47TH EUROPEAN MICROWAVE CONFERENCE 2017
The 47th European Microwave Conference

Duration: 08:30 - 12:30
Room: Neu Delhi

WS-14
Modelling, Identification and Suppression of Parasitic Modes in On-Wafer Measurements

Organisers:
Chong Li, National Physical Laboratory, UK
Franz-Josef Schmückle, Ferdinand-Braun-Institut, Germany

Abstract
Since being first introduced more than thirty years ago, microwave on-wafer probes and the related on-wafer measurements have made significant advances. For example, the most recent development of probes makes on-wafer measurement possible at terahertz frequencies and in nanoscale at microwave frequencies. The evolution of on-wafer technology has truly contributed to the development of semiconductor industry. Although it has become a prerequisite to scientific research and industry, on-wafer measurement still has many problems that have not been solved, or even properly identified - for example the higher order modes generated when probing devices during probe calibration and actual device measurement. Other parasitic modes may result from substrates and surrounding circuits. Nevertheless the parasitic modes have significant effect on the accuracy of measurement, especially at higher frequencies such as millimeter-wave frequencies and above.

This workshop will review the challenges of on-wafer measurements including some of the recent progress on modelling, identification and suppression of parasitic modes in on-wafer measurements by a range of experts from different research institutes and industries. It is expected that by the end of the workshop all participants will have better understanding about parasitic modes and will have learned how to identify and suppress higher-order modes so that they can make more accurate and reliable on-wafer measurements. The agenda of the workshop is as follows.

Programme

08:30 - 9:00 On the Importance and Diffculties of Planar On-Wafer Measurements at Submillimeter Frequencies
Roger Lozar, Fraunhofer Institut for Applied Solid State Physics, Germany

09:00 - 09:30 Minimising Sources of Errors in Wafer-Level Measurements at Sub-mm Wave Frequencies: What we've learned so far
Andrej Rumiantsev, MPI Corporation,Taiwan

09:30 - 10:10 Reduction of Parasitic Effects in On-Wafer Measurements: How can we improve calibration structures and what about the probes?
Franz-Josef Schmückle, Ralf Doerner, Ferdinand-BraunInstitut,Germany

10:10 - 10:50 Break

10:50 - 11:20 Millimeter-Wave On-Wafer Measurements: Calibration using Commercial Standards and Actual Measurements
Chong Li, National Physical Laboratory, UK

11:20 - 11:50 Suppression of Parasitic Mode Effects in On-Wafer Measurements via Crosstalk Correction
Uwe Arz, Physikalisch-Technische Bundesanstalt, Germany

11:50 - 12:20 Analysis of Parasitic Modes and Probe Level Crosstalk in (Sub-) mm-Wave Calibrations
Marco Spirito, TU Delft, The Netherlands

12:20 - 12:30 Panel Session: What have we learned and what are the future opportunities and challenges?
All speakers