**NEW ASPECTS OF THE INTRACAVITY LASER ABSORPTION SPECTROSCOPY**

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Intracavity laser absorption spectroscopy (ICLAS) is now a well established direct multiplex absorption method with a high sensitivity. This phenomena was discovered about 25 years ago [1, 2]. ICLAS is based on the high sensitivity of a broadband laser to intracavity frequency dependent losses: broadband intracavity losses are compensated by the laser gain whereas for narrow lines, the laser operates like a multipass cell without reflection losses. Equivalent absorption path lengths of several hundred of kilometers may be reached.
Since the discovery of this effect, ICLAS has been used with success for the spectroscopy of very weak transitions mainly with dye, color center or Nd:glass lasers [3]. The new class of solid state laser is highly promissing for the development of a new type of highly sensitive spectrometer in the infrared or near infrared[4].
We will give an overview about the principle of this technique and about recent applications like spectroscopy with an intracavity supersonic jet, with high resolution... We also will examine the possibilities to use this powerfull technique for measurements of weak concentrations of trace gas with an all solid state ICLAS spectrometer for in-situ detection.

# References

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