

## ANNIVERSARY OF THE DEPARTMENT OF METAL FORMING DSEA

The Department of Metal Forming (DMF) of the Donbass State Engineering Academy (DSEA) was formed in the Kramatorsk evening branch of the Donetsk Industrial Institute in 1956 (Order No. 675 of 08/28/1956). In the first years, the department was headed by Associate Professor Ezhov G.I., then since 1960 - by Prof. Zolotukhin N.M. In the early 70s, the department was merged with the department "Machines and technologies of Metal Forming". In those years, Prof. Kaporovich V.G. and Associate Professor Golubyatnikov N.K., well-known specialists in the field of forging, worked there.

Nikolai Mikhailovich Zolotukhin (1918-1995) made a significant contribution to the development of the theory and technology of Metal Forming (MF), having developed the theory of metal heating before forging and stamping (monograph "Heating and cooling of metal", 1973). Professor Kaporovich Vladimir Georgievich (1932-1993) created a fundamentally new process of rolling tubular blanks (monographs "Running in the production of metal products", 1973; "Production of parts from pipes by running in", 1978).



*Sokolov L.N.*



*Zolotukhin N.M.*



*Kaporovich V.G.*

The newest history of the DMF department begins in 1976, when it was restored as an independent division of the Kramatorsk Industrial Institute (KII). The organizer of the day division of the department and the head of the department was Professor, D.Sc., Sokolov Lev Nikolaevich (1922-2011), who was appointed in 1975 as the rector of the institute.

From 1975 to 1988 Prof. Sokolov L.N. worked as a rector of the KII (now DSEA) and part-time Head of the Department of Metal Forming. His name is associated with the formation and development of the scientific school of KII-DSEA in the field of metal forming, which has made a significant contribution to the development of the theory, technology and equipment of forging and stamping production (FSP). The Department of Metal Forming (DMF) has turned into a major center for the development of FSP – a kind of creative laboratory, in which the scientific team of like-minded people conducted search, research and implementation work in various areas of the DMF. Professor Sokolov L. N. opened a scientific direction at the department related to the study of hot plastic deformation processes. The main scientific works were devoted to the study of softening of metals

and alloys in the process of hot deformation, forging large forgings from ingots and pressing secondary aluminum alloys. For 13 years, Honored Worker of the Higher School of Ukraine L.N. Sokolov was the chairman of a specialized council for the defense of doctoral dissertations in the specialty "Processes and Machines of Plastic Working", organized by them at KII. He also headed the "Mechanical Engineering" section of the Donetsk Scientific Center of the Academy of Sciences of the Ukrainian SSR and was a member of the expert council of the USSR Ministry of Higher Education for assessing the level of state budgetary work of universities and was a member of the editorial board of the main journal in the USSR specializing in Forging and Stamping Production.

Among the first teachers of the full-time department of the department were candidates of science Kulishov A.A., Laptev A.M. and Lukyanov V.I. Simultaneously with the organization of the department, at the beginning of the work of the council for the defense of doctoral and master's theses, postgraduate studies were opened at KII, where Tarasov A.F., Chubov S.G. were accepted. Solokha A.N., Diamantopulo K.K., Efimov V.N., Savchenko O.K. Since that time, the staff of the DMF department has been formed mainly due to the graduates of their postgraduate studies.

This year, the 65th anniversary of the Department of Metal Forming coincided with the anniversaries of the professors-heads of the department of different years: with the 100th anniversary of Sokolov L.M. and the 75th anniversary of Aliiev I.S.

*An article about the 100th anniversary of Lev Nikolaevich Sokolov is given in this collection.*

Aliiev Igramotdin Serazhutdinovich met his 75th birthday in early February as the Head of the Department of Metal Forming (DMF) of DSEA. Most of his life is connected with the Academy. He devoted almost 45 years to teaching students, developing the university, developing science and engineering.

Aliiev I.S. graduated from the Dagestan Mechanical College in 1964 and began his career in the technological bureau of the forge shop of the Dagdizel plant (Kaspiysk) and at the same time studied at the Leningrad Shipbuilding Institute, which he graduated from 1971.

