

Microwave Imaging Technologies

Imaging of hidden objects has been a rapidly growing research topic in different areas such as remote sensing, non-destructive evaluation, medical imaging, and so on, to name a few. The non-invasive nature of electromagnetic waves penetration provides a suitable platform for investigating these areas. Microwave imaging is mainly divided into 1) qualitative and 2) quantitative categories.

Qualitative methods estimate only the location of the target, which may be sufficient in some applications, while quantitative methods, provide more information from the target like the permittivity, shape.

Figure 1(top) shows an integrated microwave tomography (MWT) sensor with an industrial microwave drying system, and Fig. 1(bottom) represents the position of the moisture inside a polymer foam. This information is demanded as an input for an intelligent controller.

Goal: In this seminar, an insight into the different microwave imaging methods and technologies shall be attained.

Knowledge On the basics of “fields and waves”, “microwaves” and “theory of antennas” are beneficial.

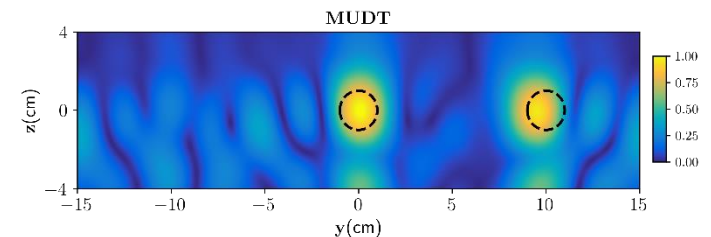


Fig. 1. a) a integrated microwave tomography sensor with an industrial microwave drying, b) location of the moisture inside a polymer foam shown by yellow color

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