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**Dreyer et al.**

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(54) **HOLLOW WAVEGUIDE CAVITY RINGDOWN SPECTROSCOPY**

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(51) **Int. Cl.**  
**G01N 21/00** (2006.01)

(52) **U.S. Cl.** ..... **356/437**; 356/432; 356/436

(58) **Field of Classification Search** ..... None  
See application file for complete search history.

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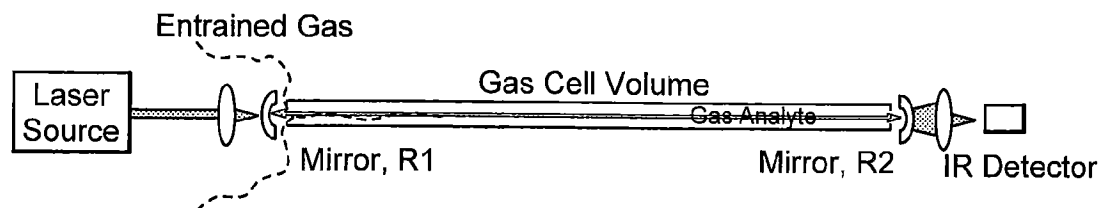
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(57) **ABSTRACT**

Laser light is confined in a hollow waveguide between two highly reflective mirrors. This waveguide cavity is used to conduct Cavity Ringdown Absorption Spectroscopy of loss mechanisms in the cavity including absorption or scattering by gases, liquid, solids, and/or optical elements.

