

ANALYSIS OF EMISSION SPECTRA USING MULTIVARIATE STATISTIC METHODS

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ABSTRACT *The most important characteristics of the Principal Components Analysis and Factorial Analysis are briefly described. They were applied to analysis of emission spectra obtained from stationary and pulse sources. It was stated that processing of spectra using PCA/FA methods reveals similarity level of the spectra, which in turn allows for determination of differences between analysed sources which emission is measured. Results of PCA/FA analysis of LIBS spectra applied to stratigraphy measurements, identification of paper sort, corrosion process of surface layers of iron alloys, discharges in gas and light bulbs are shown. Attempts of the use of the FA method for construction of calibration curves is presented which can be applied in quantitative measurements without need of use of atomic data.*

Keywords: *principal components, factorial analysis, emission spectra.*