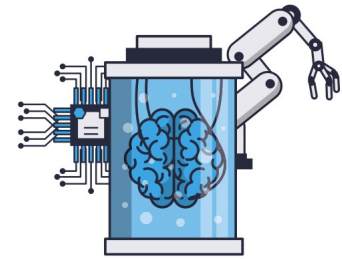


Master Thesis

Near-field sensor for breast cancer detection: configuration and characterization

In IHCT our mission is to develop new generation of sensor systems. We create integrated circuits operating at THz frequencies, that are manufactured with cutting-edge semiconductor technologies. In addition to near-field sensors (Cancer research), our current research areas also include communication of the next generation (6G), radar systems (gesture control), imaging (body scanners), and spectroscopy (material recognition).



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Breast cancer is the most common cancer among women. As a rule, patients have to undergo an operation to remove the tumor. In around 20% of the cases, not all the tumor is removed and the patient has to undergo another operation. At IHCT, we are researching biomedical imaging sensors that ensures better understanding of the tumor area and reduces the number of operations.

The purpose of this work is to configure the recently upgraded near-field sensor. The initial work will include characterization of the operation of the sensor. Further, the modification of the already existing software that controls the sensor should be performed (programming in VHDL). Finally verification of the operation of the sensor should be done, by executing near-field measurements with the sensor.

This work is interesting because it lets you have hands on experience in a THz lab and allows you to be a part of cutting-edge research for cancer detection and treatment.

Requirements:

- Basic coding skills in VHDL

After completion of the thesis, there are good job prospects in the following areas:

- Digital system modeling
- Radar and automotive
- Bio-medical sensing

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