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## **Detection of disease markers in human breath with laser absorption spectroscopy**

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### Abstract:

Number of trace compounds (called biomarkers), which occur in human breath, provide an information about individual feature of the body, as well as on the state of its health. In this paper we present the results of experiments about detection of certain biomarkers using laser absorption spectroscopy methods of high sensitivity. For NO, OCS, C<sub>2</sub>H<sub>6</sub>, NH<sub>3</sub>, CH<sub>4</sub>, CO and CO(CH<sub>3</sub>)<sub>2</sub> an analysis of the absorption spectra was performed. The influence of interferences contained in exhaled air was considered. Optimal wavelengths of the detection were found and the solutions of the sensors, as well as the obtained results were presented. For majority of the compounds mentioned above the detection limits applicable for medicine were achieved. The experiments showed that the selected optoelectronic techniques can be applied for screening devices providing early diseases detection.