СОЦІАЛЬНО-ГУМАНІТАРНІ АСПЕКТИ РОЗВИТКУ СУЧАСНОГО СУСПІЛЬСТВА

МАТЕРІАЛИ
ВСЕУКРАЇНСЬКОЇ НАУКОВОЇ КОНФЕРЕНЦІЇ
ВИКЛАДАЧІВ, АСПІРАНТІВ, СПІВРОБІТНИКІВ ТА СТУДЕНТІВ
ФАКУЛЬТЕТУ ІНОЗЕМНОЇ ФІЛОЛОГІЇ ТА СОЦІАЛЬНИХ КОМУНІКАЦІЙ

(Суми, 19–20 квітня 2013 року)

Частина четверта

STRUCTURAL PROPERTIES OF THE FILMS $Zn_{1-x}Mn_xTe$

O. V. Klymov – *Sumy State University, postgraduate student*

G. S. Ilyina – *EL Adviser*

At present, the interest of specialists working in the field of material science to semimagnetic solid solutions $Zn_{1-x}Mn_xTe$ is growing. Their photoluminescence, magnetic and magneto-optical properties allow to create a number of effective devices for micro-, opto-electronics, solar power engineering, and spintronics

Thin $Zn_{1-x}Mn_xTe$ films were deposited on the treated glass·substrates at no more than $5\cdot10^{-3}$ Pa pressure of residual gases in the chamber. The mixed material of a semiconducting purity containing 10% of manganese was evaporated. The temperature of the evaporator was Te = 800 ^{o}C. The substrate temperature varied within the interval Ts = (150-550) ^{o}C. The deposition time was normally t = 5-15 min, and the layer thickness was 2-8 μm. Surface morphology of the films was studied using scanning electron microscopy (REMMA-103-01).

Element analysis of the films was carried out using x-ray characteristic radiation induced by a proton beam. The studies were carried out using the electrostatic accelerator «Sokol» with the energy of a beam of protons up to 2 MeV (Institute of Applied Physics, NAS of Ukraine, Sumy). Summary spectra from several areas of the sample surfaces (PIXE) were scanned and then point-by point study was done using the micro-beam (μ-PIXE). Usually, the scanned film area was 200×200 micron. The proton energy was Ep = 1.5 MeV.

It was determined that Zn_1-xMn_xTe thin films with the thickness of about (2 to 8)μm had the grain size D = 0.50 to 1.12μm, which increased with the substrate temperature. The thin films were single-phase with a stable cubic structure. The axial [111] growth of the texture was defined with the help of the inverse pole figure. The orientation factor increased with the substrate temperature rise. The Mn concentration changed with the growth conditions in the range from 1.61-3.04 at. % . Scanning of the film surfaces by the proton (μ-PIXE) revealed the uniform distribution of Mn over their surfaces.

THE METHODOLOGY AND THE ELEMENTS FORMING THE IMAGE OF THE ENTERPRISE

PhD student Anna Kolodka

Image of the organization is a stable long-term positive or negative image in the minds of economic contractors, contact auditoriums, civic and social consciousness in general, their emotional attitude that creates competitive advantages and other economic benefits to the organization in the long run.

In the market economy positive company image is one of its competitive advantages. For its protection and enhancing image should be purposefully managed to form a strategic vision and image management systems to develop measures to achieve it.

Formation technique the corporate image of the company can be represented by the following sequence of steps:

1. An analysis of the enterprise marketing environment and the selection of target (the most important for its activity) community groups.

2. Creating a set of the most important image forming factors for the each target audiences.

3. Development of the desired company image (from the strategic point of view) for each target audiences.

4. Assessment of the company's image in each target audiences.

5. Developing and implementing measures plan for creating a positive company image in the minds of target groups.

6. Monitoring the achieved results and correction the plan.

The structure of image to the notion of consumers, customers, staff, the organization, etc. as for organization, which can be divided into eight groups (component):

• Image of the goods (services). The image of the goods to the notion of consumers regarding to the unique characteristics that the goods has.

• Internal image of the organization. The internal image of the organization is represented by the staff of the organization. Staff is regarded not only as a factor in the competitiveness and one of the key public groups, but also as an important source of information about the organization to external audiences. The main determinants of internal

image are the culture and the social-psychological environment in the organization.

•Image of the founder or the main leaders of the organization. The image of the founder or key management (it is about the individual's image of each head) includes views of intent, motives, abilities, attitudes, values, attitudes and psychological characteristics of the founder (s) responsible on the basis of perception.

•Image of the staff. Image of the staff - collective generalized image, revealing the most characteristic features of the staff. The image of the staff is primarily formed through direct contact of the employees with consumers, representatives of contact auditoriums and other market participants. In addition, each employee can be considered as a face. Of organizations, which are judged by the staff as a whole.

•Visual image of the organization. The visual image of the organization is the understanding of the organization, which are the substrate of visual sensations that hold information about the interior and exterior of the office, retail and showrooms, the external appearance of the staff, as well as brand symbols (the elements of corporate identity).

•Social image of the organization. Social organization's image is the submission of the public about the social order and the organization's role in the economic, social and cultural life of society. Social image is formed by informing the public about the social aspects of the organization, such as sponsorship, patronage, support for social movements involved in addressing environmental, employment, health care, etc., assistance to specific individuals.

•Business image of the organization. Business organization's image is the submission about the organization as the subject of a specific activity. The main determinant of the business image organizations are the goodwill and good faith / bad faith (business ethics) in business activities, as well as the organization of business activity. It has such the indicators : sales, relative market share, innovative technology and the degree of development, patent protection, a variety of products, flexible pricing, access to supply chains.

•Image of the consumer. Image of the consumer is determinated by the style of life, social status and the nature of the consumer.

EL Adviser G. I. Lytvynenko

EXPERT FORECASTING METHODS OF INDUSTRIAL ENTERPRISE

post graduate student Rosohata A. S.

Nowadays there are some special economic policy around industrial enterprises in Ukraine. It makes the necessity of effective strategic management formation, general techniques specifying and methods of effective management of their activity areas determining. Creating of an integrated approach to enterprise strategic management is impossible without the development and justification of enterprise state forecasting and further innovation implementation.

Forecasting in all areas of business, including innovative development, as every economic category must have the methodology and be based on commonly defined methods. The term «method» is derived from the Greek «meto» and means the way of exploration or from «methodos» and means a way. The economy method is a combination of techniques and practical and theoretical operations of economic processes. They are subordinated to the achievement of the main goal. This objective is the increase efficiency of economic agents [1].