He got Ph.D. at the Leningrad Polytechnic Institute. His supervisor was a well-known scientist in the field of mechanical engineering Prof. K.N. Bogoyavlensky. After that, Aliiev I.S. worked as a Senior teacher at the Kramatorsk Industrial Institute (now DSEA). This was the beginning of the Kramatorsk period of work and the scientific activity of Professor Aliiev. In 1995, he defended his doctoral dissertation on the topic "Generalization and development of resource-saving extrusion processes", and in 1997 he received the academic title of Full Professor at the Department of Metal Forming and was elected as the Head of department.

Prof. Aliiev I.S. is a specialist in the field of precise volumetric deformation processes. He founded a scientific school called "Development of resource-saving metal forming processes based on the development of methods and tools for studying the technological modes of plastic deformation". The results of his scientific research were published in 380 scientific and methodological works, including 111 copyright certificates and patents, 1 reference book, 5 scientific monographs, 6 sections of monographs, 6 textbooks for university students.

Since 1979 Prof. Aliiev takes part in the development of scientific projects aimed at meeting the needs of the economy of the USSR and Ukraine. The scientific school headed by him carries out work on the development of new resource-saving technological processes and equipment for shaping precision parts with a complex profile and large-sized blanks for power and heavy engineering. Cold working through the use of high pressures makes it possible to ensure the controlled quality of products, eliminate the waste of metal and the need to finish workpieces by chip removal methods. New technologies for forging critical products provide intensive study of the metal structure due to the development of macroshear deformation. These developments with significant economic effect were introduced at machine-building enterprises (VSMPO, PJSC NKMZ, PJSC EMSS, PJSC Druzhkovsky hardware plant) and instrument-making industry (SMZ Motor Sich, Krasny Luch). He created a new industrial scientific and technical laboratory for the introduction of new technologies at the department. Under the guidance of Prof. Aliiev I.S. four doctoral and thirteen Ph.D dissertations were defended.

From 2003 to 2015 Professor Aliiev I.S. was vice-rector for scientific work and external relations of the DSEA. He organized as the editor-in-chief the publication of three professional collections of scientific papers of the DSEA: Bulletin of the DSEA, Scientific Bulletin of the DSEA (electronic edition) and "OMD – Materials Working by Pressure". He is a member of the editorial board of the magazines "Metalworking" and "Forging and Stamping Production. Materials Working by Pressure". He received two grants for internships in higher educational institutions in Germany through the DFG, which contributed to the expansion of the academy's ties with higher educational institutions in Europe. This made it possible to participate on a competitive basis in the execution in 2009-2017 of three international projects of the European Union through TEMPUS, where he was the coordinator. They contributed to the creation of an innovation center at the academy and equipping the research laboratories of DSEA with modern equipment and computers.

Now Professor Aliiev I.S. continues to head the DMF of DSEA. During the leadership of Prof. Aliiev and with his direct participation, DMF developed several scientific activities in the field of DMF, trained many specialists, candidates and doctors of technical sciences. Graduates who studied in Prof. Aliiev I.S. group are working in the DSEA, at the enterprises of Kramatorsk, in Ukraine and far beyond its borders, including Dagestan.

Prof. Aliiev I.S. was a member of the expert councils of the Ministry of Education and Science of Ukraine in the professional areas "Mechanical Engineering" and "Technologies for the extraction and processing of minerals", worked for two cadences as a member of the expert council on the examination of dissertations of the Ministry of Education and Science of Ukraine in mechanical science and mechanical engineering. He is the chairman of a specialised council at DSEA for awarding doctoral degrees in technical sciences in processes and pressure forming machines.



Professor Aliiev I. S.



At the Day of Metallurgists in Krakow AGH

Prof. Aliiev was multiple winner of the competition "The Best Researcher of the DSEA" and "The Best Inventor of DSEA", was awarded the honorary title "Honored Professor of the DSEA" (2007) with entry into the Book of Honor of DSEA. Many years of successful work of Prof. Aliiev I.S. noted at the all-Ukrainian level. The Ministry of Education and Science of Ukraine awarded him with the badges "Excellence in Education of Ukraine" and "For Scientific Achievements". By the Decree of the President of Ukraine in 2020, prof. Aliiev I.S. awarded the title "Honored Worker of Science and Technology of Ukraine".

