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Understanding Interfaces

Press Release: New association membership

DataPhysics Instruments is now a member of the Alliance for Fibre-based Materials Baden-Württemberg

Filderstadt, 28.03.2022. DataPhysics Instruments is now a member of the Alliance for Fibre-based Materials Baden Württemberg. The innovative company developing and producing measurement devices is looking forward to a long-lasting cooperation with the Alliance for Fibre-based Materials Baden Württemberg and an active exchange with the other members of the association.

The measurement systems company DataPhyiscs Instruments, headquartered in Filderstadt, Germany, is now part of the Alliance for Fibre-based Materials Baden-Württemberg (Allianz für faserbasierte Werkstoffe Baden-Württemberg e.V., AFBW). DataPhysics Instruments has been developing, producing, and selling a wide portfolio of measurement devices to characterise surfaces and interfaces for 25 years. The company offers a whole range of measuring methods, which can also be used for the examination of fibre surfaces. Thus, there are many connections to the topics of the AFBW, which is positioned across industries and has made it its mission to support its members along the complete fibre-based value chain. The list of well-known members of the AFBW includes Tesa, Dekra e.V., the German Institute for Textile- and Fibre-based Research, the Hohenstein Institute for Textile Innovation just as the Robert Bosch GmbH.

Towards the future with AFBW

Dr. Sebastian Schaubach, CEO and Innovation Manager at DataPhysics Instruments, says: "I am very happy that we are now a member of the AFBW. We are looking forward to sharing our expertise in surface and interfacial measurement technology with the other members." Schaubach hopes that the cooperation with the AFBW will lead to interesting joint projects. He explains: "We have chosen the AFBW because we are always looking for new partners. In collaboration with researchers and experts who use our devices, we have been able to realise several innovations for our systems. This is where we also see our strength in the future."

Characterising surface and interfacial parameters is important when developing new materials and ensuring a high quality of products. "Members of the AFBW might be most interested in measurements to characterise fibres and fibre-based compounds. With our devices, they can choose from a whole range of different measuring methods", explains Schaubach.

Fibre-measurements with the devices from DataPhysics Instruments

With the devices from DataPhysics Instruments, it is possible to characterise the surfaces of single fibres and fibre-based compounds as well as initial polymer melts and fibre-based finished products, among many other materials.

The contact angle meters of the OCA-series from DataPhysics Instruments can be used to measure contact angles on single fibres. With the optional picolitre dosing system PDDS, small droplets down to 30 picolitres can be dispensed, enabling measurements on fibres as small as 200 microns in diameter. The OCA-systems with their powerful cameras can also be used to investigate the wetting behaviour of fibre composites and the absorption of liquid droplets by fabrics or nonwovens. Additionally, if an OCA-system is mounted on the tilting device TBU, droplet roll-off experiments can be carried out, which can be helpful when investigating the water-repellency of functional textiles. In all measurements described, various application scenarios can be simulated using temperature- and humidity-controlled climate chambers.

The wettability of particularly thin fibres with a certain stiffness is best investigated with the tensiometers of the DCAT-series. With those tensiometers, the advancing and receding contact angles are measured based on weight changes when immersing the fibres in a liquid and pulling them out again. However, the occurring weight changes during this process are minimal, which is why DataPhysics Instruments offers a

tailored system for this purpose, the DCAT 25SF single-fibre tensiometer, with an extremely precise scale. If fibres wet easily, the advancing contact angle can also be determined in a DCAT-system using a fibre bundle and the so-called Washburn-method.

In addition to optical contact angle measurements and tensiometric investigations, the systems from DataPhysics Instruments offer many other possibilities for investigating fibres and fibre composites. For example, the software from DataPhysics Instruments can determine the surface energy of fibres, based on contact angle measurements with several test liquids. With its polar and dispersive parts, this parameter helps to assess the interaction of fibres with other materials.

Since the surface charge can also provide important information about the interaction potential, DataPhysics Instruments has recently added the Zeta Potential Analyser ZPA 20 to its product portfolio for investigating this property. The characteristic isoelectric point of a fibre sample can be determined from measurements at different pH values.

In addition to the surfaces of solid samples, such as fibres, the measuring systems from DataPhysics Instruments can also be used to examine liquids, like liquid starting materials of polymer-fibres. For example, the surface tension of polymer melts can be measured with OCA-systems and tempered dosing modules as well as heated sample chambers. In addition, the surface tension of liquids can be measured with the DCAT-systems. Moreover, with the stability analysis system MultiScan MS 20, it is possible to investigate the stability and separation behaviour of disperse polymer formulations.

DataPhysics Instruments is the professional partner for interface and surface analysis

The measuring systems of DataPhysics Instruments are used worldwide in the laboratories of many renowned universities and research institutes, but are also found in numerous industrial companies. Here, it is primarily the experts in product development and quality assurance, who rely on the high-quality equipment and competent service of DataPhysics Instruments in their daily work. Schaubach says: “We are always amazed how versatile our customers are in using our instruments. That's why we also wish to support the members of the AFBW with their individual measuring tasks.”

For all challenges in the field of surface technology, the experienced measurement experts in the DataPhysics Instruments application centre are always looking for innovative solutions. Likewise, they are happy to carry out all available measurement techniques in the form of contract measurements.

If you reprint this press release, we would be pleased to receive a copy.

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Picture 1:
The measurement systems company DataPhysics Instruments, headquartered in Filderstadt, Germany, is now part of the Alliance for fibre-based Materials Baden-Württemberg (AFBW).
Copyright: AFBW e.V.

Picture 2:
The tensiometer DCAT 25SF was designed to conduct dynamic contact angle measurements on single fibres.
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Picture 3:
The contact angle meters of the OCA-series can be used for many applications.
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