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Titolo	Two-Dimensional Electronics - Prospects and Challenges / / edited by Frank Schwierz
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Sommario/riassunto	The present book is divided into two parts. Part I comprises four chapters which review the current state of the art in different areas of research on 2D materials and devices. Chapter 1 provides an excellent overview of the status of 2D material synthesis and puts special emphasis on the scalability of the discussed techniques and the attainable 2D material quality. Chapter 2 presents an overview on recent progress in the field of flexible graphene devices and describes a flexible graphene-based radio frequency receiver operating at 2.4 GHz. In Chapter 3, a thorough overview on the application of 2D materials in optoelectronics is given, and Chapter 4 comprehensively discusses gas sensors made of 2D materials. The eight chapters of Part II deal with specific important aspects of 2D materials and devices. Chapter 5 describes theoretical investigations on the stability and electronic structure of monolayer TMD (transition metal dichalcogenide) alloys and, in Chapter 6, the thermal conductivity of graphene nanoribbons is studied by molecular dynamics simulations. Chapter 7 presents the results of experimental investigations on the visibility of exfoliated TMD and black phosphorus flakes. The following three chapters are devoted to the simulation of advanced graphene transistors: Chapter 8 deals with the effects of band-to-band tunneling

and edge roughness on the behavior of graphene nanoribbon MOSFETs. In Chapter 9, recent results on the steady-state and RF operation of graphene nanoribbon transistors are presented, and in Chapter 10 a compact modeling approach for a novel graphene-based transistor type (called graphene base transistor) is elaborated. The last two chapters of the book deal with several aspects of the application of graphene in non-transistor devices: Chapter 11 presents the analysis of graphene nanomechanical mass sensors and Chapter 12 provides a discussion on graphene-based field emitters.