LIQUID CORRELATION SPECTROMETRY

Abstract of the Disclosure

A number of optically active elements are provided that enable the performance of accurate, dependable chemical analysis in a medium having varying matrix backgrounds and substantial component interferences. Optical transfer cells are provided that include positive correlation filter systems adapted to accept near-IR radiation and to pass a wavelength from that radiation having high correlation with a particular analyte. A near-IR spectrometer apparatus for the measurement of analyte concentration in a complex medium is also provided. The apparatus features an optical transfer cell constructed according to the invention. The apparatus can be used in the non-invasive determination of blood analyte concentrations in a variety of mediums. Methods of measuring the concentration of a blood analyte in a mammalian subject are also provided. The methods entail the use of reflective near-IR radiation to interrogate a medium to obtain spectrally modified radiation. The radiation thus obtained is passed through an optical transfer cell constructed according to the invention to obtain a wavelength having high correlation with an analyte of interest and substantially no correlation with interfering constituents present in the medium.

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