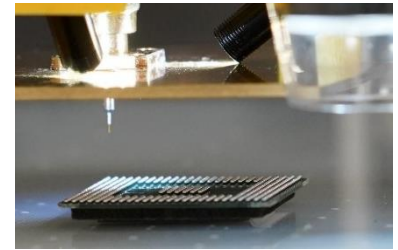


BS/Master's thesis

Manufacturing Environment ESD Detection (CDM like ESD detection)



Motivation

Downscaled semiconductors are at risk of charged device model (CDM) like electrostatic discharge (ESD) events during manufacturing, packaging, testing and placement. The reduction in silicon area spent for ESD protection circuits in modern ICs makes the devices getting more crucial to monitor ESD in processes where these devices are handled.

Research topic

A new type of sensor using multiple antennas along a coax-cable was shown to allow the localization of CDM like ESD events. Due to the large quantity of antennas, this sensor has the potential to be used in more complex environments where a line of sight is not necessary for all antennas. The localization is performed based on an algorithm which compares the measured signal with a reference dataset from simulation.

- Modifications and tuning of the sensor structure
- Creating different test setups to characterize the performance of CDM ESD event detectors
- Exploring different methods for the localization algorithm

What you will learn

You will learn about electrostatic discharge, time domain measurements at picosecond rise times, how ICs are endangered by very small, only 10 mA discharges, methods to detect < 1 ns wide pulses in the transient field, mathematical algorithms etc.

Organizational matters

- Start: from November
- Workplace: at the institute

Contact/Supervision

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