**23 Claims, 8 Drawing Sheets**



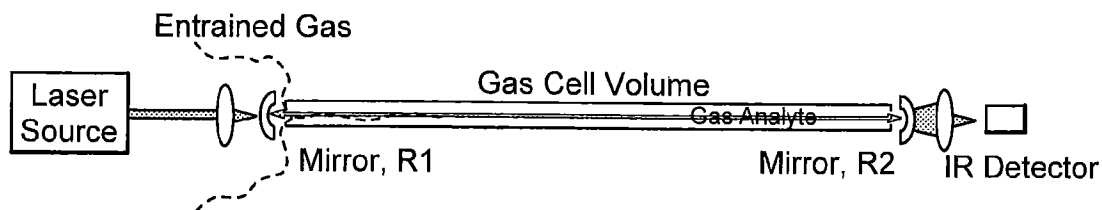


Fig. 1

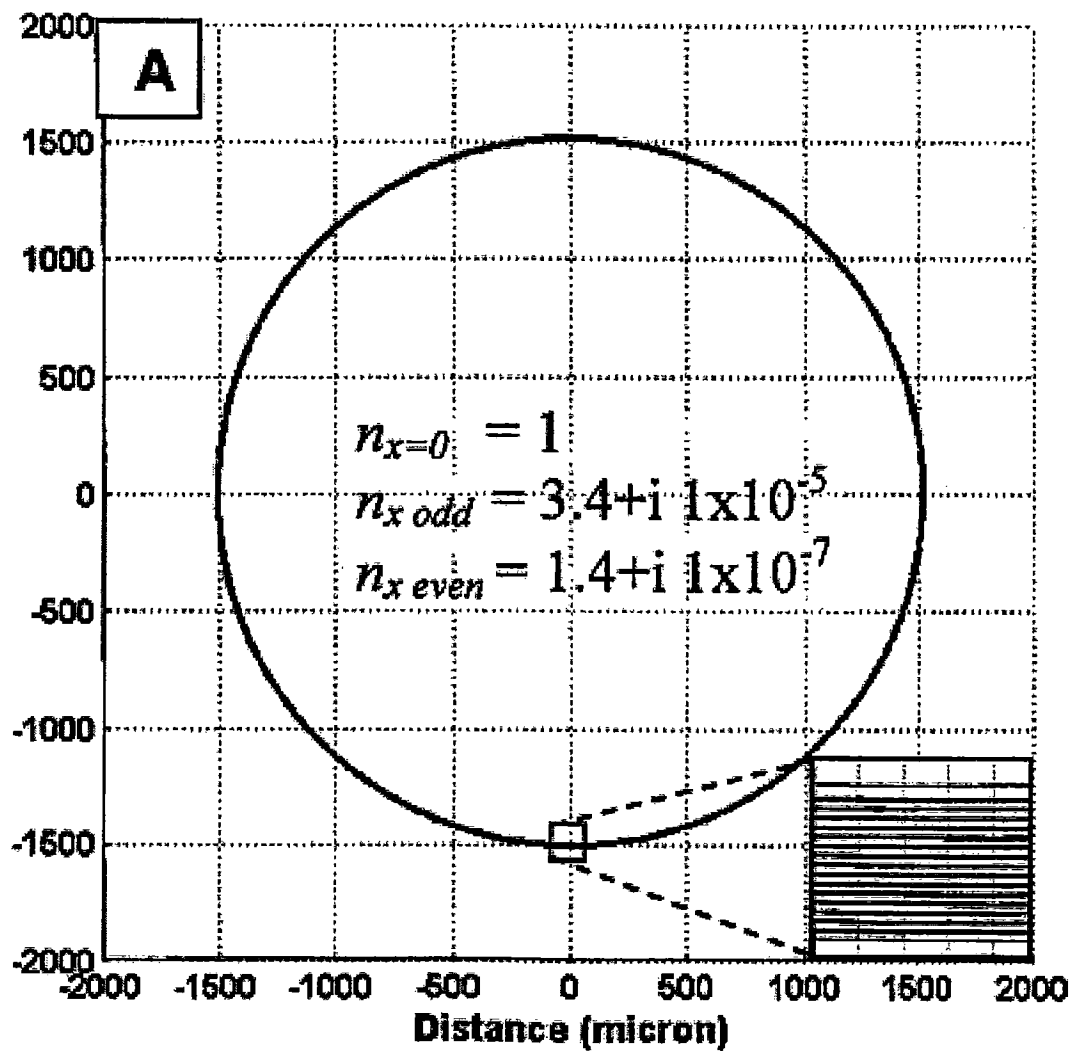


Fig. 2

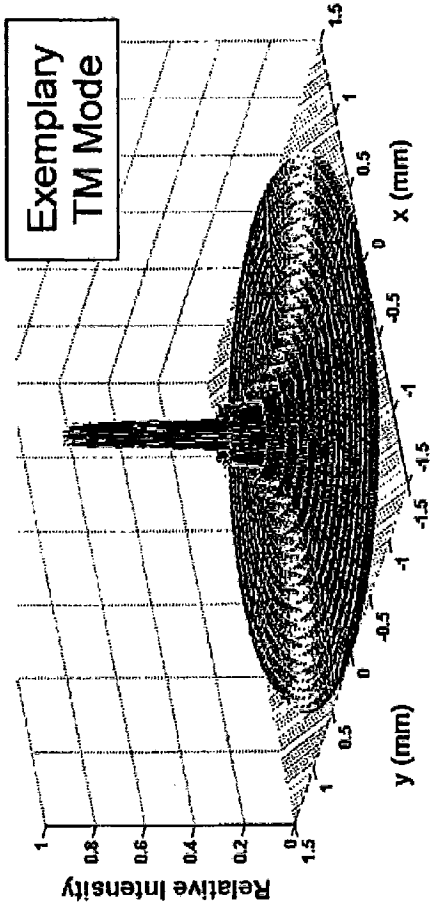
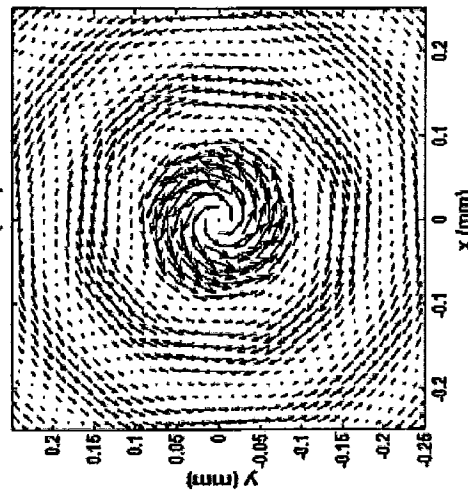
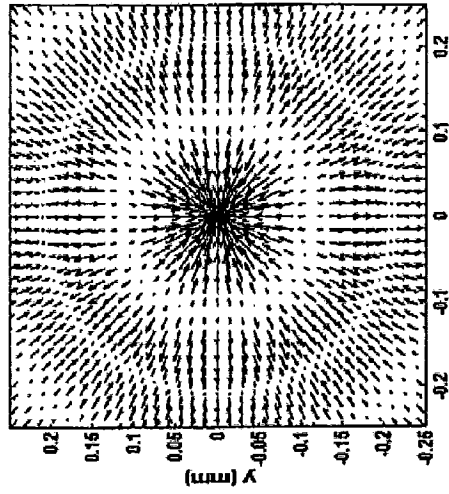