Prof. Aliiev I. S. pays great attention to the dissemination of scientific developments and experience among industry specialists. He organized the International Scientific and Technical Conference "Achievements and problems of technologies and machinery pressure processing development". It has been held in Kramatorsk together with enterprises of the region and universities in the CIS and Europe for more than 25 years.

*A few lines about the staff of DMF in first years of work.*

Efimov Victor Nikolaevich (1950-2011) – a graduate of the Moscow State Technical University. N.E. Bauman 1974. In 1974-77 he was a design engineer at the Petropavlovsk heavy engineering plant and a senior engineer at the Ural Polytechnic Institute. From 1977 to 1980 he studied full-time postgraduate studies at KII. After defending his dissertation, he worked at the Department of DMF successively as an assistant, senior lecturer and associate professor. In 1987 he defended his doctoral dissertation and was a professor at the department until 1993. Later he worked in the business sector. V.N. Efimov continued the work of Sokolov L.N. on the study and development of the theory of hardening-softening processes of metals and alloys during hot plastic deformation and created a laboratory equipped with experimental facilities for studying the rheological properties of materials. He was one of the initiators of establishing and the head of Industry research laboratory "Optimization of structures and thermal power conditions for the operation of die equipment", which was organized in 1985 on the basis of the department of mechanical engineering. Efimov V.N. author of popular reference books and methodical studies on theory processing pressure and forging .



*Efimov V. N.*



*Laptev A. M.*



*Tarasov A. F.*

Laptev Alexander Mikhailovich received an engineer's degree and a candidate of technical sciences from the Moscow Higher Technical School named after N.E. Bauman. Worked in 1972-75. in SKB hydropulse technology. Siberian Branch of the Academy of Sciences of the USSR (Novosibirsk). From 1978 until recently he worked at DSEA. While working at the department, he develops the direction "Powder materials pressure treatment", prepares and defends his doctoral dissertation. In 1990 - 2004 and in 2012-2014 was a professor and the head of MTO department, and in 2004 - 2012 - the head of materials science department. He developed the theory of plasticity of powder and porous materials, which he applied to the analysis of hot isostatic pressing of metal powders, as well as methods for modeling hot pressing of powders with direct electrical heating. He developed a technology for the manufacture of high-layered medical implants used in many countries in the world. His research group included Podlesny S.V., Ulyanov A.N., Priyemenko S.G., Melnikov A.N., Rudenko N.A., Tkachenko Y.S., Popivnenko L.V., who, after defending their Ph.D. dissertations, worked at DSEA.

Tarasov Alexandr Fedorovich studied at the Mariupol Metallurgical Institute. At the department of DMF, he also went through the research school "postgraduate-doctoral studies" and after defending his doctoral dissertation in 1996, he headed the department of computer information technologies. Tarasov A.F. created a scientific school in the development of new equipment and technologies for combined static-dynamic deformation, actively works in the field of creation and modeling and computer-aided design of new technological processes for mechanical engineering, including bulk nanostructured materials. He is also the head of a scientific direction in the field of

computer modeling of mechanical engineering objects using modern programming technologies based on object-oriented design. A.F. Tarasov is the Deputy Chairman of the Scientific and Technical Council of the Academy and the Deputy Chairman of the Dissertation Council at DSEA.

In subsequent years, at the turn centuries graduates of the department, candidates of technical sciences Savchenko O.K. and Grachev I.A. begin teaching at the department. Kuznetsov N.N., Solodun E.M. and Chuchin. O.V. in 1991. In the following years, the department was also replenished with postgraduate graduates of the DMF: in 2006 Nosakov A.A., Lobanov A.I., Borisov R.S. and Aliieva L.I. were admitted to the department and, subsequently – Abhari P., Zhbankov Ya.G., Shkira A.V., Tahan L.V., Malii K.V. and Kordenko M.Yu.

Successfully worked in the 2000s at the department and doctoral studies, after which doctoral dissertations were defended in a timely manner by doctoral students: Matviychuk V.A., Markov O.E., Zhbankov Ya.G., Aliieva L.I., Abkhari P., Grudkina N.S. Currently, a doctoral graduate Levchenko V.N. prepares for thesis defense.

