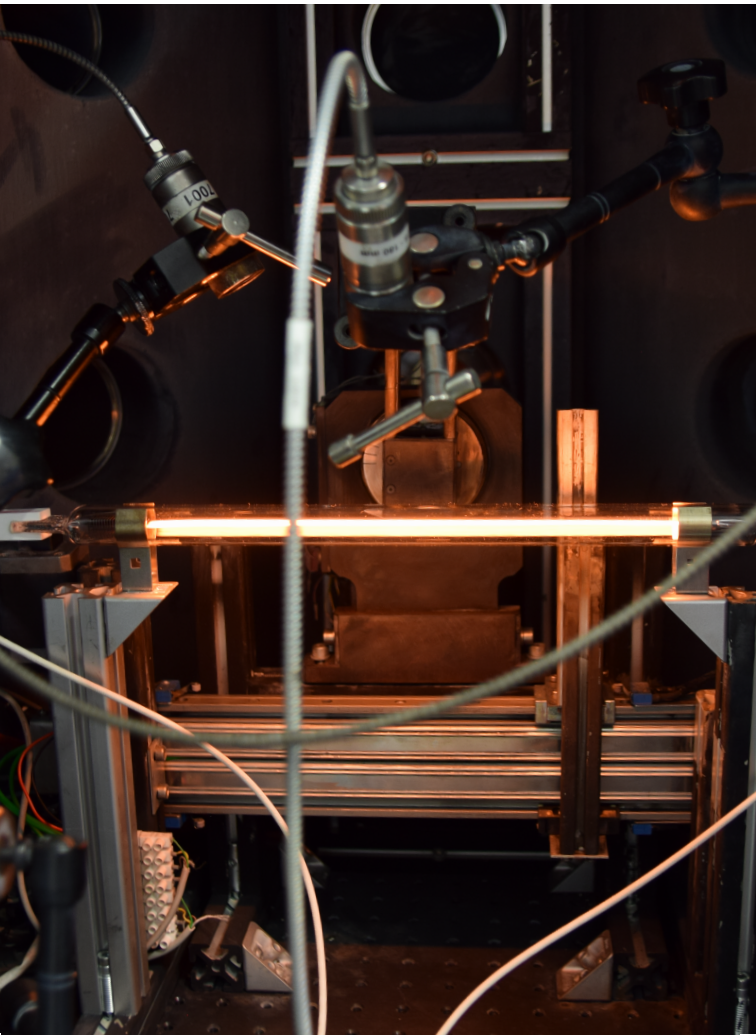
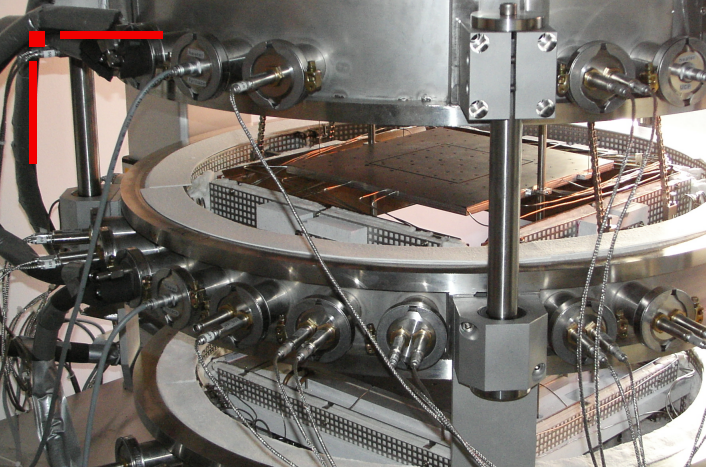




ADVANCED THERMAL MANAGEMENT | ATM





PROFILE

Die Arbeitsgruppe Advanced Thermal Management besitzt ein vertieftes Verständnis in den Bereichen der hochgenauen sowie rückführbaren thermischen und infrarot-optischen Modellierung, Charakterisierung und Materialentwicklung. Dies bildet die notwendige Grundlage für ein innovatives und effizientes thermisches Management von Prozessen und Produkten zur Erhöhung von Energie- und Klimaeffizienz.

>> Measurement expertise for
excellent research <<

SERVICES

Measurement of thermal and infrared-optical values

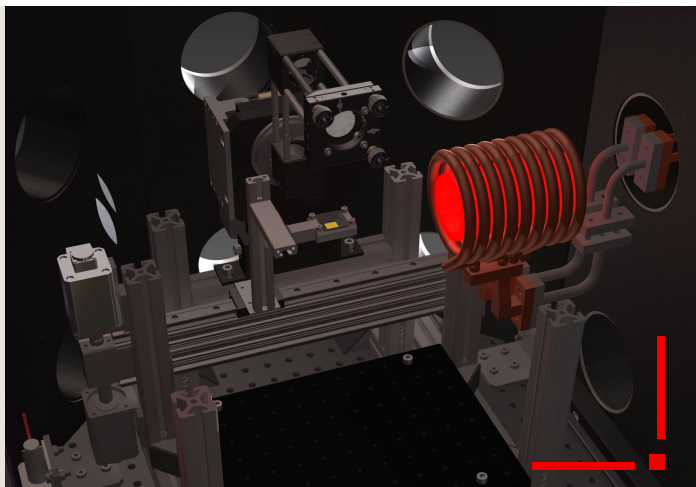
- Thermal conductivity, thermal diffusivity
- Specific heat capacity and phase transition enthalpy
- Thermal expansion coefficient
- Emissivity, absorptivity, reflectivity, and transmissivity
- Extinction coefficient and absorption coefficient, scattering coefficient, and albedo
- Radiative thermal conductivity, thermal conduction, and thermal radiation
- Refractive index and dielectric function
- Non-contact temperature measurement (radiation thermometry and thermography)

Measurement and parameters range

- Wavelength from 0.2 μm to 500 μm
- Temperature from 15 K to 3200 K
- Angle from -90° to $+90^\circ$
- Gas pressure from 10^{-6} to 100 bar
- Different types of gas (hydrogen, inert gas, vacuum, etc.)

Modelling and simulation

- Simulation of heat transport and radiative transfer



Thermal management of processes and products

- Analysis and improvement of thermal processes and manufacturing procedures in order to increase energy and resource efficiency
- Non-contact measurement methods for thermal process control and adjustment

Development and optimisation of materials

- Support in developing and optimizing materials, components, and systems with outstanding thermal and infrared-optical properties

A close-up photograph of a metallic mechanical component, possibly a turbine or engine part. The image shows a circular opening in the foreground, with a textured, brushed metal surface to its right. The background is blurred, showing more of the component's structure. Red decorative lines are present in the corners of the page.

ABOUT US

The Center for Applied Energy Research e.V. (CAE) is a non-profit research institute and aims with its research and development activities to transfer ideas into practice in cooperation with commercial enterprises and other research partners and thus to make the greatest possible contribution to a sustainable, CO₂ emission-free and economical energy system. The CAE acts as a bridge between basic research and market-oriented development.

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