

Press release VI / 2016

Inspection using light as a tool – Fraunhofer IWS offers a new platform for contactless material imaging

On Mai 10, 2016 it will finally be done: with the opening of the fair Sensor+Test in Nuremberg Fraunhofer IWS Dresden presents a particular highlight. IWS bears a significant part in the development of contactless methods for material imaging applying light as a tool, and demonstrates on the fair its newest developments in the area of spectral imaging and its imanto® product range.

Optical technologies belong to the key technologies of the 21st century. The optical sensor technology combines thereby speed with selectivity. Contactless material imaging methods are gaining continuously new application areas. The so called Hyperspectral Imaging (HSI) is the current motor of this development.

The monitoring tool HSI stands for speed and precision. New innovative methods for data evaluation shorten the process chain, reduce production costs, increase the production throughput rate, and improve the efficiency and the quality of manufacturing processes and products. On the fair an insight into numerous application examples will be given.

Hyperspectral Imaging belongs to the best-known spectroscopic imaging methods. Due to the possibility to check 100% of the goods it offers in mass production an alternative to conventional sampling inspection methods. The HSI as a contactless and flexibly applicable quality rating method offers excellent possibilities for data evaluation and leads to a high degree of automation.

With the recently issued Software-Plattform **imanto® pro**, Version 3.0, users receive a simple, but outstanding starting basis for the recording, interpretation and preparation for usage of hyperspectral imaging data.

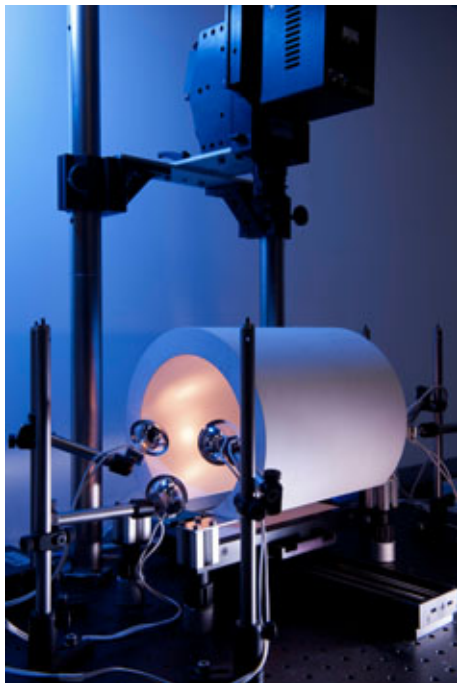
Furthermore, the Fraunhofer IWS offers a broad basis for the development of customized measuring test sites for single applications. Technical developments for the inspection of thin films layers and layer systems have been spurred. Conclusions about the layer thicknesses, refraction indices and – in the case of conductive layers - about the resistance of the layer can be drawn from optically gained measurement data.

In addition, many conclusions that are not obvious from first glance can be made on the basis of space-resolved spectral data. For example, process parameters from roll-to-roll processes can be identified, the later adhesiveness of coated parts can be calculated, barrier features of films can be forecast, surface texture of parts can be analyzed or the laser ablation can be evaluated.

HSI can be applied also for the evaluation of the degree of freshness of food products or for the sorting of plastic materials or granulates. Come along and discuss your application with us on the fair Sensor+Test (10.-12.5.2016) in Nuremberg on the shared booth of the Fraunhofer institutes, Hall 5, Booth 248.

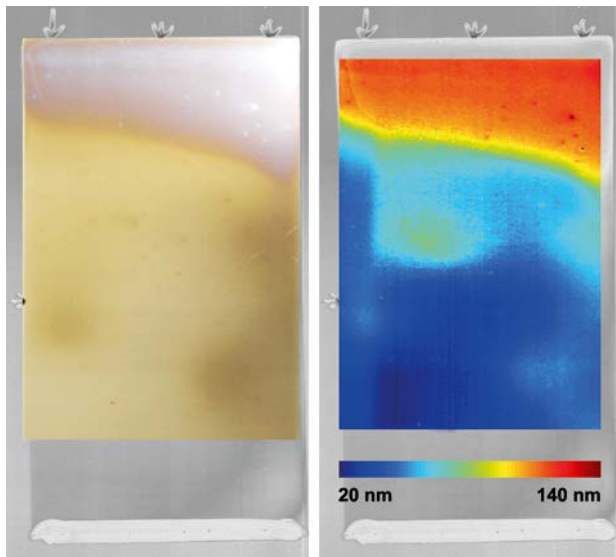
Fraunhofer IWS Dresden has implemented solutions of this kind with numerous companies and has thereby revolutionized the efficiency of production methods and the product control. Interesting for the industry are production methods which still have to be conducted manually or which are yet not feasible at all.

For many applications HSI offers virtually an ideal tool. It allows inspections in the nanometer to meter ranges and, if necessary, with high speed. The unique developments at Fraunhofer IWS prove to be the key for energy and material efficiency in many applications.



Hyperspectral Imaging System for the contactless surface and thin film analysis with lateral resolution.

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Aluminumoxid thin-on a 10 cm steel sample
left: Image in the visual image, right: calculated thickness distribution
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