Consider expert method in details. The peculiarity of this method is that it covers the probabilistic nature of the forecasts creation. There are many ways to develop forecasts on the basis of statistical analysis. They do not cover incidental changes in the object of prediction behavior. Effect of random events might be considered using experts and their ratings. The advantage of expert prediction method is that the expert knows all of the features and challenges. Also he sees the alternatives of further development in a given industry with innovation use.The expert method in enterprise activity forecasting should be used in the following cases:

1. There is no reliable statistical information.

2. Conditions of the enterprise functioning are quick and often not identifiable.

3. The time period for prediction is not sufficient for complete coverage.

4. There is a force majeure.

There are several types of expert methods that are still relevant in predicting the industrial enterprise. They are distributed according to various attributes, in particular:

• by the number of experts: individual and collective;

• by the distance from the object of study: full-time and part-time;

• by the form of conducting: interviews, questionnaires, discussion, etc.

Thus expert method is a qualitative type of research. This method of forecasting within the industrial enterprise provides access to the opinions of competent experts in the specific situation. It allows to create an overall picture of the situation. The quality of received information depends on the experts, level of their competence, knowledge, willingness to share information, etc. The «quality» level of each expert is unclear. Special sociological methods exist to determine the «quality» of experts.

References.

1.   Rosokhata A.S. Zastosuvannia metodiv piznannia sotsialno-ekonomichnykh yavyshch u protsesi prohnozuvannia diialnosti promyslovoho pidpryiemstva (Application of knowledge of the socio-economic effects in the prediction of industrial enterprises) / A.S. Rosokhata // «Ekonomichni problemy staloho rozvytku»: Proceedings of the International Scientific and Practical Conference named after Balackiy. – Sumy (3-5 kvitnia 2013 r.) : u 4 t. / za zah. red. O.V. Prokopenko. – Sumy. – Sumdu, 2013 r. – T. 4. 189 s. – S. 54-55.

2.   Metody issledovaniya (Research methods). [Electronic resource] / Ofitcialnyy sayt fonda marketinhovykh i sotciolohicheskikh issledovaniy: fond «Sotcium» (The Official Website of Marketing and Social Research: Fund "Society") – Access mode: http://www.fsocium.ru/index.php?option=com_content&view=article&id=170&Itemid=91#expert

EL adviser G. I. Lytvynenko

APPLICATION OFCARBON NANOTUBES

N. V. Bondar – *graduate student,*
O. B. Procenko – *Scientific supervisor,*
L. P. Yarmak – *E L Adviser*

During the last years carbon nanotubes have attracted a great interest of world scientists. Nowadays researchers study their properties, perform the experiment in the laboratories anddevelop a set of theories about their practical application.

Carbon nanotubeis an elongated cylindrical structure with a diameter of one to several tens nanometers and a length of several centimeters, consisting of one or more rolled up into hexagonal graphite planes with generally hemispherical head. Nanotubes are members of the fullerene structural family. Their name is derived from their long, hollow structure with the walls formed by one-atom-thick sheets of carbon, called graphene. These sheets are rolled at specific and discrete ("chiral") angles, and the combination of the rolling angle and radius decides the nanotube properties; for example, whether the individual nanotube shell is a metal or semiconductor.

The intrinsic mechanical and transport properties of carbon nanotubes make them the ultimate carbon fibers.Thermal and electrical conductivity are also very high, and comparable to other conductive materials. Overall, carbon nanotubes show a unique combination of stiffness, strength, and tenacity compared to other fiber materials which usually lack one or more of these properties.

For example,scientists are trying to developa theory aboutthe construction ofa cablefora space elevator: nanotubescan holdtremendous weight-up to a tonper squaremillimeter.However, they can't receive long enough carbon tubewith a wall thicknessof one atom. The filaments, woven from the relatively short nanotubes can be used, but they reduce the finalstrength.

One of the interesting applications of carbon nanotubes in future is the idea of creation the nonvolatile random access memory (NRAM). The silicon substrate is applied to thin insulating membrane of silicon oxide.The conductive electrodes (130 nm),

separated by insulating layers, are placed along the width of the membrane.Over electrodes are arranged nanotube arrays which are closed on both sides of the conductive contacts. In the normal state (state OFF) nanotubes do not touch the electrodes and are above them at a height of about 13 nm. If the voltage is applied to the lower electrode, the nanotube under the influence of an electric field will bend and touch the lower electrode. However, this state (state ON) is stable due to the balance between mechanical stress and Van der Waals forces. Thus, by varying the voltage on the electrode we will obtain two stable mechanical states of nanotubes, one of which has a contact with the electrode, and the other - no. One of these states will respond to a logical zero and the other - the logic unit. In order to readthe contents ofthe memorycell it will be necessary to analyze it's state. If thememory cellis in the stateOFF, the electrical circuitisopenand the voltagewill be high,which corresponds toa logic one. If thememory cellis in theON,i.e.there is contactbetween the nanotubeand the lower electrode, the circuit is closedand the voltageis low, corresponding to logic zero

In comparisonwith traditionalmemory types, NRAMmemoryhas several advantages.First, despitethe factthat thisRAM-memory, it isvolatile.Secondly, according to the companyNantero,the information recordingdensityin the devicescan reachNRAM5 billionbits per squarecentimeter (several times greater than thecurrentmemory chips), and the memory operating frequency-to 2GHz.

The small dimensions, strength and the remarkable physical properties of these structures make carbon nanotube a very unique material with a whole range of promising applications in different areas.The usefulness ofnanotubesis evident. However, the developmentand introduction ofnanotubesinto everyday lifeis complicated bya lackof knowledge, complexity andhigh costof production.

ENVIRONMENTAL ASPECTS OF COAL GASIFICATION

E. V. Bataltsev – *Postgraduate Student of SSU*
S. G. Zolotova – *E.L. Adviser*

Consumption of solid fuels increases with the development of industry. Working with them is more difficult in terms of hardware and technical supply than with gaseous or liquid hydrocarbons. In addition, coal mining, its transportation, drying, grinding and burning in boilers, accompanied by the formation of solid waste (ash and slag) and significant air emissions of oxides of carbon, nitrogen and sulfur are taken into account. This requires the creation of new technology of solid fuels using to reduce the anthropogenic impact on the environment. This technology is called coal gasification.

Gasification is a thermochemical process that takes place at high temperatures. As a result solid fuel turns into synthesis gas, which consists of hydrogen, carbon monoxide and methane. The process takes place with oxidants.

There are two principles which form the basis of the gasification process. This is the partial oxidation of solid fuel or its incomplete combustion with progress of the reaction between carbon, water vapor and carbon dioxide. Combustible gas is the product of these reactions.