Graduates of the department after defending their master's and candidate's theses successfully work at the departments of DSEA, at the leading enterprises of the city and in administrative structures of the Donetsk region.

Including the chief specialists of the plants: Lobanov A.N., Zlygorev V.N., Stankov V.Yu., Smitia A.L., Shapovalov A.L., Kikolenko S.N., Shimko A.I. and Shimko V.I.

In the academy departments, work Dean Podlesny S.V., teachers Tahan L.V. and Malii K.V., in administrative structures work Shkira A.V., Gridasov V.M. and Kosilov M.S.

The creation of the material and technical base of the department was facilitated by a large scientific and economic work carried out at the department under the guidance of professors Sokolov L.N., Efimov V.N., Aliiev I.S. and Tarasov A.F. Research and contractual work was carried out in many regions of the Soviet Union. Thus, a wide community was established with the enterprises of Donbass, Leningrad, the Urals and Dagestan, for which a number of works on precision die forging and forging stamping of titanium, aluminum alloys and steels were developed and implemented. On the basis of research, equipment and devices were purchased, new installations were created, which were then used in the educational process. The laboratory has hydraulic presses DV242A, crank press KD1426A, testing machines MS2000; MS500; UMM5; UMZ-10, plastometers and tensometric equipment, which made it possible to carry out laboratory and research work at a high scientific level.

The contribution to the creation of the laboratory base was made by the first head of the laboratories Pogorelov A.I. as well as numerous employees of NIS, who worked at the department in the 80s. The first training master was Ryabekov Vladimir Alekseevich, whose hands created most of the laboratory installations and visual aids. Since 1992, Aleksey Ivanovich Gvozd has combined the positions of the head of the laboratory and the training master. Great assistance in the implementation of educational and scientific work was provided by the laboratory assistants of the department: Evteeva E.V., Demchenko A.F., Astakhova V.N., Kobylnik L.M., But L.I., Ponomarenko L.A., Medyanik L.V. and Semioshko Ya.A.

Probably the only separate faculty for metal forming in the Soviet Union was created in DSEA. Indeed, at all the departments of this faculty then carried out intensive research on the problems of the development of machines and technologies for MF.

The department pays special attention to cooperation with other organizations. Creative ties are constantly maintained with the National Academy of Sciences of Ukraine, universities and institutes of the CIS countries, Poland, Bulgaria and Germany.

The leading scientists of Ukraine in the field of Metal Forming, professors Evstratov V.A., Ogorodnikov V.A., Titov V.A., Beigelzimer Ya.E., Ray R.I., Dragobetsky V.V., Konovalov Y.V. became honourable professors of DSEA.

Since the 80s, the Department has been actively conducting International and All-Union, and then All-Ukrainian conferences on problematic issues of the theory and technology of mechanical engineering, including such problems as “Forging large forgings”, “Creation of heavy forging and pressing equipment”, “Local methods of pressure treatment”, “Science-intensive technologies of DMF”, etc. These conferences later became the basis of the traditional and annual international

scientific and technical conference (IRTC), which acquired the name “Achievements and problems of technologies and machinery pressure processing development”. This anniversary year will see the 25th MNTK under this name.

Since 1988, the Department began to publish collections “Improvement of technological processes and pressure treatment equipment”, on the basis of which the interuniversity collection of scientific papers “Obrabotka materialov davleniem (OMD) – Materials Working by Pressure (MWP)”, popular in Ukraine, is published today, approved by the Ministry of Education and Science of Ukraine as a specialized publication.

Since 1998 on the basis of DMF in DSEA, the annual All-Ukrainian student Olympiads in MWP and interuniversity competitions of diploma projects and master's graduation scientific works, which have now become traditional, began to be held.

The best graduates of the department in recent years, masters and engineers improve their qualifications in graduate school: Kordenko M.Yu., Chepelenko A.Yu., Semibratchenko Yu.A. It symbolizes the connection of generations and continuity in science.

Over the many years of graduation from the full-time department, a wonderful tradition has developed of holding student evenings “We are blacksmiths” on the first Friday of December. The original idea of the evening was an initiation into first-year students at a meeting with fifth-year students. Then this day became the Day of the Department, the fifth-year students prepared wall newspapers in the form of funny cartoons, a concert program and a disco. Graduates of previous years came, who warmly recalled their years and were surprised at the surviving wall newspapers.

