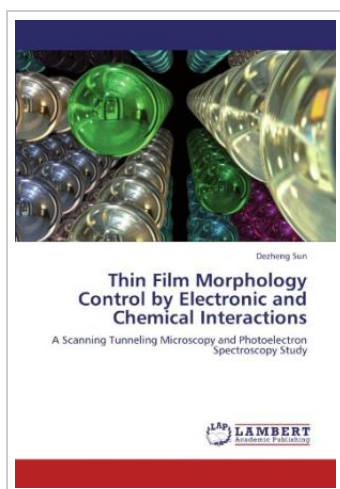



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Thin Film Morphology Control by Electronic and Chemical Interactions

By Sun, Dezheng

Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | A Scanning Tunneling Microscopy and Photoelectron Spectroscopy Study | Studies of thin film growth involve interdependent chemical, electronic and mechanical properties whose comprehensive understanding is critical for predicting thin film morphology and properties. Self assembly of organic molecules on a metal substrate lays the groundwork for structures desired in nanotechnology applications. The three classes of films which I investigate are: monolayer MoS₂ with strong Mo-S bonding, anthracene films formed by weak van der Waals interactions, and anthraquinone (AQ) honeycomb networks assembled by the interplay of local hydrogen bonding and substrate-mediated long range interactions. In this book, scanning tunneling microscopy (STM), X-ray photoelectron spectroscopy (XPS) and angular resolved ultraviolet photoelectron spectroscopy (ARUPS) have been used to investigate monolayer and sub-monolayer thin films grown on a Cu(111) substrate. My research focuses on the use of STM, XPS and ARUPS to investigate the role of ionic bonding, van der Waals interaction, hydrogen bonding and surface mediated interactions during growth of thin films and how to tailor the film morphology by controlling these interactions. | Format: Paperback | Language/Sprache: english | 76 pp.



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