The main advantage of coal gasification is low level of negative impact on the environment. This is due to the fact that the gaseous products of gasification are located in the combustion zone (the temperature of process is 1000-1200°C) at first, then – in the anoxic zone of the formation of synthesis gas. The destruction of harmful substances such as benzpyrene, furans, PCBs, dioxins, and other polyaromatic hydrocarbons takes place under such conditions. In addition, the gasification produces less harmful gases compared to the direct burning of coal.

The gasification can be considered as one of the promising methods of anthropogenic impact decrease on the environment. Therefore, appropriate research is necessary to conduct to determine the efficiency of gasification.

HUMAN AND ENVIRONMENTAL RISKS OF OBSOLETE PESTICIDES

Y. O. Nazemtseva – *PhD Student of SSU, Department of Applied Ecology*
S. G. Zolotova – *E. L. Advisor*

Pesticides have been used worldwide in agriculture to fight pests, to increase output, and control tropical diseases. But when pesticides can no longer be used for their intended purpose (for instance, due to deterioration or age) they become obsolete. Therefore the problem with the Obsolete Pesticides (OPs) is not connected to their usage, but with social risks stemming from their inadequate management and storage relates to: 1) public health and environmental quality and 2) agricultural production and trade.

The problem dates back to the 1950s and 1960s. To date, it has been estimated that approximately 260,000 tons of OPs are at tens of thousands of locations in the countries of the former Soviet Union, the Southern Balkans and new EU member states. Many warehouses with obsolete pesticides are not managed properly therefore chemicals can leak into the soil and pollute agricultural lands and ground water.

OPs can be treated in different ways to reduce the harm they cause. Those methods are: environmentally safe disposal, incineration, chemical degradation, biological treatment methods, including composting, landfarming, and bioaugmentation/ biostimulation, adsorption, flocculation, coagulation. But one of the most progressive methods is advanced oxidation processes (AOPs) (UV/ozonation, photoassisted Fenton reaction, photocatalysis using $TiO2$). AOP is the combination of methods, which makes the pesticide degradation more effective and less expensive. Nowadays this process is widely used for treatment of water contaminated with persistent organic pollutants. It gives knowledge about the process characteristics. Chemical reaction depends on the nature and concentration of reactants, pressure, temperature, pH.

More studies on AOP are necessary to investigate the most optimum conditions of its usage for OPs degradation.

HOLE CLASSIFICATION PRODUCED FOR AIRCRAFT INDUSTRY IN CFRP/ METAL SANDWICHES

V. A. Kolesnyk**,** *post graduate student*
L. P. Yarmak – *E. L. advisor*

In this article the results of manufacturing process analysis of hole production for aircraft industry in CFRP/metal sandwiches are presented. Hole production is provided with hand-guided tool. The review of the most widespread tool backup facilities according to manufacturing process analysis is stated. Hole classification for CFRP/metal sandwiches was suggested according to the specific production step. Five types of holes machined in CFRP/ metal sandwiches were classified. They are: one pass holes, multi pass holes without bolt head housing and intermediate dismantling, multi pass holes with bolt head housing and intermediate dismantling, multi pass holes without bolt head housing and without intermediate dismantling, multi pass holes with bolt head housing and without intermediate dismantling.

CFRP/metal sandwiches demand special processing methods linked with multi component structure and CFRP anisotropy. That is why it is necessary to support a sharpness of a cutting edge, prevent excessive heating and thermal damage of CFRP, eliminate build-up formation on cutting edge, use the vacuum sweeper for a chip control while drilling without lubricant-cooling agent applications, raise rigidity of the thin CFRP layers on an exit of a drill at the expense of a support plate under CFRP layer, provide chip removal from a zone of hole shaping by means of easily evaporated fluids, protect electrical parts of machines from a dust produced in process of CFRP drilling.

The solution of these problem, is seen in creation of the instrumental materials and-or axial instruments ensuring acceptable economic indexes of holes drilling both in CFRP, titanium and aluminum alloys. Automatic control system can be a solution in cutting speed and feed regulation in hand-guided tool. Recent researches show that combined instrument usage, each part of which is optimized for drilling CFRP and a titanium alloys can reduce machining time of hole production at the expense of work mix.

INFORMATION-EXTREME TECHNOLOGY FOR LOAD ESTIMATION OF TELECOMMUNICATION GRID-SYSTEM NODES

V. V. Moskalenko – *Sumy State University, postgraduate*
S. G. Zolotova – *E L Adviser*

GRID-system is considered as poorly formalized control object that is functioning in conditions of uncertainty and unguided random factors. Due to inefficiency of traditional methods of parametric control, the usage of a learning control system by functional state is promising approach. The report considers increase functional effectiveness of management by GRID-system within information-extreme intelligent technology (IEI-technology) of analysis and synthesis of learning systems, that is based on machine learning and pattern recognition.

Based on the monitoring data of the GRID-network obtained from LDAP-servers through GIIS-service (Grid Internet Information Service) a feature set and a set of classes are formed. Feature set includes computational parameters of the node, parameter of communication channels and queue toward the node, amount of resources required by the given task. Each class characterizes the same functional state of GRID-system node. Estimation of functional state of GRID-system node is performed by information-extreme hyper-ellipsoidal classifier, that is updated in radial basis of binary feature space. A learning of control system of GRID-infrastructure within of IEI-technology is based on an iterative process of searching for a global maximum of information functional efficiency of proposed Kulback's criterion modification in the working area of the determination of its functions. In this case the algorithm of planning for the tasks distribution between the nodes of GRID-system consist of such steps: determine the list of available nodes; identify the functional state (priority) of available nodes of GRID-system for given task; select one node from the list of highest functional state (priorities) for given task by random way.

The result of this approach are decrease probability of failures, overloads and total time of tasks execution.

GENERALIZED FOKKER-PLANCK EQUATION FOR ANALYSIS OF THE DYNAMICS OF THE NANOPARTICLE MAGNETIC MOMENT, IN THE CASE OF POISSON NOISE

O. O. Bondar – *postgraduate student*
S. G. Zolotova – *E L Adviser*

Nowadays it is very important to study the physical properties of nanoparticle materials, especially its magnetic properties. Comprehensive interest is based on the using of magnetic nanoparticles and their ensembles in many areas of engineering and medicine [1-3]. Investigation of magnetic properties of nanomaterials can significantly expand the scope of their application and make it possible to use them effectively in magnetic recording media, in sensors, based on the effect of giant magnetoresistance, in magnetic closures, magnetic refrigerators, ferro-fluids, electromagnetic screens and biotechnologies.

Due to continuous internal and external fluctuations, which are an integral part of real systems, the dynamics of the magnetic moment of nanoparticles is random. Landau-Lifshitz equation is used to describe the behavior of the magnetic moment, and in this case thermal fluctuations can be modeled as a noise with given statistical properties.