For many years the department has been cooperating with related departments of other universities, with machine-building plants and research institutes of Ukraine.

The department cooperates with enterprises of the city and the region (NKMZ, SKMZ, Energomashpetsstal, Conditioner, Donmet, DMZ, etc.). A branch of the department has been opened at NKMZ, which serves to strengthen relations between the department and production, as well as to improve the level of training of specialists. It is indicative that Ph.D. Grachev I.A. and Ph.D. Zlygorev V.N. also graduated from the training course and postgraduate studies of the department. Successful cooperation with scientific institutions of the city can be called an invitation to the department in 1991, the chief researcher of NIPTMASH, Ph.D. Mikhailenko Boris Emelyanovich (1934–2004), who became the leading associate professor and organizer of the educational process.

The department has creative connections with universities, enterprises and firms in CIS, Germany, Poland, and other countries.

TEMPUS-IV projects have helped to strengthen the material base and improve curricula, especially for the preparation of masters. To study the educational and scientific organization in universities in Europe, countries such as Italy, Spain, Germany, Estonia and Sweden.

The main direction of the research activity of the department is the development of resource-saving processes of mechanical engineering on the basis of the creation of new methods for analyzing the patterns of plastic deformation.

The main innovations of the department include the following developments:

- methods for calculating the technological modes of forging, taking into account the processes of hardening-softening of metals and alloys;
- technological processes for forging large forgings such as plates from ingots of a new type;
- technology of waste recycling of aluminum alloys using granulation and pressing;
- new technological processes of transverse and combined longitudinal-transverse extrusion;
- methods and devices for cold extrusion of complex profiled parts ;
- two-position and multi-position stamps with movable and detachable matrices;
- devices for measuring the forces of plastic contact friction during the stamping process;
- methods of analysis of stress-strain state using materials with shape memory;
- technologies and high-performance tooling for combined multi-pass stamping of sheet hollow and bent parts.

Postgraduate and doctoral studies in the scientific specialty "Processes and Machines of Plastic Working" work at the Department of Mechanical Engineering. On the basis of DMF, a Council

for the defense of doctoral and candidate dissertations was created, which played a decisive role in the training of scientific personnel, both in the academy and in Ukraine. In the beginning, the members of the council, in addition to the scientists of the academy, were well-known scientists, university professors from various cities of the Soviet Union: Zhuravlev A.Z., Klimenko V.M., Beresnev B.I., Cherny Yu.F., Yakovlev S.P., Buravlev Yu. M. and others.



The staff of the Department of Metal Forming in 1987 (above) and in 2012 (below)



Traditional excursion of the participants of the International scientific and technical conference in 2004 (DSEA), 2012 (base "Tishina") and 2018 (Svyatogorsk Lavra)



Meeting of the doctoral council of the first convocation, 1984 year.  
Right to left: Prof. Sokolov L.N., prof. Cherny Yu.F., prof. Klimenko V. M.,  
prof. Baranov A. A., prof. Zhuravlev A. Z., prof. Zolotukhin N. M., prof. Kaporovich V. G.



After the meeting of the dissertation council: sitting (from left to right) Roganov L.L.,  
Ray R.I., Aliiev I.S., Laptev A.M., Sokolov L.N., Doroshko V.I.; standing: Satonin A.V.,  
Dobronosov Yu.K., Fedorinov V.A., Beigelzimer Ya.E. (2007 year)



The second graduation of the day division of the Metal Forming Department, 1984



Participants of the traditional Evening of MF specialty, 2011 year

The formation of the scientific school followed the path of strengthening creative ties, recognizing the contribution of Kramatorsk specialists to the development of the scientific field "Metal forming". So, during the work of the special council, a creative community developed with advanced scientific centers and universities, large enterprises, and outstanding scientists.

For 45 years in a specialized council they successfully defended more than 200 candidate and 40 doctoral dissertations, of which 90 candidate and 15 doctoral dissertations - teachers of the DSEA.

Doctoral thesis's were defended by such Ukrainian scientists as Doroshko V.I., Zhadkevich M.L., Spuskanyuk V.Z., Kaplanov V.I., Sivak I.O., Matviychuk V.A., Grushko A.V., Rozov Yu.G. and etc.

