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Novel mid-infrared LED as a source for optical fibre gas sensing

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Abstract:

A mid-infrared LED emitting at 3.36 μm (FWHM 400 nm) is used as a source for evanescent wave flammable gas sensing with fluoride fibre. The system described has a detection limit for propane of 1.5%. These preliminary data demonstrate the potential for distributed gas sensing using novel LED sources.

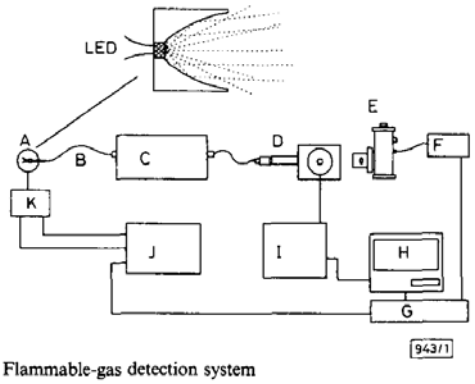

Fig. 1 Flammable-gas detection system

A: LED fixed to fibre xyz stage, B: teflon clad fibre, C: gas chamber, D: monochromator, E: InSb detector, F: current sensitive pre-amplifier, G: A/D convertor, H: computer, I: monochromator driver, J: LED pulse generator (TTL), K: LED driver