
Gerhard Schwarz: scientist and colleague

Gerhard Schwarz's research interests have been focussed on the mechanistic understanding of various bioelectric life phenomena such as, for instance, the physical-chemical basis of the electric nerve excitation. He has always taken on the challenge to penetrate intellectually into the theoretical background of complex bioelectric systems, and to develop conceptually novel approaches for the analysis of experimental data in terms of rigorous thermodynamic and kinetic relationships. Throughout his scientific work it is apparent the Schwarz's strategy is first to study partial aspects of complexity by using well-defined model systems, followed by cautious extrapolations to electrobiological functions. A whole series of analytical fundamentals of chemical electric field effects and particle orientation in externally applied electric fields, which have been developed by Schwarz, date back as early as 1955, documented together with M. Eigen in the *Z. Physikal. Chemie*. Pioneering work has been performed (with H.P. Schwan) on the low frequency dielectric dispersion and on the frequency-dependent energy and orientation of colloidal particles. Highlights are the thermodynamics and relax-

ation kinetics of cooperative conformational transitions of linear biopolymers (experimental work with J. Engel, 1972), including dielectric relaxation due to chemical rate processes 1967 (experimental work with J. Seelig, 1968), cooperative ligand binding, aggregation and electric field effects of biomolecules, protein-nucleic acid and peptide-lipid interactions as well as interfacial phenomena. Besides these multifaceted scientific activities, Gerhard Schwarz has been a very engaging academic teacher and scientific advisor, whose rigorous and clear, straightforward and independent thinking is a highly appreciated and a finely honed talent. Occasionally, the sometimes apparent overly serious and austere atmosphere surrounding Gerhard has been amply contrasted by the cheerful presence of Roswitha, his charming wife.

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