

Practical and Sensitive Measurement of Methane Gas Concentration Using a 1.6 μm Vertical-Cavity-Surface-Emitting-Laser Diode

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Methane (CH_4)-based natural gas is increasingly being used as city gas. Since CH_4 gas is explosive, accurate and sensitive CH_4 gas concentration sensors are required. We have developed practical and sensitive equipment for measuring the methane gas concentration based on infrared (IR) absorption by sweeping light with a 1.6 μm wavelength emitted from a vertical-cavity-surface-emitting-laser diode (VCSEL). This method can be used to measure the CH_4 concentration with a resolution better than 0.1% and is unaffected by the wavelength drift of the light source.

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