OAK RIDGE NATIONAL LABORATORY
Managed by UT-Battelle for the Department of Energy

Laser-Based Multiplex EGR Probe Based on CO2 Measurements

Disclosure Number

201303087

Technology Summary

The invention relates to diagnostic devices and methods and more specifically to devices and methods for detecting CO2 in a gas stream. The laser enables many benefits including better sensitivity at higher relevant EGR levels; linear sensitivity over a wide CO2 range (vs. nonlinear and lower sensitivity at higher EGR levels w/ MIR LEDs). The greater power from the laser enables better signal to noise which enables more accurate and faster measurements. Greater power also enables probe multiplexing. The spectrally narrow nature of the laser enables certain spectroscopies (WMS) with improved signal to noise ratio and which can mitigate certain interferences. With a spectrally narrow light source we are also more likely to recognize and discriminate against potential interfering species; these may likely not be recognized by broader LED-based measurements and their varying effects could be wrongly interpreted as CO2 variations.

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