

Title (en)
THZ SPECTROSCOPE AND METHOD FOR DETERMINING THE SPECTRAL FREQUENCY AND/OR PHASE RESPONSE OF A SAMPLE

Title (de)
THZ-SPEKTROSKOP UND VERFAHREN ZUR BESTIMMUNG DER SPEKTRALEN FREQUENZ- UND / ODER PHASENANTWORT EINER PROBE

Title (fr)
SPECTROSCOPE THZ ET PROCÉDÉ DE DÉTERMINATION DE LA RÉPONSE SPECTRALE EN FRÉQUENCE ET/OU EN PHASE D'UN ÉCHANTILLON

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Application
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Abstract (en)
[origin: WO2011015298A1] The invention relates to a THz spectroscopy (1) having a multi-mode laser light source (2) for creating a multi-mode laser radiation having equidistant mode spacing, having a beam splitter (4) for dividing the laser light beam (3) into a transmit path (5) and a receive path (6), a delay unit (7) in the transmit or receive path (5, 6) or in the path of a THz wave (20), an emitter (17), preferably in the form of a photoconductive antenna in the transmit path (5) for transmitting electromagnetic THz waves (20) in the THz frequency range and a detector (8), preferably in the form of a photoconductive antenna in the receive path for capturing the electromagnetic response pulses (A) or a sample (10) that is arranged in the beam path of the emitter (17) and detector (8) and that can be loaded with the electromagnetic THz waves (20) of the emitter (17) and having a signal evaluation unit (9) that can be connected to a signal measurement output of the detector (8) that is configured to evaluate the spectral frequency and/or phase response of the sample (10) in dependence on the response pulses (A) of the sample (10) received by the detector (8) in relation to the multi-mode laser radiation (12), which modulates the detector (10), directed directly onto the detector (8) from the laser light source (2) in the receive path (6). The signal evaluation unit (9) is configured to separate individual response pulses (A) from the measurement signal based on the equidistant spacing of the response pulses (A) to one another that they have due to the equidistant mode spacing of the laser radiation, and to determine the spectral frequency and/or phase response of the sample (10) from the separated response pulses (A).

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