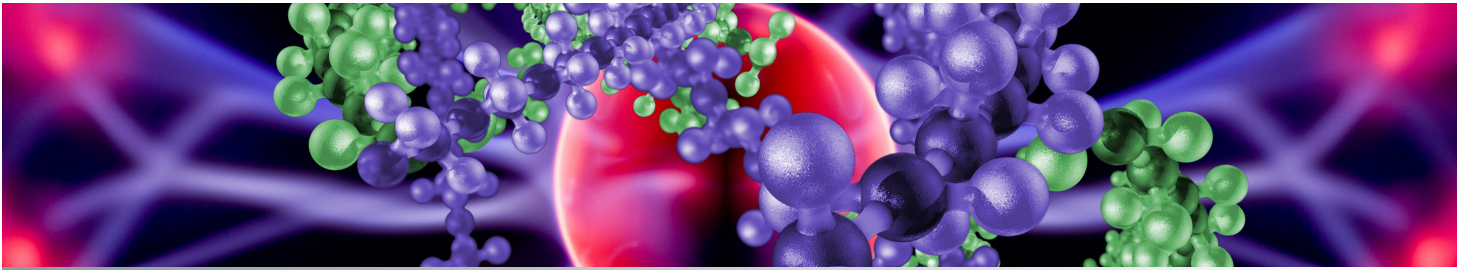


Imaging Based Refractometer for Instantaneous Hyperspectral Refractive Index Detection



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Technology Summary

The invention relates to optics and more particularly to apparatuses and methods for measuring refractive index (RI). Multispectral refractometers typically measure RI at discrete monochromatic wavelengths via a serial process. We report on the demonstration of a white light full-field imaging based refractometer capable of instantaneous multispectral measurement of absolute RI of clear liquid/gel samples across the entire visible light spectrum. The broad optical bandwidth refractometer is capable of hyperspectral measurement of RI in the range 1.30 – 1.70 between 400 nm – 700 nm with a maximum error of 0.0036 units (0.24% of actual) at 414 nm for a $n = 1.50$ sample. We present system design and calibration method details and results from a system validation sample.

Patents

Application in preparation

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