Matviychuk Viktor Andrievich graduated from the Vinnitsa Polytechnic Institute ( VNTU ) in 1977 with a degree in Engineering Technology. In 1984, he graduated ahead of schedule achieving Ph.D. in Leningrad Polytechnic Institute. The academic title of Associate Professor of the Department of Applied Mechanics and Strength of Materials was awarded in 1991. In 2009, he graduated from the targeted doctoral studies at the DSEA and defended his doctoral dissertation "Development of resource-saving processes of local rotational deformation based on the assessment of the deformability of metals" specializing in the Processes and Machines of Plastic Working. The academic title of professor was awarded in 2015. After that, he worked as a senior lecturer and associate professor at VNTU, and head of the science and international relations department of the Vinnitsa Trade and Economic Institute of KNTEU. Since May 2011, he worked at the Vinnitsa National Agrarian University as Deputy Director of the Educational and Scientific Institute of Agrarian Economics of VNAU for scientific work and head of the Department of Systems, Technologies and Automation in the Agro-Industrial Complex. From March 2019 to August 2021, he was the dean of the Faculty of Engineering and Technology of VNAU. Viktor Andrievich is the author of more than 220 scientific and educational works, 3 monographs, 1 textbook, 3 manuals and 21 patents.

Biographies of Doctors of Sciences Markov O.E., Zhbankov Y.G., Aliieva L.I. are identical in the sense that after graduating from the graduate and postgraduate studies, after some time, they entered the doctoral program at the Metal Forming Department named after prof. L.N. Sokolov of DSEA and successfully defended their doctoral dissertations.

Markov Oleg Evgenievich received a specialist diploma in 1998, a master's degree in 2000 and a candidate of science diploma in 2004 at the Metal Forming Department. In 2008, O.E. Markov enrolled in doctoral studies and continued research on the problems of developing the technology of forging large ingots. He developed the theory of Prof. Sokolov L.N. on the development of a rheological model of stress relaxation processes during hot deformation of metals, which made it possible to create refined finite element models of forging processes. In addition, new scientifically based concepts for obtaining massive forging ingots and developing resource-saving technological processes for large forgings for critical purposes were developed. After defending his doctoral dissertation in 2012 and receiving the title of professor, he continued to work at the Metal Forming Department. In 2015, he was selected by competition for the position of vice-head of the department "Machines and technologies for metal forming", being promoted to the head of Department of Automation of Production Processes in 2021. O.E. Markov and has more than 250 scientific papers, including 6 monographs and 70 patents.

Aliieva Leila Igramotdinovna graduated from the DSEA Master's program in the specialty "Metal Forming" in 2003, and postgraduate studies with the defense of a dissertation - in 2006. Doctor of Technical Sciences since 2018. She was awarded the academic title of Associate Professor of the Department of Metal Forming in 2012, and Professor in the Department "Computerized design and modeling of processes and machines" in 2020. She is the responsible executor and co-executor of 7 research topics. Aliieva L.I. developed new methods of combined transverse-longitudinal extrusion of precision parts and methods for modeling processes using kinematic modules, as well as methods for predicting deformability, taking into account the influence of volumetric stress state. She has published 3 monographs, 120 articles and 48 patents.

Zhbankov Yaroslav Gennadievich received a master's degree in 2007 at the Department of Metal Forming, and a Ph.D. in 2010. In 2015 he entered postgraduate studies and researched problems of modelling technologies of large forging and prediction of its quality. Y. G. Zhbankov studied the processes of evaluating the deformability of metals and the microstructure of forgings during forging, the effect of macroshears on the quality of large forgings, and the introduction of combined stamping techniques in the manufacture of large forgings. He has published 3 monographs and manuals, 100 articles and 38 patents.

Aliieva L.I. and Zhbankov Y.G. were repeated winners of the intra-university competition "The Best Names of the DSEA" and in 2016 became the Laureates of the President of Ukraine Prize for Young Scientists. They won the competitions of the Ministry for youth research projects 2 times, and also participated in the projects of the European Union TEMPUS-IV: UNI4INNO and ECOTESY.

