

Tübingen, April 4<sup>th</sup>, 2006

## ROCHE DIAGNOSTICS AWARDS THE ROCHE DIAGNOSTICS PRIZE FOR SENSOR TECHNOLOGY 2006

*JIRI HOMOLA* is awarded during the 8th European Conference on Optical Chemical Sensors and Biosensors.

Dr. Jiri Homola from the Institute of Radio Engineering and Electronics in Prague is this year's winner of the Roche Diagnostics Prize for Sensor Technology. He is awarded for his outstanding achievements in the area of Surface Plasmon Resonance (SPR), in particular for his contributions that led him from spectroscopic fundamentals to successful demonstrations of SPR biosensors.

Sensors have become part of our daily life to an extent we are not aware of: temperature sensors turn on and off refrigerators, sensors display oil pressure in cars and industrial plants, photosensors turn on and off city lights, and position sensors form the basis for GPS and related tools. The most often produced chemical sensor is the solid-state oxygen sensor (used by the millions in catalytic converters and capable of continuously and reversibly recording oxygen levels in combustion gases). Biosensors, in turn, are used to measure blood gases and numerous other blood parameters including cholesterol and glucose. Sensors (also referred to as "biotests") also enable testing for pregnancy, and testing for numerous other parameters, mainly in the medical diagnostic field, but also in food quality control and for detection of viruses. It is obvious therefore, that biosensor technology is an area of highest scientific and social significance.

In order to further encourage research Roche Diagnostics is awarding young scientists under the age of 42 for their outstanding achievements in the fields of *chemical sensing*, *biosensing* and for *sensing of clinical parameters during* the 8th European Conference on Optical Chemical Sensors and Biosensors (EUROPT(R)ODE VIII) in Tübingen, Germany, Tuesday, April 4, 2006.

The Winner is identified by an award jury, consisting of 7 internationally recognised specialists in this field, headed by Professor Otto Wolfbeis (University of Regensburg, Germany). The winner receives a cheque of 4.000 Euro.

### **Jiri Homola: an Appraisal of his Research**

The research activities of Dr. Homola cover various areas. These include the development of new SPR sensor platforms, methods for biomodification of sensor surfaces, methods for signal processing, and the applications of the resulting biosensors for the study of biomolecular interactions and for the detection of chemical and biological species.

The new biosensor platforms developed by Dr. Homola are based on a phenomenon referred as to surface plasmon resonance, an effect that has been discovered by physicists in the 1950s, and introduced into the biosciences in the late 1970s by Bo Liedberg. Dr. Homola has extended the SPR biosensor technology and has coupled it to fiber-optic and integrated-optic devices. More recently, Dr. Homola has developed a new approach to multi-channel SPR sensing based on multi-surface-plasmon spectroscopy which improves performance of SPR biosensors.

Dr. Homola has also been active in the area of the bio-functionalization of SPR sensors. In his SPR sensors, he exploited various biorecognition elements including antibodies, peptides, DNA and RNA deposited or immobilized on sensing surfaces via self-assembled monolayers or by micro contact printing.

Dr. Homola has been involved in the development of SPR biosensors for the detection of diagnostically significant parameters. These include choriogonadotropin, microglobulines, and antibodies against the Epstein-Barr virus. Furthermore, environmental SPR sensors that enable monitoring of atrazine and SPR sensors for food safety and security measuring enterotoxines or the infamous E. coli and Salmonella bacteria have been demonstrated. Several of these species were detected by the SPR biosensors for the first time. An important emerging area of applications for high-throughput SPR sensors is in parallelized screening of compounds for drug development.

His research has been featured in over 30 publications in the past 6 years.

## Vita Jiri Homola

Jiri Homola was born in 1965 in Nove Mesto na Morave, Czech Republic. He obtained a Master degree in physical engineering in 1988 from the Czech Technical University, and a PhD degree in electrical engineering in 1993 from the Academy of Sciences of the Czech Republic. In 1993 he joined the Institute of Radio Engineering and Electronics as a Research Scientist. Since 1997 to 2003 Dr. Homola was with the University Washington in Seattle (USA), since 2001 as a Research Associate Professor. Since 2002 he works in Prague where he is the head of the Photonics Division and chairman of the Department of Optical Sensors at the Institute of Radio Engineering and Electronics of the Academy of Sciences of the Czech Republic. He maintains his close ties to the University of Washington in Seattle, where he acts as an Affiliate Associate Professor.

## About Roche and the Roche Diagnostics Division

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