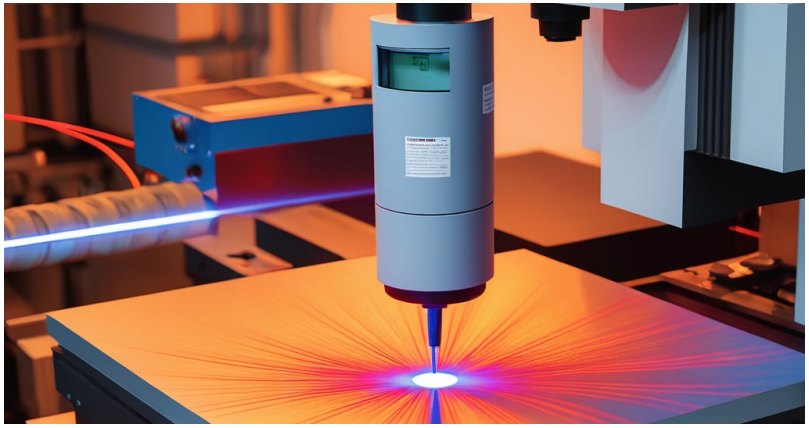
Technology Offer CSIC/AF/021

Device and method for thermal diffusivity analysis



New device suitable to study termal transport with enhanced sensitivity.

Market need

The study of in-plane thermal transport in bulk and low dimensional anisotropic materials is going to be crucial in next years as these materials are incorporated in applications such as electronics, thermoelectrics, and heat management devices.

The current devices and methods are complex, and may be influenced by the shape of the heat source and/or are mostly suitable for electrically insulating samples.

CSIC solution

We present a new contactless device and method for studying thermal transport with enhanced sensitivity to in-plane heat conduction, which is based on beam-offset, frequency-domain thermoreflectance using a one-dimensional heat source with uniform power distribution. The method has been validated for free standing films, bulk samples (e.g. anisotropic crystals and substrates) and thin films on a substrate.

Competitive advantages

- Contactless approach based on the use of lasers.
- Applicable to electrically insulating and conducting samples.
- Strongly simplified and robust data analysis procedures.

Intellectual Property

Priority patent application filed

Stage of Development

Device validated in laboratory

Intended Collaboration

Licensing and/or co-development

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