

NASA Langley Research Center is actively seeking partnerships and collaborations to commercialize its Gas Filter Correlation Radiometer technology.

The Market Opportunities

- **Pollutants Monitoring:** in-stack measurements of power-plant emissions, monitoring of industrial and agricultural waste and landfill and wastewater facilities, and in-situ measurements of auto and truck emissions
- **Natural Gas Leak Detection:** airborne measurement of emissions from natural-gas pipelines
- **Process Equipment:** gas concentration monitoring in reactor vessels
- **Explosive Gas Detection:** flammable gas build-up measurements in chemical and petroleum plants

The Benefits

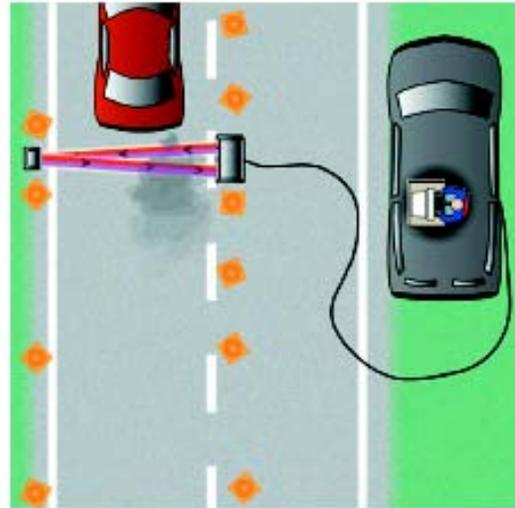
The GFCR uses nonmechanical opto-electrical path switching, resulting in a faster, more reliable, less complex sensor. It features an improved signal-to-noise ratio, is tunable, and thus can detect a wide range of gas species. The latest versions are smaller than previous models—no larger than a shoe box and just as portable.

The Technology

The GFCR detects airborne pollutants such as carbon monoxide, methane, and nitrogen oxides. The device uses a polarization modulator, in conjunction with a polarization beam splitter, to enable rapid optical-path switching without the use of moving parts.

Incoming radiation is band-limited and polarized. A photo-elastic component rapidly modulates

Gas Filter Correlation Radiometer Environmental Monitoring



radiation polarization between the vertical and horizontal. As the radiation passes through a polarization-sensitive beam splitter, the splitter reflects one component of the polarized photons and transmits the other. The beam is thus alternated between two optical paths—one comprising a vacuum cell, the other a correlation cell that contains a small amount of gas, which the sensor is calibrated to detect.

The gas in the correlation cell acts as a defacto filter for incoming radiation. As radiation from the two paths is recombined and analyzed, the difference in signal strengths indicates the amount of target gas present in the outside air.

Additional Information

To discuss in detail how this technology can profit you and your business, please contact:

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