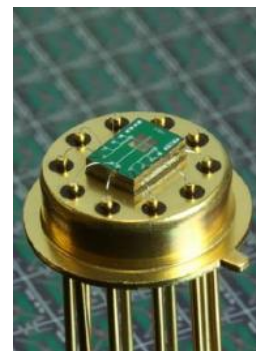


# High-speed dynamics of temperature distribution in ultrafast chip calorimeters

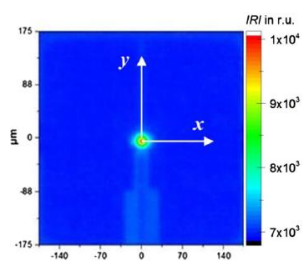
University of Rostock

Thin-film calorimetry is a powerful tool for the investigation of a wide variety of materials and their phase transitions for very small samples in the nanogram range. Ultrafast chip-calorimetry stimulated great progress in the study of crystallization kinetics and nucleation mechanisms in technologically important polymers, metals, and composites. Advances in ultrafast chip calorimetry provide the possibility to generate non-equilibrium states and to study phase-transition kinetics at microsecond and even faster time scales.

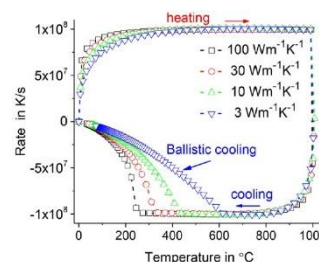
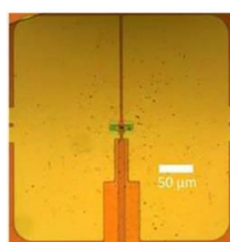
The performed experiments at the University of Rostock focused on the dynamics of the temperature distributions in the XEN-39472 calorimetric sensor from Xensor Integration and the theoretical background for ultrafast calorimetry.



XEN-39472 micro-machined thin-film calorimeter sensor designed for measurements on small samples with high temperature scanning rates



Zoomed image of the central part of the sensor membrane: top view the sensor in infrared and normal light. The color code corresponds to the infrared intensity in relative units.



Scanning rate vs. temperature

## Reference

Passages from original work are primarily used to illustrate the use of XEN-39472 calorimetric sensor within an experimental application. Please contact the original authors or official distributor for the full publication.

### High-speed dynamics of temperature distribution in ultrafast (up to 108 K/s) chipnanocalorimeters, measured by infrared thermography of high resolution

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