

Derk Wachner

XI. International Conference on Electrical Bio-Impedance

Oslo, June 17-21, 2001

Scientists from more than 30 countries met to discuss the different aspects of 'Electrical Bio-Impedance', to present the newest research results, and to allow others to look at their respective work areas. Foci were the application in biological and medical research as well as in medicine. The possibilities for medical application of impedance range from treatments conducted at the body, tissue and organic level via methods for examining structure and state of outer and inner organs like the skin, teeth, bones, brain and heart, up to methods for visualisation like the Electrical Impedance tomography (EIT) that has become increasingly popular in recent years. According to the organisers, this year the number of contributions on cells and cell suspension has enormously increased. At present, in this area the most innovative developments occur. Research into the electric properties of cells is urgently required: many methods like f.e. EIT only are applied as generally renown measurement methods after complementation of

existing refined models by corresponding cell models. Until now, to this end only sparse information and/or no usable theoretical models at all were available. This, too, was emphasized during expert discussions taking place at the conference. Thus, in future a tighter cooperation between working groups of the mentioned special areas is to be expected.

Though there was no special topic focus on electrical field absorption in biological objects as was the case at the meeting in Bratislava 2001, absorption plays a vital role for impedance methods. Therefore, registration of single-cell characteristics naturally also is of relevance concerning modelling of absorption characteristics in tissue and organs. In this sense, posters of the topic area of tissue and organs were shown at the space adjacent to posters on cells. This meeting completed analysis of research on dielectric properties of biological objects particularly by concentrating on the per se quite extensive area of impedance.

On the whole, the conference was well-structured. So-called 'keynote lectures' (main lectures) introduced respective current issues. Partially, lectures even allowed to look deeper at respective research areas. Well-known experts had been invited to hold these lectures. Internationally renown scientists like Herman P. Schwan, Kenneth R. Foster and Ronald Pethig were



present. Herman P. Schwan gave a comprehensive history orientated lecture on the development of impedance measurement methods, on the most important results of his lifelong efforts and on cooperation with former co-workers. Among other things, he emphasized that for description of passive dielectric properties admittance is by far the more appropriate quantity, not impedance. Ronald Pethig received the Herman P. Schwan Award. At this meeting, also leading Japanese scientists from the area of cell impedance were present, f.e. Hiroshi Kanai, Katsujyuki Sakamoto and Koji Asami who did extensive research on the topic.

*Dipl. Biologe Derk Wachner, University
Rostock*