



## THE USA AMBASSADOR'S VISIT TO DONNTU



The cultural festival "Days of America" was held in Donetsk from April 3 to 6<sup>th</sup>. The organizers of the event are the representatives of the U.S. Embassy in Ukraine. American films, the education system in America, dance and sports, which the Americans are fond of, as well as photographs and programs of the Embassy were presented as a part of the event in order to strengthen relations between the Americans and Ukrainians.

Donetsk National Technical University was honored to open the festival by the educational fair on learning and training in the USA.

Donetsk National Technical University was the first to be visited by the U.S. Ambassador in Ukraine Mr. John Tefft and the representatives of foundations and universities of America. It is the university which is respectfully called "the Ukrainian Harvard" overseas and in such a way is paid tribute to the fact that two presidents of the great powers of the world graduated from it: the current President of Ukraine Viktor Yanukovich and the head of the Soviet Union Mr. Nikita Khrushchev under the presidency of whom the first manned flight into the space was implemented.

Donetsk National Technical University is the leading technical university of Ukraine and the Donbass Region which has unique foreign faculties (English, French, German, Polish, and Czech). It is the university granting European model diplomas in which postgraduate and doctoral studies are organized according to the bi-national scheme. There are dual degree programs with leading European universities and internship opportunities around the world. And as a result, in the rankings of universities of the world and Ukraine Donetsk National Technical University occupies the leading positions.

At the meeting the U.S. Ambassador in Ukraine Mr. John Tefft spoke with academics and students, was presented with a t-shirt of football players of the American football team of DonNTU the Scythians and listened to the information about the development of international relations between Donetsk National Technical University and the USA. The meeting was focused on the development of mutually beneficial relations of the leading universities and foundations of America and the Donetsk Polytechnic which is known and appreciated and the diploma of which is the pass into the world's engineering elite.

## THE 10<sup>TH</sup> ANNIVERSARY OF COLLABORATION OF MSTU NAMED AFTER N.E. BAUMAN AND DONNTU

The tenth anniversary of collaboration between Moscow State Technical University named after Bauman (Bauman MSTU) and Donetsk National Technical University (DonNTU) was celebrated at the XII interdisciplinary scientific conference "Ethics and Science of the Future", held in late March in Moscow. Co-sponsors of the conference were the leading technical universities of Russia and Ukraine, including the Bauman MSTU and Donetsk National Technical University. The participants came from Russia, Ukraine, Serbia, Germany, Austria and many other countries. Our university was represented by the Director of the International Office Associate Professor S.G. Dzhus, who was the deputy chairman of the Organizing Committee of the conference.

The history of cooperation is highly symbolic. Thus, in 1999 when Bauman MSTU and Donetsk National Technical University reported on the programme for regional academic partnership (funded by the British

Council), the Vice-Rectors for international cooperation of the universities emphasized the fact that these universities are unique for many international associations of universities. For example, in the Eurasian University Association (EUA), which is known to contain only the classical universities, an exception was made for the two countries: Russia (Bauman MSTU) and Ukraine (Donetsk National Technical University). The proposal for cooperation between these universities was supported by the administration of the universities, and in 2003 an agreement on cooperation was signed. In 2010, within the framework of the international co-operation a treaty of friendship and co-operation at the level of trade union organizations of Bauman MSTU and Donetsk National Technical University which is aimed at closer cooperation in the fields of education, science and sports was signed.

The leading scientists of Bauman MSTU deliver their lectures at Donetsk National Technical University. A number of seminars and conferences are jointly conducted. It is especially necessary to note the annual international interdisciplinary conference "Ethics and Science of the Future." At the annual meetings of the Eurasian Association of Universities a representative of the administration of DNTU traditionally makes a report on the ways to solve the world's problems in the engineering education. For example, presentations were made at the conference "Eurasian universities XXI Century". The participation of Donetsk National Technical University in the III International Scientific-Practical Conference of the Eurasian Association of Universities "Universities and Society. Cooperation and the Development of Universities in the XXI Century", which was held at Lomonosov Moscow State University in 2010, was significant. Vice-Rector Prof. E.A. Bashkov represented our university at the invitation of the President of the Eurasian Association of Universities.

The Round Table "Strategic Information Technologies in Research and Education" was held during the conference. Vice –Rector Prof. E.A.Bashkov spoke on "Computer - Information Support of Scientific Research and Educational Process at Donetsk National Technical University."

