

Industrialization perspectives of chemical sensors

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Chemical Sensors are about to conquer a large variety of applications that include e.g. the optimisation of combustion processes by monitoring of fuel and emissions, the monitoring of room air to monitor air quality and detect fires, dangerous events or even human activity, the optimisation of chemical and biochemical processes, non-invasive medical diagnostics via breath or through the skin, up to industrial and environmental monitoring applications. Several functional principles and selected key applications will be discussed.

Amongst the key technologies one approach are the classical solid state sensors which are characterised by an integration of intelligent material technologies, sometimes the usage of nano structures for the chemical reception layers, but in most cases with an increasing share of novel operation techniques and intelligent data evaluations.

On the other hand we see an increasing share of optical laser based technologies that are derived from the increasing availability of cheap, robust and highly performing semiconductor lasers. The third main player are classical instrumental technologies like IR spectroscopy and QMS/IMS/... where we increasingly see the availability of small and affordable micro-system based devices availathat create the field which is nowadays called “industrial analytical sensing”. Trends in the industrialisation of these technologies and a comparison of the future expected performance will be discussed.