INTRACAVITY LASER ABSORPTION SPECTROSCOPY AS A LABORATORY TECHNIQUE: STATE OF THE ART

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Intracavity laser absorption spectroscopy (ICLAS) regardless that it is one of the most sensitive among high resolution spectroscopic methods, is still far from being widely used. One of the reasons is that the commercial equipment for ICLAS is not yet available, so there exists a common opinion that one who wants to install and use ICLAS in the laboratory needs a very high degree of laser technical expertize.
The goal of this talk is, in contrast to this opinion, to outline rather simple general requirements to ICLAS components, and to demonstrate examples of the most advanced setups, which have been used during last years in several groups. It will be clear that, as a matter of fact, the ICLAS setup is significantly simpler than for example narrowband tunable lasers. The experimental procedure from filling the intracavity cell with a sample gas to obtaining several hundreeds wavenumbers of calibrated spectrum will be described in details. The limitations of the method, the most favorable areas of application, the sensitivity limits, which could be achieved in the usual laboratory practice as well as promising future developments of ICLAS will be discussed. The talk is intended to provide some useful guidelines to those who wish to start using this technique.