



## Integrated Active Sensors for Electromagnetic Near-Field Measurement

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By Nasir Uddin

Shaker Verlag Apr 2012, 2012. Buch. Book Condition: Neu. 211x149x10 mm. Neuware - Near-field scanning, performed in close proximity to the tested object, is gathering increasing interest as an effective technique for estimation of radiating fields, spatial and frequency localizations of radiating sources, electromagnetic compatibility (EMC) compliant verification of complex electronic devices, and development and verification of circuit models for a dedicated model-based development process. Miniature field sensors, exhibiting high spatial resolution, are of interest due to fine geometries of conducting networks used in modern integrated circuits (ICs). Unfortunately, decreasing the sensor size leads to reduced sensitivity and thus, measurement of electromagnetic field distributions with high spatial resolution becomes a challenging task. One approach to obtain highly resolved field data with increased sensitivity is the use of integrated active sensor including not only the sensing part of the probe but also active circuitry such as preamplifier. This dissertation presents the design, implementation, and characterization of miniature passive sensors, differential amplifiers, and integrated active near-field sensors in GaAs pHEMT technology. The circuit topologies for the amplifiers and the sensor integration techniques are described and the performance of the amplifiers is demonstrated in the frequency range from 100 MHz to 10 GHz....



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