

## 1996 Schönbein Medal of Honour awarded to Hans-Heinrich Möbius



At the Second European Solid Oxide Fuel Cell Forum, which took place in Oslo from 6 to 10 May 1996, Prof. Dr. Hans-Heinrich Möbius, Greifswald University, Germany, was awarded the Christian Friedrich Schönbein Medal of Honour in recognition of his outstanding contributions to the fundamentals and the technology of solid-electrolyte fuel cells. The laudatory address was delivered by Prof. B.C.H. Steele of Imperial College, London, who was himself the 1994 Medal winner.

H.-H. Möbius studied chemistry at Rostock University from 1949 to 1954. In his diploma work, supervised by U. von Weber, he dealt with “Heats of mixing in the benzole-acetone-water system”, whereas his PhD thesis was devoted to “Theoretical and experimental investigations into fuel cell elements with solid electrolytes”. This thesis was so excellent that he was awarded the *summa cum laude* degree.

In 1960, H.-H. Möbius became senior assistant at the Institute of Physical Chemistry of Greifswald University, where he established a research group for solid

electrolytes. He was responsible for this group until his retirement in 1995, when U. Guth became his successor. In 1966, H.-H. Möbius qualified as a university lecturer (Habilitation) in physical chemistry. The title of his thesis was “On oxygen ion-conducting solid electrolytes and their application possibilities”, which is also the title of a total of 82 publications combined in a series. In 1967, he started lecturing in physical chemistry at Greifswald University. After the reunification of Germany, he was appointed professor in 1990. On 1 April 1995, he became professor emeritus.

What is typical of his scientific work is that he has always tried to closely connect fundamental with applied research. As early as his period as a PhD student, he noticed the wide range of application possibilities for high-temperature galvanic cells with oxygen ion-conducting solid electrolytes. Besides fuel and electrolysis cells for the production of hydrogen and oxygen, he had taken a particular interest in gas analysis cells from the beginning. In his granted patents exceeding 50 in number, gas potentiometric equipment and techniques are predominant. In recent decades, his research activities were focussed on problems of solid-electrolyte sensors. What is less known is the fact that as early as in November 1955, in Rostock, H.-H. Möbius had carried out the first gas analyses with solid-electrolyte cells according to thermodynamic principles, i.e. about  $2\frac{1}{2}$  years before employees of Westinghouse had started to develop the first commercial oxygen sensors. In 1958, together with Dr. Peters, he applied for the basic world patent for his gas analysis probes using solid electrolyte cells (H. Peters, H.-H. Möbius: “Verfahren zur Gasanalyse bei erhöhten Temperaturen mit Hilfe galvanischer Festelektrolytelemente”). Zirconium dioxide solid-electrolyte sensors rank first today among all electrochemical sensors, which include lambda sondes in motor vehicles and oxygen sondes for steelmaking. Since about 1978, he has been occupied not only with oxygen ion-conducting solid electrolytes but also increasingly with oxoanionic solid electrolytes, which is reflected in a second series of publications entitled “Oxoanionic solid electrolytes and their application possibilities”, comprising 19 issues.

A description of the merits of H.-H. Möbius would not be complete if it were not mentioned that he is greatly appreciated as an author of textbooks and

especially as a university teacher. He supervised more than 80 diploma works, 13 doctoral theses, and several theses qualifying for a position as a university lecturer.

The Editors of the Journal of Solid State Electrochemistry are proud to start the Journal with a review

written by H.-H. Möbius in which he gives a survey of the history of solid electrolyte fuel cells.

R. G. Hartung, F. Scholz