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Title

ALL-ELECTRONIC TERAHERTZ SPECTROMETER FOR BIOSENSING

Source

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Abstract

A compact and cost-efficient all-electronic terahertz (THz) system is presented for the spectroscopic read-out of marker-free THz biosensor chips. The table-top system is based on only one oscillator for emitter and quasi-heterodyne detector operation. Frequency mixing is applied to perform THz signal frequency sweeps from 220 to 320 GHz in less than 250 ns. The concept is explained and demonstrated at exemplary biochip measurements. Results and performance of the electronic system are compared with the laser-based THz-time-domain spectroscopy.