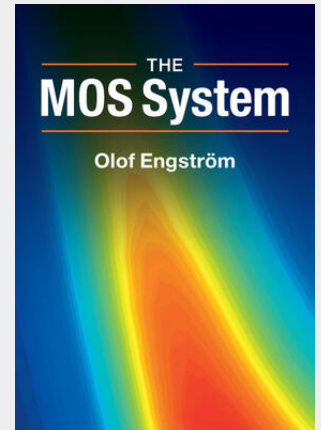


Engström

The Mos System

This detailed and up-to-date guide to modern MOS structures describes important tools, cutting-edge models, novel phenomena and current challenges in measuring and improving the control of future MOS systems for transistor channels. Building up from basic electrostatics, it introduces the ideal MOS system, physical and electrical properties of high-k oxides, their dielectric constants, and energy offsets to semiconductors and metals, before moving on to electrical and physical characterization methods for high-k dielectric materials. Finally, real MOS systems are introduced: high-k dielectrics and interlayers, the influence of phonon dynamics, interface states and bulk traps, effective metal work functions, gate leakage phenomena and high mobility channel materials. Abstract concepts are supported by practical examples and critical comparison, encouraging an intuitive understanding of the principles at work, and presented alongside recent theoretical and experimental results, making this the ideal companion for researchers, graduate students and industrial development engineers working in nanoelectronics.



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