Fig. 3A

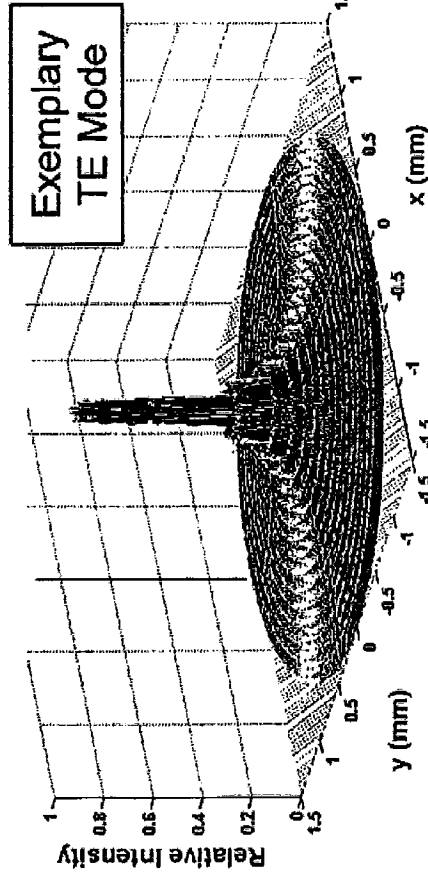


Fig. 3B

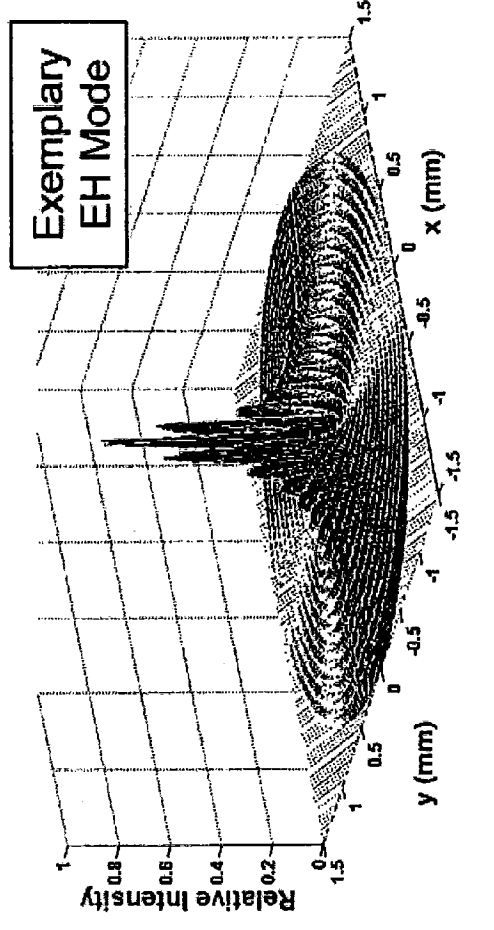
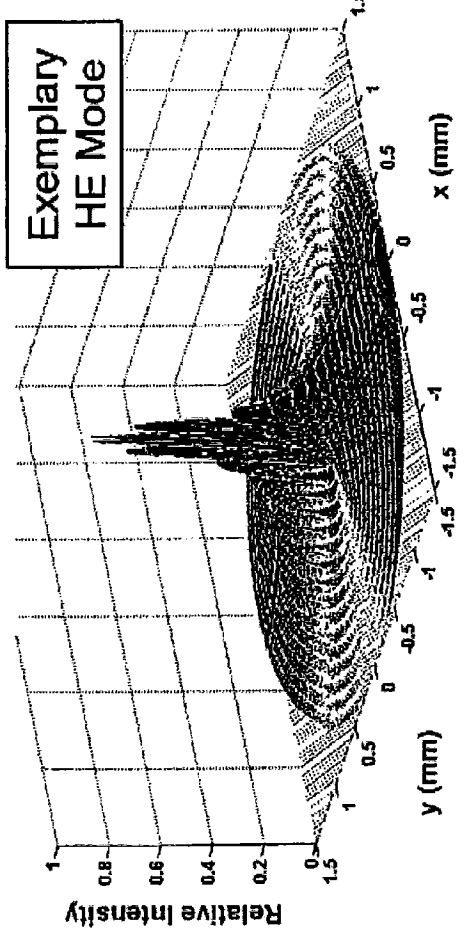
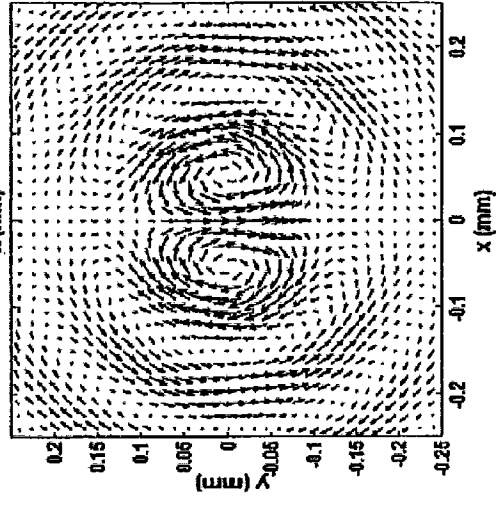
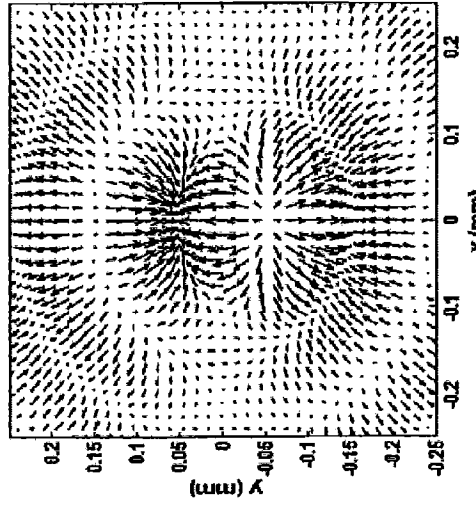


Fig. 3C

Fig. 3D