The article of E.A.Bashkov "Applied Developments of Donetsk Polytechnic" was published in the proceedings of the Eurasian Association of Universities "On the Research and Scientific Schools. Eurasian Space" (published by University Press, 2010). Prof. E.A.Bashkov also took part in the 11th International Forum "High Technologies of XXI Century", which was held in "Expocentre", Moscow. The programme of the Forum included the international exhibition "CT XXI - 2010" and the international conference "High Technologies are the Strategy of the XXI Century. Technological Modernization of the Real Sector of the Economy is the Priority of Innovative Development of the Country. "

About 500 scientific and industrial organizations from 40 regions of Russia and 10 countries around the world were among the participants. The enterprises of Belarus, Ukraine, Japan, and a number of Russian regions and districts presented their projects. The exhibition featured more than 900 exhibits, 25% of which are based on nanotechnology. More than 20,000 professionals and business people visited the exhibition.

Donetsk National Technical University presented the developments of the Departments of TTGR, Geodesy and Geo-Information Science and Electrical Metallurgy. The project of the Department of TTGR "Settings of SBA-130 and SBA-130M for Offshore Drilling» (made by Prof. O.I.Kalinichenko and PhD. A.A.Karakozov) was the winner of the content "High Technologies are the Basis of Economic Modernization and Development of Industry." The project was awarded by the Medal of the 11th International Forum - Silver Statuette of "St. George" (see photo), which is the Mayor of Moscow handed to the Vice-Rector of Donetsk National Technical University Prof. E.A.Bashkov.

There also is a unique tradition of playing of veterans' teams on mini-football of Bauman MSTU and DonNtu dedicated to the Victory Day.

In recent years, the labor organizations of the universities and the cities have been actively involved into the agreement. The collaboration grows beyond the purely academic and flows into the mainstream of all-human cultural ties that are so cherished by the participants. The unique exchange of information of the highest world level is very useful and feeds both parties from inside. For example, Bauman MSTU is the world's leader in engineering education, which at the beginning of the last century was taken as an example (completely copying the education system), by the leading U.S. technical university - the Massachusetts Institute of Technology, which is now the leader in America ( with absolutely different investments). Therefore, Donetsk National Technical University cherishes such a partner and develops the cooperation. The plans for this year are to create the computer cluster to monitor traffic (both public and private), and a single ticket for all modes of transport in Donetsk (and further on in Ukraine) based on the developments of Bauman MSTU. This will reduce the costs and time associated with the organization of transportation and will make a contribution to the state program for the revitalization of the economy in 2013-2014.

## COLLABORATION WITH THE HPC CENTRE

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The collaboration of HPC Centre of the University of Stuttgart and Donetsk National Technical University has been successfully developing since 2006.

Prof. V. A. Svyatny the founder and ex-Dean of Computer Engineering Faculty, Head of the Department of Computer Engineering started this collaboration. He visited the Centre in March-April. During these seven years of collaboration the Director of the Centre M. Resh and his employees visited DonNTU, seminars on parallel simulation of complex dynamic systems with participation of researchers of both universities were held. The remote access to the Centre's parallel computer systems was fixed; the CE Department got the cluster NEC 5800 (fixed in 2010) as the humanitarian assistance. The Computer Engineering faculty of DonNTU is one of the leading ones in Ukraine: we have a 100 -node cluster and 94 computers operate simultaneously in one construction. Only the Institute of Cybernetics and Kiev Polytechnic Institute have the clusters like this.



In May 2012 the representative of the HPC Centre S. Vessner took part in the conference "Simulation 2012" held in Kiev and attended by the representatives of DonNTU.

The joint with Prof. M. Resh paper „Zielrechnersysteme der verteilten parallelen Simulationsumgebung" was written.

The scientific seminar on development and implementation of solvers of equations for the distributed parallel simulation environment was held. Prof. M. Resh, V. Svyatny, M. Tsites, HPC researchers, students and academics of CEF of DonNTU who have in-depth training at the Centre participated in it.

During his business trip to Stuttgart Prof. Svyatny had a meeting with the Rector of the University of Stuttgart Prof. Vessler, Prof. O. Zavodny and M. Resh (see the photo) at which the results of the collaboration were discussed and the issues on organization of the international seminar devoted to the 40<sup>th</sup> anniversary of collaboration of SU and DonNTU were coordinated.