Today, there are a great amount of works devoted to studying the role of thermal fluctuations, which can be approximated by a Gaussian white noise. In this case, the dynamics of the nanoparticles magnetic moment is Markov, which means that the conditional density of approximation probability fully satisfies the Fokker-Planck equation in the angular variables [4]. However, the Gaussian white noise cannot display the complete picture of environmental influences on the dynamics of the nanoparticles magnetic moment. That is why it is very important to study the statistical properties of magnetic nano-sized particles in the case of non-Gaussian white noise. In spite of this, the mentioned problem was not considered earlier.

Nowadays, we can state that many stochastic differential systems can be analyzed using the Fokker-Planck equation. The

Fokker-Planck equation is a parabolic homogeneous linear differential equation of order two in partial differentiation for the transition probability density [5]. The Fokker-Planck operator is an adjoint operator. The Fokker-Planck equation is also known as the forward Kolmogorov equation in some modern literature. The forward Kolmogorov equation can be proved with the use of mild regularity conditions involving the notion of drift and diffusion coefficients [4]. The Fokker-Planck equation, integration by part formula, and definition of the conditional expectation make it possible to derive the evolution of the conditional moment. In the Risken's book [5], the stochastic differential equation involving the Langevin force was considered and then the Fokker-Planck equation was derived.

In this work we consider the derivation of the generalized Fokker-Planck equation for the analysis of the dynamics of the magnetic moment, which is affected by a two-component Poisson white noise.

We have introduced a toy model for studying the effects of Poisson white noise in the rotational dynamics of the nanoparticle magnetic moment and have shown that the dynamics is discontinuous and have developed an approach to account of the manifold rotations of the magnetic moment under pulses of the noise [6]. Finally, using this approach, we have derived the corresponding generalized Fokker-Planck equation.

1. J.L. Dormann, D. Fiorani, and E. Tronc, *Adv. Chem. Phys.* **98**, 283 (1997).
2. C.A. Ross, *Annu.Rev. Mater. Res.***31**, 203 (2001).
3. Q.A. Pankhurst, J. Connolly, S.K. Jones, J. Dobson, *J. Phys. D: Appl. Phys.***36**, R167 (2003).
4. W.T. Coffey, Yu.P. Kalmykov, and J.T. Waldron, *The Langevin Equation* (Singapore: WorldScientific 2004).
5. H. Risken, *The Fokker-Planck Equation: Methods of Solution and Applications* (Berlin: Springer-Verlag 1989).
6. S.I. Denisov, O.O. Bondar and V.V. Reva, The materials of conference NAP-2012, **1** No4, 04MFPN15 (2012).

SELF-CONTROLLED BINOMIAL COUNTERS

O. V. Ivanchuk – *Sumy State University, postgraduate student*
Galyna I. Lytvynenko – *English Language Adviser*

Counters take a special place among digital circuits used for data processing. Nowadays we more and more often face the task of improving their supervisory capacity. However, controlling their errors is a rather complex task, which requires the development of an additional control device added to the counter, the operation of which it is also necessary to check. Moreover, in this case the counter becomes an inhomogeneous structure, which is not easy to design and adjust while its reliability may even decrease.

One of the ways to overcome this contradiction is to use error-correcting number system, such as Fibonacci ones. The counters based on such a system are homogeneous and interference immune, since they do not contain special control devices, although equipment redundancy is still present in them like it is in binary counters. Binomial counters work similarly. One more important feature of binomial counters is significant reduction in the equipment required for decryption of their state, this in some cases leading to the reduction of hardware expenses as compared to similar devices implemented on the binary counters without error protection. In addition, these counters through changing the conversion factor and the control number k provide for changing the amount of noise and for adapting to the intensity and the nature of the noise, thus revealing a maximum of errors, which is not characteristic of Fibonacci counters. It is necessary to give a complete and profound analysis of binomial counters, as the available papers devoted to them focus mainly on the description of only one characteristic.

Let's consider the work of one of a number of well-known binomial counters described in [1]. It is of a binary type and is characterized by two main parameters – the numeral of bits n and control number k. It is described in [2].

The counter state number or the conversion index is determined by the number of unit combinations from (n+1) elements:

$$N = C_{n+1}^k = \frac{(n + 1)!}{k!\,(n - k + 1)!}.$$

Its states for k = 4 with the number of digits n = 5 in ascending order are shown in Table 1. Their number, obviously is $C_6^4 = 15$:

Table 1 – Counter states for k = 4 and n = 5

serial number	Digit 5 4 3 2 1	serial number	Digit 5 4 3 2 1	serial number	Digit 5 4 3 2 1	serial number	Digit 5 4 3 2 1
0	0 0 0 0 0	4	0 1 1 1 1	8	1 0 1 1 1	12	1 1 1 0 0
1	0 1 0 0 0	5	1 0 0 0 0	9	1 1 0 0 0	13	1 1 1 0 1
2	0 1 1 0 0	6	1 0 1 0 0	10	1 1 0 1 0	14	1 1 1 1 0
3	0 1 1 1 0	7	1 0 1 1 0	11	1 1 0 1 1		

If the counter by means of a single error or an error packet $0 \rightarrow 1$ comes to state 11111, i.e. it contains k + 1 units, it emits an error signal on the fifth output of the summator. The detecting ability of the counter to the errors $0 \rightarrow 1$ increases as the control number k decreases, while it reaches its maximum at k = 1. In this case the counter does not require any additional controlling devise, which means it is self-controlled and self diagnosed, this being one of the most important of its advantages.

LITERATURE

1. Страхов А.П. Введение в алгоритмическую теорию измерения / А.П. Страхов. М.: Советское радио, 1977. – 288 с.
2. Борисенко А.А. Биномиальный счет и счетчики; Монография / Сумы: ИТД «Университетская книга», 2004. – 152 с.

SRUCTURAL AND FUNCTIONAL ANALYSIS OF AN INTERACTIVE INFORMATION SYSTEM "STUDENT MOBILITY"

D. S.Opara – *Sumy State University, postgraduate student*
Galyna I. Lytvynenko – *English Language Adviser*

Foreword. Rapid development of computer systems and networking technologies result in the fact that users have to acquire and process wealth of information that grows changes incredibly rapidly. There turns up a pressing problem how to follow-up useful current information. Under such conditions more and more systems for distant education appear; this is due to the fact that such systems have many advantages, one of them being mobility. Mobility gives an opportunity to cope with information scantiness and gives free access to current information. At the same time a full-time system of education still exists. This system of education has a low level of mobility and flexibility. The process of education continues even after classes, that is why a student needs to use the most up-to-date learning materials.One also needs information about one's current grades in all subjects. It is necessary to be in touch with lecturers and other students. It is also very important to have continuous access to one's own preliminary work and materials (term papers, research work, materials for graduation work). Having all these materials a student will be able to qualitatively process all the information without delay.

