

Abstract Submitted
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Transitions in Nanometer thin films - Investigations by AC Chip calorimetry H. HUTH, A. MINAKOV, C. SCHICK, University Rostock, Institute of Physics, Uniplatz 3, 18051 Rostock, Germany — Calorimetry is known as a very powerful tool for the characterization of a wide variety of materials and their transitions. The combination of silicon technology and calorimetry opens up new possibilities in this research area as demonstrated recently. Based on a differential AC calorimeter we show an improved experimental setup combining the advantages of the different methods. The measurements are done at slow scanning or at constant bath temperature. The frequency chosen provides a well defined time scale of the experiment. In several cases, e.g. at glass transition, a direct comparison with results from other dynamic methods like dielectric spectroscopy is possible. Due to the differential setup we achieve a sensitive in the pico Joule per Kelvin range allowing to measure samples below one nanogram and consequently films down to 1 nm thickness. Because of the small total heat capacity (addenda + sample) not only a high sensitivity is achieved but AC measurements at relative high frequencies are possible too.

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