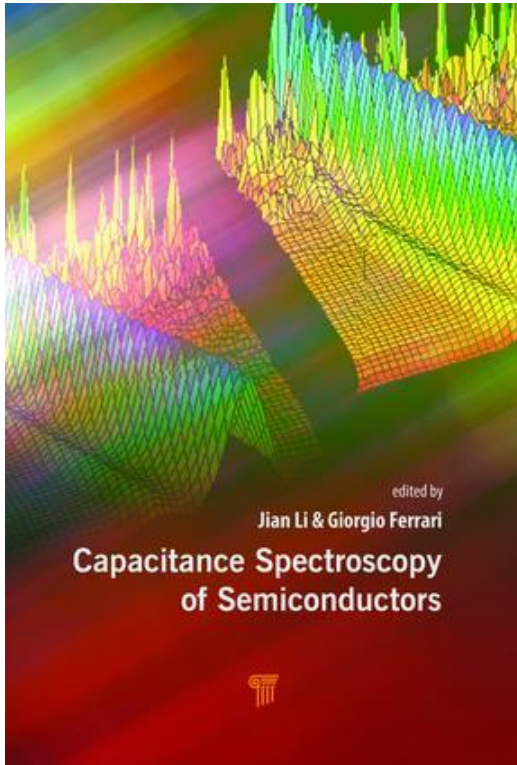


## Capacitance Spectroscopy for MOS Systems

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Capacitance studies of metal–oxide–semiconductor (MOS) capacitors have been used since the early 60s of the past century to investigate the interface surface states, oxide charge and electron and ion phenomena in these structures. This chapter provides detailed information about the theoretical basis, and examples of application of capacitance spectroscopy techniques in a variety of MOS systems. These techniques provide detailed information of defects existing in the insulator bulk itself and interface states appearing at the insulator-semiconductor surface. These defects induce the apparition of several types of charges commonly named as fixed and mobile charges, border traps and interface states. The chapter presents an overview of the application of capacitance spectroscopy techniques to study the MOS systems. These techniques have been used since the beginning of the "MOS era" to quantify traps and defects in the different regions of these structures. Surface states at the insulator-semiconductor interface are measured by capacitance measurements at high and low frequency, and deep-level transient spectroscopy.

[Chapter](#)

[Book](#)