Prof. V. Svyatny and K. Rottermel as well the researchers of the Institute of Parallel and Distributed Systems made their presentations at the seminar and exchange their practical experience. They agreed to collaborate in the field of building of simulating environment and users' software support. They exchange papers and the PhD students working on the problem made contacts.

There was an instructive talk with the head of the SimTech -cluster Prof. V. Elers and O. Ryorle on the theory and methods of simulation of bio-mechanical systems, training of researchers dealing with parallel simulation of complex dynamic systems. The Master's degree paper of S. Dmitruck done at SimTech-cluster last year was highly estimated.

There was a meeting with the ex Deputy-Director of the Centre S Vessner who has been working as a professor of Ulm University since 2012. This university is ready to host our post-graduate students having DAAD scholarships who will work on the problems of parallel simulation. The application form for the Euro project on parallel computing is being got ready.

According to the agreement with Prof. M. Resh supported by the official document the Centre will give the CE Department a new high-speed switchboard and processor nodes for the operating parallel cluster as the humanitarian assistance. The equipment is ready to be transported and soon students will be trained and research carried out on it. The equipment is a weighty contribution to the development of the laboratory base of the Department and Computer Centre.

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Prof. Svyatny discussed the program of staying of DonNTU's scholarship holders and Master's students (System Programming) and the leader of the delegation post-graduate student V. Kushnarenko in Germany. He also made-up the application form on 2013-2014 according to the new rules of DAAD and coordinated the program topic with Prof. Guener.

Within the frameworks of the scholarship program of L. Eiler our Master's students worked individually on the topics of their Master's degree papers. They were split into three groups and had their practice in different institutes: The Institute of Automation and Software, the Institute of System Dynamics, and Stuttgart HPC Centre. Every institution offered personal consultants which helped in the language mastering and professional practice. In the end the students made their information reports which will be



included into the general report of Prof. Guener and Svyatny presented to the DAAD. The German supervisors were satisfied by the work of the Ukrainian students and their professional level. They agreed to have two Master's works done at the HPC Centre.

All the students had a crash course on parallel programming and modern super-computers and attended the seminar on parallel programming (MPI, OpenMP) and iteration problem solvers of equation systems. The obtained knowledge will be used for the Master's degree papers the topics of which will be related to the development of the distributed parallel

stimulating environment.

The supervisor of the program Prof. Svyatny organized a meeting with his German colleagues at which they spoke about their institutions, research, exchange the experience as to the training of students. V. Kushnarenko accompanied the students in their trips to Munich, Bamberg, and Nuremberg. They visited museums, went sightseeing and met DonNTU's graduates and DAAD scholarship holders who are currently working at institutes and companies of Germany.

## **INTERNATIONAL SCIENTIFIC CONFERENCE DEVOTED TO THE 150<sup>TH</sup> ANNIVERSARY OF VERNADSKI**



On March 28<sup>th</sup> DonNTU hosted the international conference "Noospheric Ideas as the Universal Panacea of the Evils of Human Civilization of the XXI Century". The conference was organized by the Philosophy Department of DonNTU in the frameworks of VII Vernadski's readings devoted to the 150<sup>th</sup> anniversary of the remarkable scientist V. I. Vernadski.

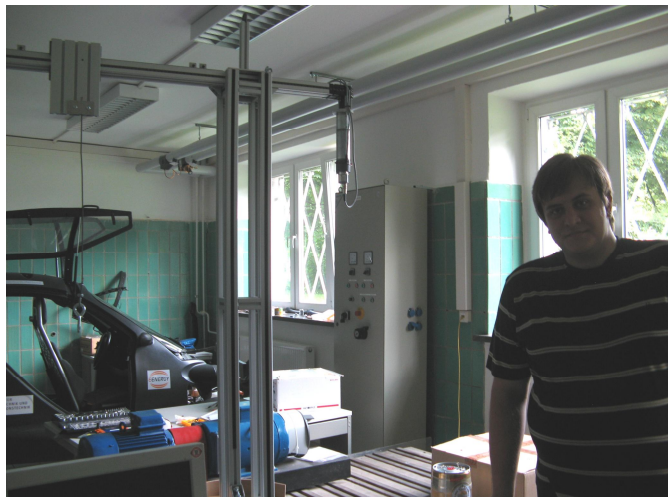
It has been not the first time DonNTU and the Department dealt with the work of the philosopher. The readings started in the 90s of the last century. The geography and topics changed. There were 80 representatives of Ukraine, Russia, Kazakhstan and

Bulgaria at the conference.

