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Materials Research Society, United States, 2008. Hardback. Condition: New. Language: English. Brand new Book. Amorphous, nano-, micro- and polycrystalline silicon thin films and associated alloys are used in a plethora of applications ranging from active matrix displays and imaging arrays to solar panels. These applications make large-area electronics the fastest growing semiconductor technology today, pushing material requirements and device performance to new limits. This book brings together researchers to share their expertise. Materials addressed include amorphous, nano-, micro- and polycrystalline silicon, and their alloys with germanium, carbon and other elements. Topics include: the understanding of growth processes; producing high-quality films at high growth rates or low temperatures; in situ characterization techniques for monitoring growth; understanding amorphous, mixed-phase and crystalline structures, along with the principles for augmenting crystallinity; developing post-deposition processes; identifying fundamental issues in electronic structure and carrier transport in 3D, 2D and 1D; understanding metastability and the role of hydrogen; integrating photovoltaic devices and thin-film electronics into systems on glass, flexible polymeric and other nonconventional substrates; and designing, fabricating and testing devices and applications.

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