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ΤΙΤΛΟΣ: **The role of the mathematical modelling in the electrochemical engineering**
Ο ρόλος της μαθηματικής μοντελοποίησης στην ηλεκτροχημική μηχανική

ΤΟΠΟΣ: Αίθουσα Σεμιναρίων ΙΤΕ/ΕΙΧΗΜΥΘ

ΗΜΕΡΟΜΗΝΙΑ: Πέμπτη, 27 Μαρτίου 2008

ΩΡΑ: 12:00

ΠΕΡΙΛΗΨΗ: Mathematical modelling represents an extremely powerful tool in the basic understanding of the processes taking place in the chemical and electrochemical systems as well as in the process scale-up and technology design. In the past its role was limited mainly due to the requirements of the high level of education in mathematics and due to the limited power of the generally accessible computing hardware. The last factor resulted often in acceptance of a serious simplification assumptions leading to the reduced accuracy of the model outputs.

The rapid development in both computer hardware and numerical mathematics methods we may observe during the last two decades resulted in the development of the several commercially available software packages. Utilisation of the commercial software can not avoid the need of deep understanding of the mathematical background of the problem, but it may save significant amount of time and effort by avoiding ruinous programming work. Increasing computers power allows solving significantly more complex problems and thus coming significantly closer to the real conditions. In this contribution the role of the mathematical modelling in understanding of the electrochemical problems as well as in the optimisation of the selected processes will be discussed. Conclusions made will be documented on few selected examples with the close relation to the real problems.

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Date of birth: 1968

Education: Institute of Chemical Technology Prague (ICTP), MSc. thesis in the field of Inorganic Technology (1991), PhD. thesis (electrochemical synthesis of ferrates) defended in 1997 at ICTP, habilitation in 2001, in 2005 appointed as a full professor in the field of Inorganic Technology (both at ICTP).

Position: head of the group of Technical electrochemistry, head of the Department of Inorganic Technology, vice-dean of the Faculty of Chemical Technology

Fields of interest: technical electrochemistry and electrochemical engineering with a focus on the waste water, drinking water treatment and fuel cells.

Publication activity: 50 papers in reviewed journals, 4 chapters in monographies, 1 textbook, 2 patent applications, 240 contributions to the scientific meetings.