At present the world economic community has a global crisis and needs a new super-ideology based on scientific world outlook and world values. It is the work of V. I. Vernadski and his noospheric concept that is the key which will help the world community to overcome the crisis.

Vernadski was a person of many-sided outlooks. He looked for the ways to combine the efforts of all sciences: natural, technical and humanitarian. His noospheric concept is a synthesis of knowledge on the earth, human being and the social system. The joint efforts of the researchers from different countries will help to find new ways of harmonious development of the society. The representatives of DonNTU will make a weighty contribution into it.

## BINATIONAL POST-GRADUATE COURSE IN GERMANY



The post-graduate student of the Department of Electric Drive and Automation of Industrial Installations of DonNTU D. V. Bazhutin had his research in Germany within the frameworks of the DAAD program “Bi-national Post-graduate Course.” Magdeburg University the Faculty of Electrical Engineering, the Institute of Electric Energy Systems, the Department of Electric Drive were the hosts. Prof. Dr-Ing. habil., F.Palis was the coordinator of the project.

The goal of the visit was the research on his dissertation topic, coordination of the plan to modernize the experimental unit and carrying out of the experiments.

D. V. Bazhutin made his presentation at the international conference on crane plants which was held in Bochum on March 5-6 2013. The presentation was accompanied by the results of modeling of the process of load moving by tower cranes with the application of the power optimal speed diagrams. The mathematical model of the electrical and mechanical system of the tower crane was improved. The aim of the further research is to form the correcting signal being an additional task for moving of the actuating mechanism with the further test of the obtained algorithm on the imitation model and further on the experimental plant.

The research was a joint work done with the graduate of DonNTU A. Tishakin who is a researcher of the Department of Electric Drive of the University of Magdeburg. He works in the frameworks of the agreement with the company Lehnert Regelungstechnik that deals with crane plant automation. The joint development issues were coordinated.

The special attention was paid to elastic vibration of the tower crane which was reflected in the research in the research done during the visit. The recovery of the mathematical model of the object with the spectral analysis of its operation graphs was researched together with Prof. Palis who is the project coordinator. Several approaches to solve the problem were proposed but none of them led to success. It was decided to have extra research the results of which are to be presented in a paper for the conference Automated Electric Drive Issues or at a conference on mechanical engineering in Magdeburg. When the desired results are obtained the conference will be chosen.

Students are also involved in the research in the field. The student E. Golovin (SPU 11 m) got the consultation on his diploma paper on the regulator synthesis and container crane mathematical model simplification.

During the talk with Prof. Palis the plans of modernization of the present plant were discussed. It was decided to fix the flexible boom in parallel with the present hard one. As soon as the satisfactory results of the boom elastic vibration antihunting are obtained, the hard boom will be removed and the load will be hung to the flexible one. Thus the experimental plan will reflect the real tower crane dynamics in a proper way.

The results of the visit will be used in analytical and practical research necessary for the PhD paper and as topics for the diploma papers of the specialists and masters.

## INVOLVED TRAINING IN GERMANY

A Shchetkina, a student of the German Engineering Faculty visited Germany in the frameworks of the agreement on collaboration with the university of Otto von Guericke.

She developed her Master's degree paper The System of Automated Unloading of Electric Systems in Emergency Modes and used the software PSS@NETOMAC and PSS@NETDRAW presented by the SIEMENS Company. The data on German electric networks was used. The rated



capacity of wind and solar plants of 8 different regions was calculated and the operation modes with the reduction of the network frequency were developed. The frequency protection which stops the emergency mode of the network was proposed.

The student took part at the conference on the future developments in alternative power engineering. She also prepared a paper on the alternative power engineering for the conference Donbass 2020.

She also organized the Ukrainian party for foreign students at which they got acquainted with the Ukrainian culture, language and cuisine. The Ukrainian students danced, spoke about Ukrainian cities and cooked Ukrainian meal.

## THE SEMINAR ON GRANTS

The seminar “Practical Experience and Prospects of Grant Implementation at DonNTU” was held on April 3d. It was organized by the International Collaboration Institute. 29 people from all but one faculties were present (may be they preferred the American presentations held at the university this day).



