1. Record Nr.   UNINA9910298583003321

   Autore   Liu Mengxi

   Titolo   Controlled Synthesis and Scanning Tunneling Microscopy Study of Graphene and Graphene-Based Heterostructures / / by Mengxi Liu

   Pubbl/distr/stampa Singapore : , : Springer Singapore : , : Imprint : Springer, , 2018

   ISBN   981-10-5181-X

   Edizione   [1st ed. 2018.]

   Descrizione fisica 1 online resource (XVII, 93 p. 65 illus., 64 illus. in color.)

   Collana   Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053

   Disciplina   620.115

   Soggetti   Materials—Surfaces
                     Thin films
                     Surfaces (Physics)
                     Interfaces (Physical sciences)
                     Materials science
                     Nanochemistry
                     Nanotechnology
                     Surfaces and Interfaces, Thin Films
                     Surface and Interface Science, Thin Films
                     Characterization and Evaluation of Materials

   Lingua di pubblicazione Inglese

   Formato   Materiale a stampa

   Livello bibliografico Monografia

   Nota di bibliografia Includes bibliographical references at the end of each chapters.

   Nota di contenuto Introduction.-Controlled Growth of Graphene on Rh Substrates -- STM Study of Non-Bernal Stacked Bilayer Graphene -- Controlled Growth of in-plane h-BN-G Heterostructures -- Interfacial study of h-BN-G Heterostructures -- Summary and Outlook.

   Sommario/riassunto This thesis focuses on the energy band engineering of graphene. It presents pioneering findings on the controlled growth of graphene and graphene-based heterostructures, as well as scanning tunneling microscopy/scanning tunneling spectroscopy (STM/STS) studies on their electronic structures. The thesis primarily investigates two classes of graphene-based systems: (i) twisted bilayer graphene, which was synthesized on Rh substrates and manifests van Hove singularities near Fermi Level, and (ii) in-plane h-BN-G heterostructures, which were

controllably synthesized in an ultrahigh vacuum chamber and demonstrate intriguing electronic properties on the interface. In short, the thesis offers revealing insights into the energy band engineering of graphene-based nanomaterials, which will greatly facilitate future graphene applications.