented graphene (VG), which has recently attracted growing interest for a wide range of applications due to its unique orientation, exposed sharp edges, non-stacking morphology, and large surface-to-volume ratio. The book summarizes the state-of-the-art research on the synthesis of vertically-oriented graphene nanosheets. Particularly, this book provides a detailed introduction to the plasma-assisted growth of vertically-oriented graphene toward massive industrial production. Emerging applications of vertically-oriented graphene such as biosensors and gas sensors, atmospheric nanoscale corona discharges, supercapacitors, lithium-ion batteries, fuel cells (catalyst support), and solar cells are discussed in this book. The intended readers of this book include upper level undergraduate students, graduate students, and material scientists and researchers.

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