In the majority of Netware and desktop software such functions have already been realized, but they are not interconnected and adapted to students' needs. That is why, there arises a problem of developing a unified system of software for providing students' mobility and realized in the web environment. For the system accessibility it is necessary to adapt it to mobile handheld devices and modern mobile platforms (iOS, Android, Windows Mobile etc.). This system has to be based on modern programming languages and frameworks, provided that the main programming demand is reliability. The applied programming language has to have a stable and supported code and be safe in use, especially protected against

hacking and failure. The functioning of this system requires the ability to execute multiple selections and dynamically give all the data to the user. It limits the selection of a programming language for the system realization. We think that in this case the most reasonable solution is to use JavaScript and framework ExtJS based on it. Due to such connection it is possible to provide for burst performance and asynchronous operation of all the components of the system. The interactive environment of the system "Student Mobility" has to have the following functionality:

-to have cloud storage for all files (term papers, practical tasks, graduation papers, research works, etc.);

- storage for all documents has to be based on the CVS-system (a program product relating to the category of version control systems);

- to be adapted to handheld devices (either with the help of special software applications or web-based applications, the latter being more preferable);

- to have storage system for data bulks (for current grades of students in all subjects);

- to be resistant to loading (simultaneously handle the enquiries of a great number of users and managers who enter the data);

- to have a flexible interface (to be adjustable to the users' needs, clear and simple to use);

- to have a registration, authorization and authentication system for users' accounts (to prevent searching and entering incorrect information).

This system must have big operability, as a great number of users are going to work with it simultaneously. That is why it should be organized like all modern high load projects. Due this structure and separation of logics from data submitting there appears an opportunity to provide the system stability and high performance.

Conclusion. As a result of the structural and functional analysis there was proposed an interactive information system "Student Mobility". This system will help to improve the efficiency of a student due to mobility, regular awareness about student's progress and access to current teaching materials on the selected subjects.

STICK–SLIP MODE OF BOUNDARY FRICTION

N. N. Manko – *Sumy State University, postgraduate student*
G. S. Ilyina – *EL Edvisor*

The study of the boundary friction processes that develop in nanosized tribosystems has drawn active interest of many researchers. One of the perspective directions is the investigation of the friction of atomically smooth solid surfaces in the presence of an ultrathin film of a homogeneous lubricant between them. The interest is partially due to the applied significance of these systems, as they are used in increasing frequency to design precise devices and instruments.

This work presents the subsequent development of the synergetic model, which describes the state of an ultrathin lubricating film clamped between two atomically smooth solid surfaces during boundary friction. It has been found that the use of this model can make it possible to describe the behavior of various types of tribosystems. The stick–slip mode frequently observed in experiments has been described. Under this mode, consecutive transitions between the structural states of the lubricant occur. This work makes it possible to extend the results obtained in the synergetic model of the previous studies, as the described stick–slip mode has a deterministic nature. This has not been shown previously, but is observed in numerous experiments on studying the boundary friction processes. It has been found that, the stochasticity in the system grows together with the temperature elevation of the friction surfaces. When the temperature exceeds a critical value, the system follows the mode described by the Lorentz attractor. In the wide range of parameters, the reverse motion of the rubbing surfaces occurs. Our results agree qualitatively with known experimental data. In all modes studied a similar transient mode was shown to occur in a definite range of initial conditions. This mode involves damped oscillations and the subsequent stick of the surfaces together for a long time, then a stationary mode of friction sets in. If the initial conditions are the abovementioned range, the transient mode is governed by the system parameters.

PERSPECTIVES OF INFORMATION – INTELLECTUAL TECHNOLOGY FOR MONOCRYSTAL GROWTH

O. B. Berest – *Sumy State University, post – graduate,*
Computer science department
S. G.Zolotova– *E L Adviser*

The increasing of computer control system functional efficiency of scintillate monocrystals technological growth by Bridgman-Stockbarger is based on providing high requirements to its optical characteristics The typical automate control system does not provide necessary flexibility and adaptiveness of technological process. Besides, there isn't any problem of intellectual constituent. Its solution can decrease human resource and enhance efficiency of a system. All these reasons cause search of new modern ways to control growth technological process.

One of the possible methods is an intellectual information-extreme technology (IIET), which is based on maximizing the information capacity of the Decision Support System in the learning mode. It has been already used in the control system of chemical production (PSC Sumykhimprom, Ukraine) and has demonstrated good results.

Let's analyse the opportunity to use this method for monocrystal growth by Bridgman-Stockbarger. The main idea of IIET is to form learning matrixes <object - property> and maximize information content in learning mode with additional informational limitations. Each matrix describes some functional state of the technological process.

The method of monocrystal growth had been developed by Bridgman-Stockbarger before the learning matrixes were formed. It comprises the case with insulation and the heater winding, heaters and moving quartz ampoule with liquid in it. Usually the ampoule is of the cylindrical shape with a conical lower end for better start monocrystal formation. The ampoule is slowly placed into a cooler position in the interface between crystals. The liquid is always of the same temperature and as a result a crystal starts to grow in the conical tip. The speed of the ampoule also depends on the

temperature and the material. The method of monocrystal growth is good for materials with low melting point and sensitive to air.

So it is possible to form learning matrixes with the next recognition attributes: heater temperature, melt level, heater capacity, ampoule speed, cooling water temperature etc. This makes possible to form alphabet of three recognition classes for future classification and optimization. It is known as IIET functional parameters structured vector $g = <x_m, d_m, \delta, \rho>$, x_m – reference binary class vector realization $X_m^o(\tau_r)$, d_m – radius of class container $X_m^o(\tau_r)$, δ – acceptance tolerance parameter for recognition attributes, ρ – selection level. And the task is to define optimal coordinates, where g is vector to provide maximum of aggregate functional efficiency criteria (FEC).
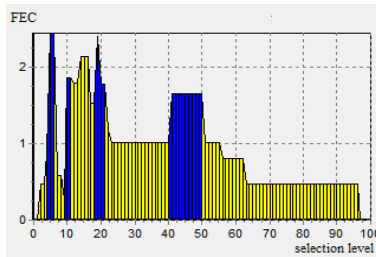
Figure 1 Cross-plot of KFE and selection level.

Figure 1-1 shows the dependence of KFE of the selection level after parallel optimization with the acceptance of tolerance parameter $\delta = 85$. The darker section is the effective range of criteria. The optimal value of ρ is 5, but more steady mode is 40-50.

It has been worked out to use IIE technology in growth control and to find optimal coordinates for IIET vector.

