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Battelle Number(s):

15963-E

Patent(s) Issued

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Available Technologies

Technology for Improved Chemical Detection Using a Long-Path Absorption Cell with a Compact Design

SUMMARY

Absorption spectroscopy, such as that conducted with quantum cascade lasers, is heavily used to monitor trace gases. Longer path lengths improve the detection capabilities of absorption spectroscopy instruments and the Herriott cell is a well known design for providing such long path lengths. However, this design has several disadvantages, including a propensity for some gas species to attach to the long linear walls of the cell and numerous light penetrations into the end mirror, with attendant mechanical interferences between the different launch and detection optics.

The patented cell design developed by PNNL scientists overcomes these issues through the use of a circular cell that provides for a long path length, while minimizing wall effects. The cell is easily aligned and once aligned is stable and not prone to optical misalignment. The angle of light introduced to the cell is capable of readily being adjusted from 1 degree to about 50 degrees. The device provides a unique optical cavity capable of measuring various chemical species using different wave lengths of light. Interested parties are sought for co-development and testing of the patented cell in applications of interest.

Patents & Intellectual Property

- » Patent #: 7,876,443

Technology Portfolio(s)

- » Other

Potential Industry Applications

- » Chemicals
- » Healthcare, Pharma, Biotech & Medical
- » Professional Services
- » Security

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