

Department «Hydraulic machines» by name after prof. Georgy Proskura



The department is a part of **Power engineering faculty**
of National technical university
«Kharkov polytechnic institute».

It was founded in **1914**

The Head of the department – Professor, Doctor of
Engineering Mikhail Cherkashenko

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Specialties:

Bachelors:

- 1) "Hydropower engineering"
- 2) "Industrial machinery engineering"
- 3) "Applied mechanics"



Masters:

- 1) "Hydraulic turbines, pumps and other hydropower equipment of HPS and PSPS"
- 2) "Hydraulic equipment of oil and gas industries", "Mechanical equipment and automatics devices of oil and gas industries"
- 3) "Hydraulic and pneumatic machines", "Volumetric hydro machines, systems of hydraulic drivers and hydro pneumatic automatics"

Scientific activity directions of department

1) Research of systems of hydro pneumatic automatics.

The main of direction: Professor, Doctor of Engineering **Mikhail Cherkashenko**

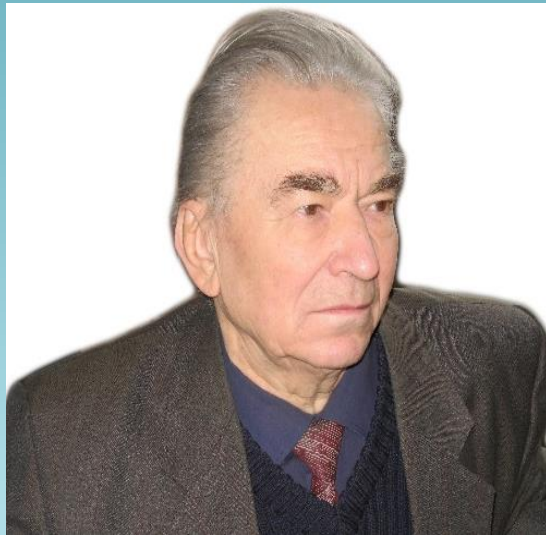


He has made work to such companies: Osrodek Badawczo-Rozwojowy elementow I ukladow pneumatyki Kielce; University of mining and metallurgy Cracow, Institute of Automatics in Bucharest; association Hidravlika in Kazanluk. He has took part in the most prestigious symposiums: International Conference on Fluid Power 3 Aachen, Germany; International Conference on Fluid Power 5 Aachen, Germany; Jablonna'89 Varna. There are more than 190 publishing (110 of them in foreign journals of England, USA, Germany, Poland), 20 books, 48 patents.

Scopus: STRUCTURAL SYNTHESIS OF HYDRAULIC AND PNEUMATIC POSITIONING DRIVES OF INDUSTRIAL ROBOTS AND AUTOMATIC MACHINES. – Cherkashenko, M.V., Limonov, Yu.M. – 1986, Soviet engineering research, UNIVERSAL DEVICES FOR BUILDING PNEUMATIC CONTROL CIRCUITS FOR INDUSTRIAL ROBOTS AND AUTOMATIC MACHINES. – Cherkashenko, M.V. – 1985, Soviet engineering research.

2) The improvement of water passages of high-pressure hydraulic machines with a wide range of operation by mathematical modeling based on the numerical calculation of 3-D flows.

The main of the direction:



Associate professor, Ph.D.
Oleg Potetenko



Associate professor, Ph.D.
Victor Drankovskiy

Oleg Potetenko- Associate professor, Ph.D., scientist, specialist of hydraulic turbines.

The head of scientific direction "Mathematical modeling of working process of hydraulic turbines for the development of new models for Ukraine and for export." Within this framework, the results have been achieved with great practical importance and implemented in many projects of OJSC "Turboatom" and also during the construction of power plants in Argentina, Mexico and Greece.

There are about 150 publishing, including four in French.

Victor Drankovskiy - Associate professor, Ph.D.

The scientific interest: to study working process of hydraulic machines based on mathematical modeling of their energy characteristics.

He took part in research projects with leading companies of power engineering (LMP, St. Petersburg; OJSC "Turboatom", Kharkov; BHEL, India).

There are more than 100 publishing.

Projects that have been carried out in this division

Contractual works with **PJSC "Turboatom"** have been carried out;

Contract with **BHEL (India)** was established;

Took part in the state budget topics Ministry of Higher Education of Ukraine.

(The water passages of the high-pressure Francis turbines with high energy and cavitation indicators have been obtained)

The research results were published in more than 100 publications, presented at international conferences (about 30) and were reflected in the 10 patents for useful models.

Results which are planned in the direction

The development of water passages of high pressure radial-axial hydraulic machines based on numerical research of spatial fluid flow in the elements.

Practical value:

The designing of the water passages of hydraulic machines with high energy and cavitation indicators for heads 300-700m.

3) Mathematical modeling, optimization and research of the dynamic characteristics of volume hydraulic machines and hydraulic systems

Results which are planned in the direction:

the improvement of dynamic characteristics of the drives, namely: specific speed and precision.

The main of the direction: Professor, Doctor of Engineering Zinoviy Lurie.



Scientist, Doctor of Engineering, Professor.

Research interests: the dynamics and optimization of hydraulic systems of technological objects.

The results of works in this direction are implemented in the design of coordinate-turret presses, and their mass production.

There are more than 320 publishing.