22

MARKETING DISTRIBUTION POLICY OF AN ENTERPRISE AND ITS ELEMENTS

Syhyda L. O. – *Sumy State University, PhD student*
Galyna I. Lytvynenko – *English Language Adviser*

Marketing distribution policy concerns all the pre-distribution and after-distribution measures aimed at delivering a product from the producer to the customer. The aim of this distribution policy is to satisfy customers' needs and to achieve marketing objectives of an enterprise.

Distribution policy should be designed within the context of the entire marketing mix, by going through the following steps:

- reviewing the overall marketing objectives;
- determining product, price and promotion polices;
- deciding whether distribution will be designed in a defensive or proactive manner.

While designing marketing distribution policy all the factors of the enterprise internal and external environment influencing this process must be taken in to account – customers, competitors, suppliers, intermediaries, enterprise organizational structure, its production capacity, etc.

Marketing distribution policy includes all aspects of delivering a product or a service to a customer, such as inventory management, order processing, products handling, warehousing, material management, customer service, security of consignment, accessibility, cost control and policy formulation, products transportation from one place to another.

Marketing distribution policy consists of three major elements – physical distribution, distribution channels and distributions strategies. All the three elements are interrelated and interdependent.

The interrelation between these elements can be shown in such a way: an enterprise chooses a distribution strategy which determines the direction of the enterprise marketing distribution policy development. Distributions strategy involves decisions on distributions channels number and structure and the best way of product physical distribution. Then the enterprise analyses the selected distribution channels to make sure that the products reach the target group. The enterprise must also analyse the performance of the selected distribution channel and

whether it corresponds to the customer's expectations. Then it must analyse the efficiency of physical distribution and of the partners who are of importance in products transportation through the selected distributions channels.

So distribution policy is a complex category. It integrates all the decisions that allow to move finished products to the final customers, including quantity, place, time, cost and price for the benefit of both customers and producers.

NONLINEAR MOVEMENT OF MULTISTAGE HYDRAULIC CYLINDER

S. P. Kulinich, V. P. Chuiko,
L. P. Yarmak – EL Adviser

When maintaining large-sized pumps, operations with basic parts are performed. The main outlet of the pump is pressurized. To perform these operations, it is required to apply special equipment which includes hydraulic wrenches to provide the necessary sealing force. The integral part of such a wrench is a multistage hydraulic cylinder which pulls the stud out. Coaxial hydraulic cylinder should be applied to achieve the necessary level of force in radial limited size of the wrench. The sealing of the outlet is performed in the following way: first pulling out of the stud, tightening up the nut, decreasing the applied force on the stud. A basic diagram of such a cylinder is represented on figure 1.
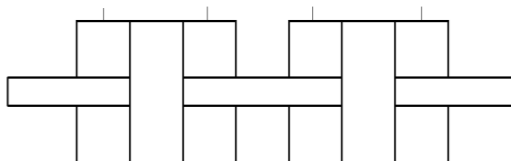
Figure 1 – The diagram of the multistage hydraulic cylinder under investigation

When fluttering, the fluctuating force appears in the system and leads to damaging of the outlet surface of the pump. When pulling out the

stud, the impact load and vibration level must remain within the permitted limits. To provide the latter, the linear movement of driven element of hydraulic cylinder is required. The method of successive pressure increase in cavities is suggested, while the closed camera performs the function of a damper. A mathematical model of the drive operation when fluttering was developed which considers variable compression of fluid and undissolved gas in the system.

Theoretical analysis of the system which operates under the similar scheme enables to substantiate the construction choice and drive modes.

STRATEGIC PARTNERSHIP
AND SUSTAINABLE DEVELOPMENT

post graduate student Provozin M. V.,
Sumy State University

The relationship between the economic success of a company and the well-being of its employees, customers, and common people in modern economic system has been distorted. It is an objective situation that has been developing for more than a decade, and today is only escalating. We believe the reason of the imbalance are as follows:

1. increasing competition on the international market;
2. declining of state and religious control;
3. cardinal changes brought about by scientific and technical progress as well as our unwillingness to adjust to them.

The development of international trade has also favored capital and labor movement. Western companies have expanded their markets, but on the other hand it has also caused capital concentration and multinational corporations' growth. The activities of such corporations are focused not on the population needs, but on profit growth. As a result we have mass layoffs (due to automation), lower product quality (cheaper materials), harmful impact on the environment (low-quality products and emissions).

Capital concentration and companies` expanding beyond a single country result in the appearance of new global economic organizations – corporations. These influence more and more not only consumers but also the governments of various countries. Now corporations affect government decrees. It gives an opportunity to implement their own cost saving policy, and to hold back weaker competitors by introducing additional fees or buying out patents.

The revolution in science and technology that took place two centuries ago has, greatly changed the world around us: now most of the world's population live in cities, are not engaged in manual labor, and can communicate with their family or friends in any part of the world without ever leaving their homes. Humanity developed more smoothly than it does now. As a result, many institutions do not have time to adapt to the changes. A modern human being has found freedom, but has not learned to use it: he is not controlled by religion, the institute of family has become not important, and the education system has little influence on the formation of the personality. One is left to one`s own devices. As a consequence one cannot bring tangible benefits to society. Degradation of personality leads to the loss of social effectiveness. Suppliers of goods or services need you only as a consumer, a source of income for enterprises. People deserve a better destiny. Therefore we need to review the relations in the society. One of the links in the relationship chain is the link between the company and the consumer (the workers, the supplier and so on). The relationship chain should not be based on getting profit from consumers, but on establishing long-term mutually beneficial partnership, designed to provide quality products and services that satisfy the needs of the people and which are not harmful for the environment or society. Thereby we create prerequisites for the formation of a stable society, which does not only gain the reward of its labor, but also provides an opportunity for the future generations.

EL advisor Litvinenko G. I.

VITAMIN D DEFICIENCY AND CORONARY HEART DISEASE

M. A. Hordina – *Sumy State University, postgraduate student,*
G. S.Ilyina *EL Adviser*

Coronary heart disease (CHD) is the result of the accumulation of atheromatous plaques within the walls of the arteries that supply the myocardium with oxygen and nutrients. The WHO estimated that in 2002, 12.6% of deaths worldwide were from CHD.

The active form of vitamin D, calcitriol, exerts genomic and nongenomic effects through a cytosolic vitamin D receptor (VDR) and a membrane bound receptor. VDRs have been found in almost all human tissues and cells, among them cardiomyocytes, endothelial cells, and vascular smooth muscle cells. Now there is increasing evidence that calcitriol exerts important physiological processes in the vasculature. These mechanisms include the inhibition of vascular smooth muscle proliferation, the suppression of vascular calcification, the down regulation of pro-inflammatory cytokines, the up regulation of anti-inflammatory cytokines, the action of vitamin D as a negative endocrine regulator of the renin–angiotensin system, and the inhibition of vascular calcification. Vascular calcification is an important risk factor for CVD mortality in the general population and is a frequent finding in patients with CVD. Data from two human populations at high and moderate risk for ischemic heart disease indicate an inverse association of serum calcitriol levels with vascular calcification.

