

Pressannouncement

**haemospect® marks the beginning of a new era of measurement.
No blood, no pain, fast and safe.**

The company MBR Optical Systems GmbH + Co. KG based in Wuppertal has developed a non-invasive quantitative measurement method, being able to measure haemoglobin and several other blood and body parameters such as water content and mean vascular radius.

Together with radiologist and oncologist Prof. Dr. rer. Med. Michael Schietzel, mathematician and physicist Dr. rer. med. Holger Jungmann developed the basis technology several years ago.

Now. Together with the entrepreneur Heinz Schmersal from Wuppertal, (www.schmersal.com), it was possible to integrate this revolutionary know-how into a mobile measurement device and to bring this device into serial production.

What exactly means “measuring haemoglobin“?

Blood is principally a transport medium. Haemoglobin, the red colorant in red blood cells, transports vitally important oxygen from the lungs into all body tissues.

Even a short interruption of the oxygen supply can lead to life-threatening damage of organs, or even death.

This is why haemoglobin plays such a crucial role in clinical diagnostics. But the adequate loading of haemoglobin with oxygen is not the only mechanism that renders blood necessary for life: the haemoglobin in the red blood cells then also has to make its way into the tissues. This requires a vascular system, with its own characteristic movement (vasomotion), to transport the blood to the vicinity of the organs that can absorb the oxygen.

The **haemospect®** measures both O₂ haemoglobin and vasomotion, rapidly and painlessly.

Where are the applications for haemospect®?

The diagnostics of premature babies and new borns, in emergency medicine, burning victims, bypass operations, birth, skin and tissue transplantations.

Principle of operation

A sensor head placed on the skin projects a white light into the underlying tissue via a waveguide. Some of the projected light is absorbed by the various components of tissue, while some of it is reflected. Another waveguide transmits the light reflected as a result of the physical conditions back to the device. A spectrometer breaks the light down into its separate wavelengths and an electronic evaluation unit connected to the system analyses it. The resulting data is then processed using an algorithm developed by MBR and visualised on the display of the device in the form of quantitative values measured for the parameters described above.

Individual measurements and continuous measurements can also be carried out online.

The device is powered by batteries. A matching intelligent charger is included, so the batteries will not be overloaded.

With fully charged batteries, the device can measure for at least five hours in continuous operation.

Who is behind this project?

Prof. Dr. med. Michael Schietzel

A radiologist and oncologist who led the radiology and tumour outpatient departments as head physician of the Witten/Herdecke University Community Hospital.

Having served many years as an expert in the „unconventional methods of cancer treatment“ unit within the German Ministry of Education and Research, Prof. Schietzel founded the non-profit organization „Krebsforschung Herdecke e.V.“ (Herdecke Cancer Research Association), which concentrates on immunological treatment methods. Since as long ago as the 1980s, he has dedicated himself to the study of measurement by means of reflection spectroscopic processes in the qualitative and quantitative analysis of substances.

He has published numerous publications in German and international scientific journals. In 2007, together with Dr. Holger Jungmann and Heinz Schmiersal, he established MBR Optical Systems GmbH &Co. KG, which he leads as one of the two general managers.

Dr. rer. med. Holger Jungmann

Worked for many years as a mathematician and physicist in basic research at the Max-Planck Institute.

Together with Prof. Dr. med. Michael Schietzel, he is an architect of the reflection spectroscopic processes applied here and is responsible for the research and development into the device technology shown here. Dr. Jungmann is the author of numerous papers published in major German and international scientific journals. Along with Heinz Schmiersal and Prof. Dr. Schietzel, Dr. Jungmann is a partner in MBR Optical Systems GmbH & Co. KG.

Dipl. Ing. Heinz Schmiersal

Holds a degree in mechanical engineering and is president of the Schmiersal Group.

Schmiersal Group employs 1,200 people at several locations around the world and specialises in the development and production of highly sensitive safety engineering systems for industrial, hygienic and medical applications. Heinz Schmiersal contributes his knowledge of the design of manufacturing, production and quality systems as the second managing partner of MBR Optical Systems GmbH &Co. KG.

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