

## **Fuel Vapor Concentration Measurements By Infra-Red Extinction – Development Around A Mono Disperse Droplet Stream – ICLASS2009-085**

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### **Abstract**

A Two-Wavelength Infra-Red Extinction Technique (IRE) at 3392 and 632.8 nm is applied on a stream of monodisperse droplets to investigate the behavior of this technique in a small-scale environment with strong concentration gradients.

First, a brief excursion in the theory of Infra-Red absorption is done and the experimental setup is presented. Then, first results compared to a simplified numerical calculation are presented. These prove the general aptitude of the IRE for this type of application. Sources of error are analyzed and strategies to refine the results are developed. The applied refinements are presented and the subsequent advancements are presented. Finally the perspectives of the work are given.

Keywords: Vapor concentration measurement, Infra-Red-Extinction, Droplet stream

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