

Demonstration of PMP Principles

The **Photonic Molecular Probe® (PMP™)** identifies and measures the concentration of a target molecule(s) within a mixed specimen. It is a miniaturized, real time measurement technology that encompasses a unique and innovative approach to a completely "integrated system" of signal preparation, data acquisition, signal processing—based on conditional probabilities and Bayes Theorem—and optics. The PMP's signal processing has been successfully employed by NASA and the Department of Defense. Unlike technologies based on linear absorption spectroscopy, it exploits the chiroptical and pseudo-chiroptical (which may be induced) properties of the target molecule(s). The PMP has multiple applications including: noninvasive blood glucose monitoring; licit and illicit drug monitoring; fermentation process control; and, chemical and biological warfare agent detection, such as sarin, hydrogen cyanide, anthrax and small pox. The patented device should cost less than \$1,000 and be approximately the size of a paperback book.

Proof of Principle Devices

Fig. 1 Photonic Molecular Probe I.



Top view showing general configuration: dual paths; polarizer; analyzer; sample; and calibration mounts.

Fig. 2 Photonic Molecular Probe I.



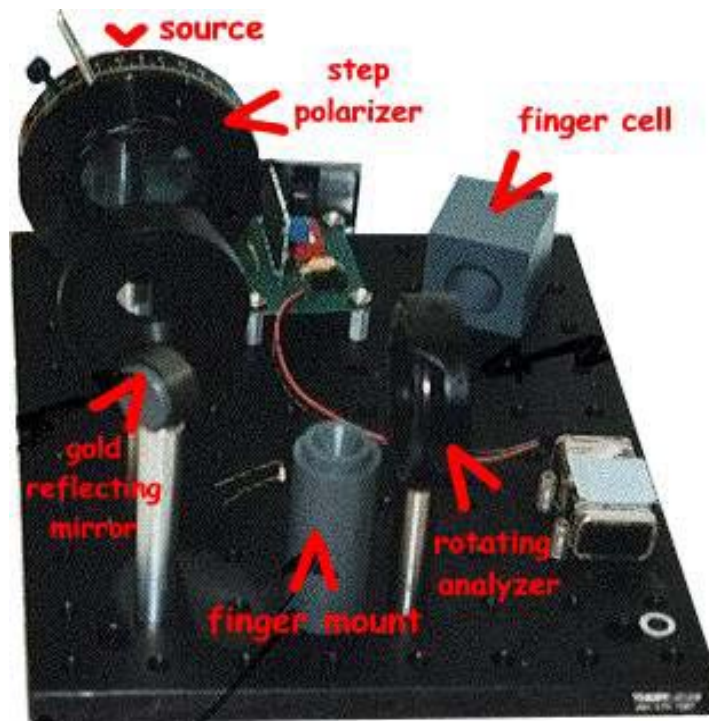
Front view showing general configuration: polarizer, analyzer and space for processing chip.

Fig. 3 Photonic Molecular Probe I.



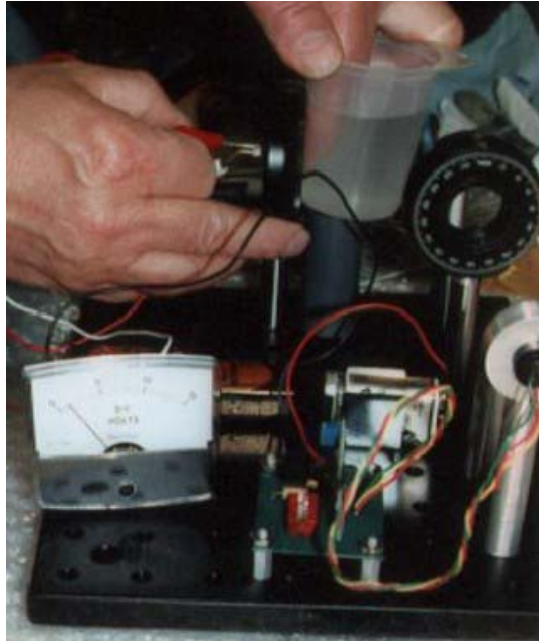
Size perspective view of Photonic Molecular Probe sitting on lab bench.

Fig. 4 Photonic Molecular Probe II.



Single path, general configuration showing: polarizer; analyzer; finger cell; and mount.

Fig. 5 Photonic Molecular Probe II.



Demonstration of partially polarized infrared light transmitting through the finger using a white light source: 2 volt registration on the volt meter.