During the last decade, it became clear that deficiency of serum concentrations of vitamin D metabolites are prevalent not only in specific patient groups but also in the general population in western countries and throughout the world. The much more important cause of this phenomenon is an inadequate skin exposure to solar ultraviolet B radiation, as ultraviolet B induced skin synthesis is the major source of vitamin D for humans. Ecological studies have reported higher rates of CHD with increasing distance from the equator, a phenomenon that can be attributed to the higher prevalence of vitamin D deficiency in regions with less exposure to sunlight.

Vitamin D deficiency could be an additional risk factor in the etiology and progression of CHD.

DECISION MAKING METHODS IN PROJECT MANAGEMENT

O. V. Zagovora – *Sumy State University, PhD student*

S. G. Zolotova – *E L Adviser*

The aim of the article is to demonstrate the importance of the production efficiency increase, and as a result, improvement of product quality. Such efficiency will be provided by implementation of project management methodology [1].

One of the instruments for ensuring the projects quality is the application of decision-making methods. Decision-making (DM) methods are mainly focused on the economic projects evaluation, and they do not account for the completeness of work (functions) required for implementation of design process.

The analysis of the modern project management systems [2], as well as scientific works on decision-making method has shown that there is no decision making method to implement the requirements and changes in projects. It is possible to say with confidence that in projects quality management it is not enough to apply the traditionally used expert methods. So, the following goal was set: to develop the DM method based on information approach and methods of design functions structuring.

Thus, it is necessary to construct a model of decision making when implementing changes in the draft, which would allow to take into account certain requirements (depending on the particular production), as well as take into account the specific production technology.

The author of this article has developed the stratified representation of the decision-making method of realization of requirements and changes in projects.

Stratum1. Requirements Analysis. At the first stage, all requirements are defined and detailed.

Stratum2. The selection of technological stages of production and the definition of requirements from the side of production . Each particular requirement matches the specific production stages.

Stratum3. Selection of computer-designed tool (Fig.1). Each particular tool matches the corresponding requirements. The relative importance of costs for each tool is calculated.
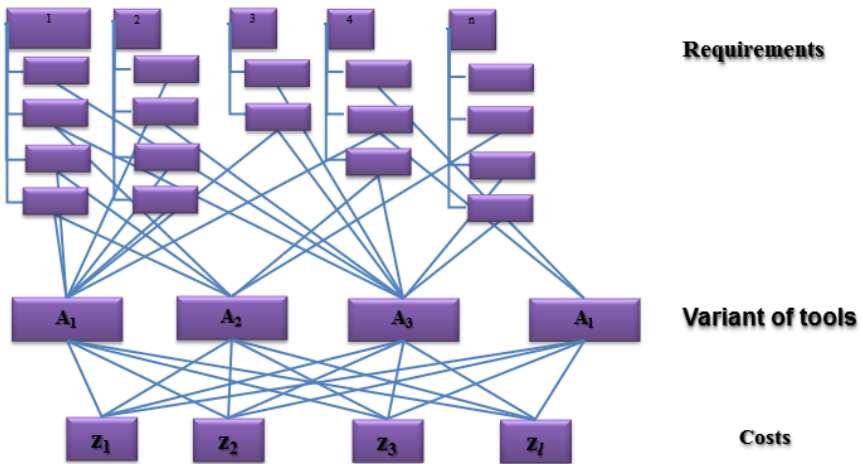
Figure 1

On the basis of this research the author has developed:

1. the decision-making method to implement the requirements and changes in projects;
2. the multilevel structure providing decomposition of requirements when analyzing the changes in projects;
3. the method of requirements analysis;
4. the model of complex expertise organization on the basis of information approach which allows to unite Diverse criteria and opinions of particular experts.

The developed techniques and algorithms are applicable for the enterprises focused on the release of high technological individual production.

1. О.В. Заговора, В.Г. Концевич, *East.-Eur. J. of Ent. Techn.* **1/7**, No49, 8 (2011).
2. О.В.Заговора, В.Г.Концевич. Формализация выходов процесса управления изменениями в жизненном цикле информационной системы управления как источника новых знаний. - Материалы конф. «Информационные процессы и технологии. Информатика – 2011». – Севастополь: "", 2011.

DIAGNOSIS OF CUTTING TOOL BY THE SOUND
THAT ACCOMPANIES THE PROCESS OF CUTTING

V. V. Nagorny – *Sumy State University, postgraduate student*

G. S. Ilyina – *EL Adviser*

Typical defects of a tool is wear and peeling of tool blade. These defects must be detected in proper time to replace the tool immediately. One of the diagnostic signs of these defects is the sound level which accompanies the cutting process.

To make the diagnosis of the instrument state more effective it is necessary to know the laws of sound change as the tool wear. The tool is an important part of the processing system "tool - device - milling machine". Tool wear influences on the behavior of this system, which affects the sound level, generated by vibrations of the processing system. The vibration computer study of the vertical milling machine 6R13 was conducted to solve this problem.

The dynamic model allows to consider vibrations of the machine units by 10 degrees of freedom. Model vibrates under the influence of the variables of the cutting forces: P_{VZ}, P_{VX} and P_{VY}.

Research has shown that during normal operation of the instrument a gradual decrease in sound level E_S takes place. This is due to the damping effect of friction of the tool main rear surface against processed detail. This damping reduces amplitude of instrument oscillations. At the same time tool blade wears relatively slowly. During catastrophic tool wear the sound level increases sharply. The reason of this is the significant intensification of the process of blade destruction.

Computer studies showed analytical dependence describing the change of sound level depending on the size of the tool wear.

This dependence is necessary to predict the moment of transition from the area of the normal operation of the blade to the area of its catastrophic destruction. This in turn makes it possible to carry out timely replacement of the tool and thus avoid the appearance of defective goods.

ESOPHAGEAL AND GASTROESOPHAGEAL JUNCTION CARCINOMA OF PATIENT'S QUALITY OF LIFE AS INTEGRAL INDICATOR OF FUNCTIONAL OUTCOME AFTER ESOPHAGOGASTROPLASTY

O. I. Vynnychenko – *Sumy State University, postgraduate*

G. S. Ilyina – *E L Adviser*

Summary. Currently subtotal oesophagogastrectomy with reconstruction of the digestive tract by applying a gastric tube appears to be the method of treatment choice in patients with a carcinoma of the thoracic oesophagus and gastroesophageal junction. The aim of this research is to study whether esophagogastrectomy provides good palliation for patients with the intrathoracic tubulized stomach situated at posterior mediastinum.

