



Biomedical applications of the pulsed photoacoustic effect: state-of-the-art and research challenges

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ABSTRACT

The photoacoustic effect refers to the generation of acoustic waves by the absorption of electromagnetic energy. Since physiological and pathological changes often alter tissue composition and its associated optical absorption, the photoacoustic signal can reveal different characteristics of tissue. Nonionizing waves, such as short laser or radio-frequency pulses, are often used to excite megahertz ultrasound waves. The photoacoustics has been used to monitor tumor angiogenesis, vasa vasorum in atherosclerotic plaques, blood oxygenation, functional brain mapping, and also skin melanomas. In this talk, the state-of-art of the Photoacoustics will be presented. The contributions to the field, of the Biophotoacoustic group of the University of Guanajuato, also will be displayed shortly. The talk will finished discussing the research challenges that have this methodology.