Abhari Payman received a master's degree in mechanical engineering in Tehran, studied in postgraduate and doctoral studies at the Metal Forming Department in 2006-2020. After successfully defending his dissertations, he worked at the Metal Forming Department as an assistant professor and is now a professor at the department. He devoted his work to computer modeling of the processes of transverse and combined extrusion of complex profiled parts under the conditions of control of external force and kinematic effects on the workpiece. He has 120 published scientific papers and textbooks, including publications indexed in international scientometric databases (Scopus, Web of Science, etc.). Abhari P. was the executor of the international project TEMPUS in the period 2013-2016. He is deputy head of Metal Forming Department.

Hrudkina Natalya Sergeevna graduated from the Slavyansk State Pedagogical Institute and received a master's degree in mathematics. Since 2004, she joined the scientific school of OMD DSEA, where she focused on mastering the basics of the mechanics of Metal Forming processes and the development of theoretical aspects of modeling the processes of precise forging. The result of research work in this direction is the development of resource-saving pressure treatment processes based on the creation of new technological methods and methods for analyzing the patterns of plastic deformation, which became the basis of a monograph, textbooks, articles in international scientific journals and a doctoral dissertation successfully defended in 2021. N.S. Grudkina continues to work as an associate professor of the Department of Mathematical Modeling and as a responsible executor of state budget research robots of the DSEA.



*Matviychuk V. A.*



*Markov O. E.*



*Zhbankov Y. G.*



*Aliieva L. I.*



*Abhari Payman*



*Hrudkina N. S.*

One of the leading departments of the faculty was the department "Machines and technologies of Metal Forming", where in different years the heads were professors Zolotukhin N.M., Kaporovich V.G., Laptev A.M., Roganov L.L. and Markov O.E. The department in different years, as now, united with our Metal Forming Department.

Roganov Lev Leonidovich, Dr. Sc., Professor. He graduated from KII in 1963. He worked at NKMZ successively as a technician, design engineer of the 1st category and as a team leader. Since 1973 At KII, he went from senior lecturer to vice-rector for academic affairs and Head of the Department. Scientific interests of L.L. Roganov were about the development of new types of equipment and technological processes for high-speed metal forming. He founded and directed a scientific school for the research and development of new high-speed technologies and machines with a combined (static-dynamic) effect on the workpieces. He created specialized press hammers for the implementation of many technologies in the field of powder materials stamping, sheet stamping with elastic media and hot forging. He opened promising directions for the development of technologies and equipment for separating long products into cut-to-length blanks. His students are associate professors Karnaukh S.G. and Chosta N.V. successfully continue this research and development.



*Mikhailenko B. E.*



*Roganov L. L.*



*Satonin A. V.*

It is also worth to mention the department of automated machines and units (AMM), where the department for many years was headed by its founder, D.Sc., Prof. Potapkin V.F., and later - professors Fedorinov V.A., Satonin A.V. and Gribkov E.P. Potapkin Victor Fedorovich (1934-2005) and Satonin Alexander Vladimirovich (1953-2013) headed the main direction of the scientific work of the department "Research and implementation of rolling processes", in particular, the deformation process between the fixed and driven rolls. The subject of special concern of V.F. Potapkin was the experimental base of the department, which is currently the best among related departments of Ukrainian universities. Taking into the account the significant contribution to science, it is crucial to note the pedagogical and organizational activities of the staff of the department. V.F. Potapkin and Fedorinov V.A. were vice-rectors and rectors of the DSEA, and Satonin A.V. - Chairman of the dissertation council. Docents Dobronosov Yu.K. and Kulik A.N. are scientific secretaries of the special council and the academic council of the academy, respectively.

Currently, at the Metal Forming Department named after Sokolov L.N. constant work is carried out to improve the educational process, update training courses, modernize and equip laboratories and specialized classrooms, develop and implement software in the educational process using modern technologies. The presence of branches expanded the material and technical base of the department and significantly increased the possibility of successful work of graduates in the conditions of the conversion of defense enterprises.

During this difficult historical period, the department maintains close creative ties with factories, research institutes, related universities and departments, and does not lose hope for the possibility of continuing creative scientific work and fruitful activities in training students and graduate students in the field of metal forming.

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*Aliieva L. I.  
Tahan L. V.*