S.G. Dzhura, the head of the International Office spoke on the seminar’s topic; Prof. S. G. Mogilny spoke on the implementation of the TEMPUS grant and analyzed the ways of its getting. Prof. Y. A. Skobtsov, who is in charge of the TEMPUS and ERASMUS grants oriented on the mobility of students and academics also made his presentation. All the speakers supported the importance of the work for the subdivisions of the University. L.V. Shabalina, the head of the international grants sector made her presentation “Technology of Preparation of the Project Proposal”. The employee of the sector E. V. Pavlysh spoke on

the preparation of the TEMPUS project. They accumulated the practical experience of preparation of 9 application forms for the leading European programs.

Prof. G. S. Klyagin who is the winner of the first in Ukraine State Prize on International Collaboration and the Dean of the French Engineering Faculty made a concluding speech.

The participants filled in a questionnaire in which they estimated the seminar and gave further recommendations. The total mark was 4.7 (according to the 5 point scale). The organization of the seminar at geographically remote branches of DonNTU was recommended.

The results show that the information the subdivisions obtain is not accurate. The only way to get it in a proper way is to subscribe the newsletters and bulletins to be aware of the main possibilities of non-budget financing. This will help to solve the strategic tasks put forward by the Rector including the Program “1000”. The presentations emphasized it and all the questions got the replies.

The organizers are ready to hold the seminar at the branches. Please address the International office, room 1.220, tel.: 3010825. The newsletters can be subscribed free at the address [ovs@dgts.donetsk.ua](mailto:ovs@dgts.donetsk.ua)

## THE FIRST FESTIVAL OF FOREIGN FACULTIES OF DONNTU

The first festival of the foreign faculties of DonNTU was held in the frameworks of the Institute of Culture on April 6<sup>th</sup>. The students from the German, French, English and Polish Engineering faculties took part in it. These faculties are elite and unique not only for the Donbass Region but also for Ukraine.

The academic of the German Engineering Faculty Elina Volotsenko proposed the idea of staging of any famous fairy tale (for example The Snow White and Seven Gnomes by Bruder Grimm) in the traditions of different cultures ( in analogous with 7 productions of Goethe’s Faust).



Other faculties proposed to correct the idea and show the spring through the culture the faculty of which they present. The festival was called Bequeathed Synthesis and it was started with the performance of the Polish Engineering Faculty called The Spring Mood. The Faculty has always been conspicuous and didn't fail this time. The students sang and danced at the historical stage of DonNTU that heard the voices of V. Vysotski, A. Dolski, A. Solovyanenko, V. Messing and others.

The German Engineering Faculty showed the modern production of the Snow White. The audience gave the actors the standing ovation. It was especially impressed by the gnomes who were of two meter's high with pans and hammers.

The public was impressed by the Theatre of the French Song. The students sang the sincere songs of Charles Aznavour and Joe Dassin.

The performance of the students of the English Engineering Faculty from Nigeria was the festival's final. They showed rap and break dance. The audience saw the African colour with the corresponding costumes and plastic art.

Ukraine was represented by Evgenia Kirichenko, a student of Metallurgical Engineering Faculty who sang some rare love songs. She was a real discovery for the audience and she wants to repeat the way of A. B. Solovyanenko to the art. Good luck!

The students and the audience loved the festival very much and they decided to have the second festival in autumn or next spring.

The festival was finished by the demonstration of the film made by the world-wide known art critic Mikhail Kazinik about the single theory of culture.



## NEW COLLABORATION AGREEMENT



The private institution “Karaganda University Bolashack (Kazakhstan) and DonNTU signed the agreement on development of academic exchanges and collaboration in the sphere of education, research and culture.

The parties are ready to support, improve and develop the collaboration based on the principles of independence and mutual benefit of every participant of the agreement in all branches of science presented at the universities.

The Newsletter is prepared by the International Office of DonNTU.

Should you have any questions or offers as to the publication material, please address us at: 1<sup>st</sup> building of Donetsk National Technical University, office 220; tel.: (062) 301 – 08 – 25; (062) 337 – 32 – 66; fax: (062) 304 – 12 – 78; web-site: <http://iic.dgtu.donetsk.ua/>; e-mail: [ovs@pop.dgtu.donetsk.ua](mailto:ovs@pop.dgtu.donetsk.ua)