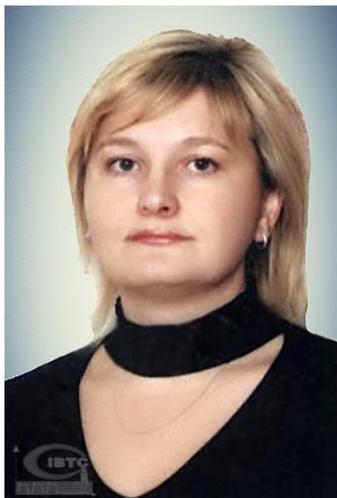


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TVERYTNYKOVA
Elena E.,
Candidate of Historical Sciences,
professor of the Department
«Information and measuring technologies
and systems» NTU «KhPI»
tveekhpi@ukr.net
(Kharkov)

**THE DEVELOPMENT OF MATHEMATICAL MODELING
OF POWER ASSETS AND SYSTEMS IN UKRAINE
(second half of the twentieth century)**

Summary

From the middle of the twentieth century the development of energetics was associated with the creation of large energy systems distributed by territories. As a result, there was a need for complex, interdisciplinary research issues of the development and functioning of systems of energetics. The appearance and wide application of electronic computers, as well as the development of computational mathematics methods were contributed to the beginning of a new direction of researches.

The aim of the article: on the basis of the processing of scientific literature and the attraction of archive materials to establish the main stages of the formation and development of mathematical modeling direction of energy objects and systems in Ukraine, as well as to disclose the results of the scientific heritage of the Academician H.Ye. Pukhov and his scientific school.

The first fundamental method researches and tools of modeling and similarity, which received world recognition, were conducted on the first half of the twentieth

century and belonged to M.V. Kyrpychov, L.I. Siedov and S.O. Lebediev Academicians. In Ukraine, the direction of electronic modeling began in the middle of the twentieth century. Scientific works in the field of electronic modeling were carried out at scientific research institutions of Ukraine by individual scientists and were not systemic.

A prominent place in the deployment of system research on this new direction belonged to Academician H.Ye . Pukhov. The development of the direction connected with mathematical and electronic modeling of processes and systems in power engineering started in the laboratories of the Institute of Electrical Engineering and the Institute of Electrodynamics, led to the formation of the scientific school of electronic modeling by Academician H.Ye. Pukhov. The scientist had been working in the Academy of Sciences of the Ukrainian SSR, developing and exploring the original electrical circuits for about 40 years, which made it possible to create analog machines for solving various systems of algebraic, differential and integral equations. The fruitful activity of H.Ye. Pukhov became the basis for the creation of the only specialized scientific institution in Ukraine to study the problems of modeling in power engineering - the Institute for Modeling Problems in Power Engineering of the Academy of Sciences of the Ukrainian SSR.

A distinctive feature of the activity of the scientific team members was a large number of implementations in various spheres of the national economy. In particular, a series of hybrid electronic machines was put to use in research institutions for performing engineering calculations, covering issues of non-linear programming and the implementation of a number of joint projects.

The unique development of the Institute was the creation of systems of structural training complexes for training. Training complexes for welding processes modeling, studying of the basics of working on machines with numerical program control for operators of power plants and nuclear power plants were developed. For the first time in the USSR, an educational and training center for the Tiraspol power station was established. On the basis of the center, the training and advanced training of power plant operators were occurred not only from the USSR, but also from India, Pakistan

and Algeria. Under the leadership of H.Ye. Pukhov, the Regional System of Training and Simulator of Ukraine was created, where the software of simulators; training of operative-dispatching personnel of power systems and nuclear and thermal power stations were developed.

Thus, the research in the field of energetic objects and systems modeling was started at the scientific and research settings of the Academy of Sciences and the higher educational institutions of Ukraine. However, this level gained systematicity according the headline of the Academician H.Ye. Pukhov.

***Key words:** power assets, electronic mathematical modeling, Institute of Modeling Problems in Power Engineering, National Academy of Sciences of Ukraine, academician H.Ye. Pukhov.*