UWM RESEARCH FOUNDATION

Technology Overview

Improved Spectrometer for Long Path Length Absorbance

OTT ID # 1207

Applications

Absorbance Spectroscopy, Chemical and Analytical Lab Research Tools, Flow Injection, Gas Chromatography, Liquid Chromatography/HPLC, and Capillary Electrophoresis.

Target Problems

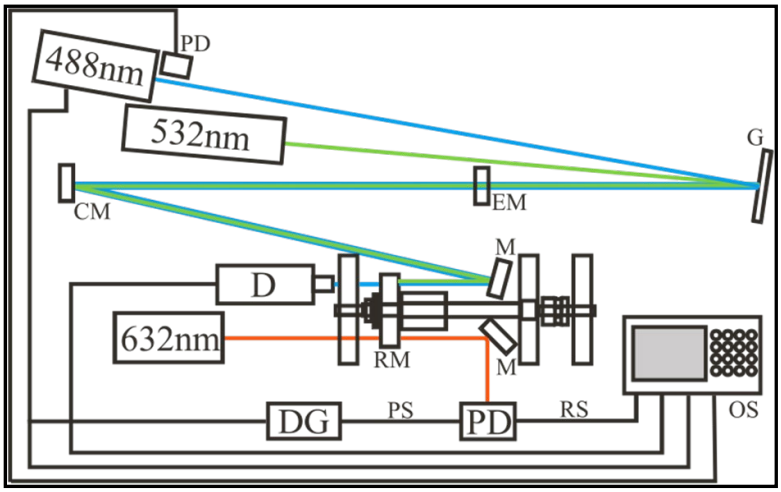
- Conventional spectrometer configuration has narrow range of measurable concentrations
- Limited path length that limits the sample range

Key Features

- **Wide Sample Concentrations -** Allows for measurement of extremely dilute samples, and adjustable path length also allows for measurement of high concentration samples.
- **Low Cost -** Design uses standard optics and off-the-shelf spectrometer components.
- **Flexible Design and Variable Path Length -** The dove prism configuration allows for liquid flow-through spectroscopy and evanescent wave measurements of condensed phase samples.

Technology

A technology that improves the optical configuration of spectrometers for long path length absorbance measurements for gas and condensed phase. The current technology uses a compact optical cavity with a rotating mirror to control the beam path length as shown in the diagram. For example, HPLC is a technique that could benefit from this unprecedented capability in measuring a wide range of concentrations, i.e., samples containing both ultra-trace as well as relatively high levels could be measured in the same chromatographic run.



Intellectual Property US Patent 9,013,700

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