

## Nalecz Institute of Biocybernetics and Biomedical Engineering Polish Academy of Sciences

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The Institute is the biggest research centre of biomedical engineering in Poland. It is one of two scientific institutions empowered to confer doctoral and postdoctoral degrees. The IBBE PAS has a long, 35 year-long-history of training and awarding the new generation of biomedical engineering experts. IBBE PAS has its own doctoral studies programme.

At present the Institute has a staff of 136 employees including 10 professors and 13 associate professors. Its newest structure since 2010 consists of five departments: Hybrid Microbiosystem Engineering, Biomedical Systems and Technologies, Biophysical Measurements and Imaging, Mathematical Modelling of Physiological Processes, Engineering of Nervous and Muscular System. The Institute's scope of research in the field of biocybernetics and biomedical engineering corresponds to the latest directions of research in world science and is of an interdisciplinary nature. The scope of research focuses on two major directions:

(a) biomeasurements and computer aided data processing and analysis for the purposes

of medical diagnostics and

(b) enforcing and replacing of lost organism functions by using technical and hybrid (technical-biological) means and taking mathematical and physical modelling of certain organs and physiological systems and their computer simulations into consideration.

Implementations of IBBE PAS research work have been performed in many national medical centers. During the past four years 29 original systems as well as diagnostic and therapeutic methods have been extensively validated in clinical conditions. For example: control of eye movement, noninvasive monitoring method of brain oxygenation, microcirculation measurements, investigation of the central nervous system, treatment and control of diabetes treatment, treatment of leukemia, lungs and cardiovascular system support. In the past year 30 research grants including 7 international ones have been carried out within the framework of research work at the Institute.

The Institute was nominated as the National Centre of Excellence in the field of Artificial and Hybrid Organs Supporting Metabolism.

IBBE PAS is the coordinator of a nationwide scientific network which conducts studies in the field of biomedical engineering (BIOMEN) and was a coordinator and co-implementer of the nationwide Foresight project concerning the development of „Scenarios of Medical Technologies' Development in Poland until 2020“.

IBBE PAS has joined a newly established BIOCENTRUM Ochota consortium which gathers close to 2,000 researchers. The Institute has excellent facilities for the organisation of conferences and seminars.

In 1988 the International Centre of Biocybernetics (ICB), in association with the Institute, began its activity. Till now more than one hundred seminars have been organised.