

Experiments with microwaves and wet fabrics

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Apstrakt. This contribution is focused on experiments with a school microwave kit and different fabric samples. In the proposed experiments, microwaves are used to indirectly detect the absorbed water in fabrics as the absorption of the microwaves directly depends on the thickness of the water in the fabric. There are many possibilities when experimenting with microwaves and wet fabrics. Some of them will be presented, for example the study of the time dependence of the water absorption in a specific area of the fabric, the mass gradient of water content in a stationary state and the drying process of a wet fabric. The proposed experiments are simple enough to be done by the secondary, undergraduate or graduate students and enable quantitative measurements of the capillary water absorption, stationary water distribution and drying process in fabrics. Furthermore, these experiments may introduce capillarity and microwaves in an interesting application related to students' everyday experience.