



Physics Seminar

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PSC 3046

4:00 pm

Fibre-cavity ring-down spectroscopy

Fibre-cavity ring-down spectroscopy (FCRDS) is a sensitive absorption spectroscopic technique. It is suitable for detection of very small volume samples for which conventional UV-visible detection is insensitive due to the short optical path length. It is also ideal for constructing field-portable chemical sensors for which conventional GC and HPLC methods rely on sample collection, transportation, and preparation. In FCRDS, light is coupled into a fibre optic cavity. The sample may be introduced between the two fibre ends for direct-path absorption or around the fibre for evanescent-field sensing. Once the light is coupled into the fibre cavity, it will complete a large number of round trips through the sample before its intensity drops below the detection threshold. This technique increases the effective absorption length by about 2-3 orders of magnitude and the characteristic ring-down time is independent from power fluctuations of the light source.

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