



Hollow Waveguide Cavity Ringdown Spectroscopy

Greg S. Mungas and Chris Dreyer

Summary: A hollow waveguide cavity ringdown spectroscopy design for measurements of an absorption medium

Description: This invention is of a hollow waveguide cavity ringdown spectroscopy design for measurements of an absorption medium. This design provides substantial improvements in a number of areas associated with traditional cavity ringdown spectroscopy (CRDS) measurements. For instance, in this design light can be injected through a mirror aperture and simultaneously contained within the cavity over the entire ringdown profile. This configuration would enable very large enhancements in injected cavity energy, drastically reducing the laser power requirements for pulsed-CRDS measurements. Furthermore, for a given laser power using pulsed-CRDS, this configuration significantly improves any combination of measurement sensitivity and time by enhancing the signal to noise ratio. The hollow wave guide supports mode propagation angles that are large enough such that precision tuning of CRDS could be conducted by altering the injection angle into the waveguide rather than by mechanical tuning of the cavity. The configuration of the CRDS mirrors within the hollow wave guide is inherently more robust to optical alignment variations particularly for low-cost instrument development.

Main Advantages of this Invention:

- Design allows for low-cost instrument development
- Reduces laser power requirements for pulsed-CRDS measurements
- Robust design is ideal for mobile applications
- High signal to noise ratio

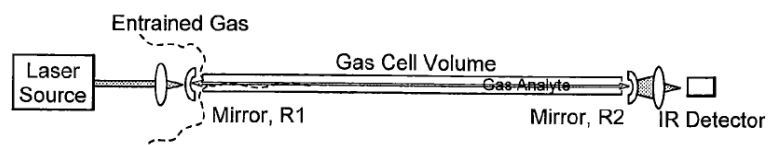
Potential Areas of Application:

- Adsorption or scattering measurements of gases, liquids, solids, or optical elements

ID number: 7001

Intellectual Property Status:

US 8,154,727



Opportunity: We are seeking an exclusive or non-exclusive licensee for marketing, manufacturing, and sale of this technology.

For more information contact:

William Vaughan, Director of Technology Transfer

Colorado School of Mines, 1500 Illinois Street, Guggenheim Hall Suite 314, Golden, CO 80401

Phone: 303-384-2555; e-mail: wvaughan@mines.edu