

Low-coherence reflectometry as the technic of random media characterisation in material science and biomedicine

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Low-coherence reflectometry (LCR) is one of the most powerful techniques for characterization of random inhomogeneous media. This article presents results of the analysis of stochastic interference signals in the case of LCR probes applied to various scattering systems. Suppression of the stochastic interference modulation in the LCR output signal was studied depending on the probing conditions (the coherence length of probe light, the scan depth).

Examples of two modifications of low-coherence reflectometry units (such as the reference-less unit and the conventional interferometric scheme) are given. These units are considered as the tools for evaluation of optical and morphological characteristics of various scattering systems including biotissues and composite materials.

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