Hot gas flow measurements by cross-correlation of infra-red radiation.

- - Infrared gas radiation from a homogeneously turbulent medium

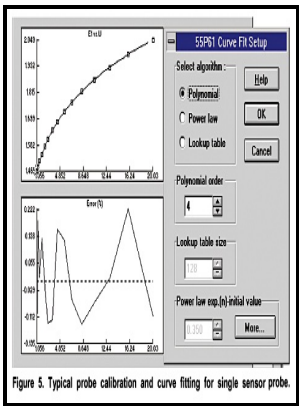

Figure 5. Typical probe calibration and curve fitting for single sensor probe.

Description: -
-Hot gas flow measurements by cross-correlation of infra-red radiation.
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DissertationsHot gas flow measurements by cross-correlation of infra-red radiation.
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In brief outline, the two signals generated by the two sensors will be similar in shape but time shifted by the time it takes for the gas to travel between the two sensors. However this system suffers from problems of dissociation of the gas if the stations are too far apart and is clearly only of use for measuring the velocity of hot gases. According to the formulas in governing the measurement volume this will further reduce the size of the measuring volume.

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Single-Sensor Normal Probes For one-dimensional, uni-directional flows. This homogeneous mix is then mixed with the fuel. As a direct result, an attempt to evaluate the statistics of the flow field using arithmetic averaging will bias the results in favor of the higher velocities.

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Hence, the PIV technique also has a linear calibration response between the primary measured quantity, i.

Gas velocity measurement by infrared radiation absorption

In the case of a hydrocarbon-based fuel the main products are heat, water and carbon dioxide.

SciELO

Seeding Particles Rather than relying on naturally existing particles, it is common practice to add particles to the flow to have control over their size, distribution, and concentration. As these clouds are of a non-homogeneous nature they can be tracked and timed.

Gas velocity measurement by infrared radiation absorption

For example, it could be used to measure the velocity of flue gases which can be cold and are not amenable to prior art systems that rely on hot gases.

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Description A number of techniques have been developed for the measurement of velocity of flowing gases.

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From 2-D PIV calculations, the normal component of the vorticity vector can be calculated.

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