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## **JPK reports on the use of a NanoWizard® AFM system at the University of Kaiserslautern to study the interaction of bacteria with microstructured surfaces.**

*Berlin, 28<sup>th</sup> April 2016: JPK Instruments, a world-leading manufacturer of nanoanalytic instrumentation for research in life sciences and soft matter, reports on the research into the interaction of bacteria with microstructured surfaces in the Department of Physics at the University of Kaiserslautern in Germany.*

Dr Christine Müller-Renno is a member of the Ziegler Group in the Physics Department at the University of Kaiserslautern in Germany. The main topics of their research are in nano- and microelectronics, as well as in medical engineering and fluid analysis. Other topics include catalysts and stain-resistant coatings by the use of nanomaterials.

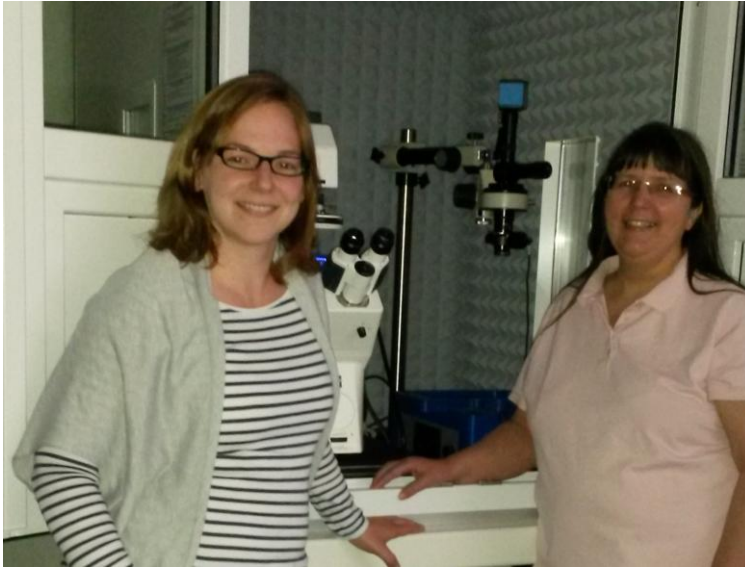
The Group uses the JPK NanoWizard® AFM to study the interaction of bacteria with microstructured surfaces. They look at micromilled titanium surfaces. They study the adhesion of single bacteria to the surface and investigate the elastic properties of the bacteria adhered to the surface (for example, as a function of pH). The goal of all these measurements is to find the best surface structure bacteria combination to produce a biofilm reactor. The NanoWizard® is also used for single molecule force spectroscopy. They measure the adhesion of single protein molecules to different surfaces with the goal to compare the results with simulation experiments dealing with protein adhesion (molecular modeling).

AFM is used because of its all-round flexibility – for biology and surfaces under various conditions, e.g. fluids, air, etc. AFM provides an insight into the interaction directly at the surface (e.g. protein with the surface) with very high resolution. It also enables the simultaneous measurement of elastic properties with the imaging of the sample.

The group use a variety of AFMs along with light and scanning electron microscopes. Asked about the merits of using the NanoWizard®, Dr Müller-Renno says “The benefit for us is the very, very good combination of light microscopy and AFM (also for opaque samples - most of our samples are opaque). In addition, the instrument gives all the requirements we need for our biology studies.”

For more details about JPK's NanoWizard® AFM systems and their applications for the bio & nano sciences, please contact JPK in the USA on (408) 807 8878 and in Germany on +49 30726243 500. Alternatively, please visit the web site: [www.jpk.com](http://www.jpk.com) or see more on Facebook: [www.jpk.com/facebook](http://www.jpk.com/facebook) and on You Tube: <http://www.youtube.com/jpkinstruments>.

## Attachment



*Dr Christine Müller-Renno and Professor Christiane Ziegler of the Physics Department at the University of Kaiserslautern with their JPK NanoWizard® system*

## About JPK Instruments

*JPK Instruments AG is a world-leading manufacturer of nanoanalytic instruments - particularly atomic force microscope (AFM) systems and optical tweezers - for a broad range of applications reaching from soft matter physics to nano-optics, from surface chemistry to cell and molecular biology. From its earliest days applying atomic force microscope (AFM) technology, JPK has recognized the opportunities provided by nanotechnology for transforming life sciences and soft matter research. This focus has driven JPK's success in uniting the worlds of nanotechnology tools and life science applications by offering cutting-edge technology and unique applications expertise. Headquartered in Berlin and with direct operations in Dresden, Cambridge (UK), Singapore, Tokyo, Shanghai (China), Paris (France) and Carpinteria (USA), JPK maintains a global network of distributors and support centers and provides on the spot applications and service support to an ever-growing community of researchers.*

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