Results. The function of the gastric substitute after esophagogastrectomy was examined retrospectively in 64 patients. In 3, 6 and 12 months a clinical examination and quality of life questionnaire were studied . In 3 months postprandial dumping, dysphagia, and fullness were presented in 51,6%, 45,3%, and 23,4% of the patients correspondingly. The problems of dumping and fullness were almost completely resolved after 12 months postoperatively; however, dysphagia remained an important problem (15,6%, 10 patients) and more patients complained of heartburn and regurgitation (70,3%, 45 patients). In 12 months period most symptoms became less prominent with the exception of gastroesophageal reflux. 72% of patients were satisfied with postoperative functional outcome after 12 months.

Quality of life of esophagectomized patients depends on mainly of postoperative organ dysfunctions. Functional disorders such as delayed gastric emptying, dumping syndrome or duodeno-gastro-esophageal reflux can significantly decrease patient's quality of life. A total of 36 patients responded to the questionnaire EORTC QLQ-C30 and QLQ-EOS18. Overall quality of life was good in 34% and satisfactory in 66% of patients after 3 postoperative months. Over a period of 6 – 12 months frequency of functional disorders decreases significantly and patients rated their quality of life as good in 72% and fair in 28%.

OPTIMIZATION ACTIVITIES MACHINE-BUILDING INDUSTRY

post graduate student Kysil T. V.

Mechanical engineering plays a key role in the socio-economic development of Ukraine and is considered the foundation of the whole industry of Ukraine. Today, domestic enterprises are in poor condition with low activity. Implementation in Ukraine innovative model of machine-building industry - is an objective need and alternative way to improve the international competitiveness of Ukraine's economy as a whole.

From 1940 to 1990 volume production machinery shook off up to 95 times. Since the late 70's machinery industry has become a leading industrial sector in the country. It accounted for more than 40% of the overall industrial production. The share of manufactured products in total machinery industry is a little more than 10%. For example, in developed countries the share of machinery account for 30 to 50% of the total volume of industrial production (in Germany - 53.6%, Japan - 51.5%, UK - 39.6%, Italy - 36.4% China - 35.2%).

To date, engineering Ukraine - is the largest complex. According to statistics in 2010 in Ukraine there were 11,267 machine-building industry, of which 146 - big 1834 - and 9287 average - small. Engineering the country holds more than 15% of the fixed assets and about 6% of current assets of national industry and more than 22% of employees.

The successful development of machinery industry in Ukraine is not the need, first of all, to maintain competitiveness at the macro level. This requires a high-tech production to meet international quality standards.

To stimulate the development of machine-building enterprises and improve the efficiency of their operation it is advisable to take the following measures:

− The restructuring of the industry with an increase in the share of high-tech industries.

− The introduction of new methods of management of scientific and technical progress.

–   The intensification of the processes of renewal of products and equipment.

–   Orientation products to the needs of the internal market and the possibility of entering the world market.

–   Creation of closed production cycles, created on the relationship between domestic enterprises.

–   Revival of industrial activity, leading to increased profits that can be aimed at developing and strengthening research and development.

–   The use of an adaptive approach to management of industrial enterprise.

–   The method of improving the competitiveness of the country can propose the introduction of a "cluster" campaign. This method of control is an alternative to command-and-branch. Cluster campaign involves an indirect effect on economic progress by creating an attractive environment for business.

1. Policy Brief. National Institute for Strategic Studies of CEO Ukraine. "Priorities of engineering industry within the anti-crisis policy of Ukraine." [Electronic resource] - Access mode: http://www.niss.gov.ua/articles/451/

2. Kisil T. The main activities of the engineering industry due to the unstable economic situation in Ukraine. Economic Analysis: Coll. Science. works / Ternopil National Economic University, Editorial Board.: SI Shkaraban (holov. ed.) and others. - Kiev: Publishing and printing center of Ternopil National Economic University "Economic thought," 2012.

3. Industry of Ukraine in 2007-2010. [Electronic resource] - Access mode: http://ukrstat.org/uk/druk/katalog/kat_u/publ5_u.htm

4. Strategy for Economic and Social Development of Ukraine "Towards European Integration" for 2004-2015. S. 172-174. [Electronic resource] - Access mode: http://zakon.rada.gov.ua/ signal / strateg.pdf

EL adviser G. I. Lytvynenko

ADMINISTRATIVE AND LEGAL STATUS OF JUVENILES IN UKRAINE

Muzykant Katherina – *Sumy State University*
Postgraduate
L. P. Yarmak – *A.L.Adviser*

At this stage of independent Ukraine raises the problem of protecting rights and interests of humans and citizens. The link between human rights and law can be described through the concept of legal status. The implementation of the rights and freedoms enshrined in the Constitution of Ukraine [1] and other regulations of our country. And according to the Law of Ukraine "About Citizenship" dated 18.01.2001, this citizenship is a permanent legal relationship of a man and the state, which is expressed in the mutual rights and obligations. [4]

Administrative status is an integral part of the legal status of a person and citizen. Content of administrative and legal status of an individual, including a citizen of Ukraine, is a complex of rights and duties laid down rules of administrative law and guarantees of these rights and responsibilities. This also applies to administrative and legal status of juveniles in Ukraine. This category of citizens requires special attention of society to protect and guarantee their rights and lawful interests.

Administrative and legal status of citizen of Ukraine established with scope and nature of: administrative legal capacity and administrative legal ability.

Administrative legal capacity is the ability to have rights and administrative legal obligations. It occurs at the moment of a person's birth and ends with his death. So we can conclude that juveniles have a full administrative legal capacity. Also it is important that such a capacity is inalienable - in Part 2 of Article 21 of the Constitution of Ukraine secured the inviolability of human rights. Voluntary renunciation of administrative capacity in whole or in part is impossible. But legally this capacity can hardly be limited because of criminal or administrative law (the freedom of movement). Thus, limiting of administrative capacity of juveniles may be:

from 16 years – because of bringing to administrative responsibility, with 14 - to criminal.

Administrative capacity is the basis of administrative legal ability of the person. The administrative legal ability of juveniles - is recognized by the law of their actions, the ability of juveniles to exercise the rights and perform the duties of administrative and legal nature.

Full administrative legal ability occurs only after the person attains 18 years of age so juveniles do not have full administrative legal ability. But according to the laws of Ukraine the 16 years person has to get a passport and therefore must comply with the rules of this passport. Also from this age a juvenile can be brought to administrative responsibility. That is, 16 years a person acquires a limited administrative ability. At the same time, the administrative legal ability can occur in some cases until the age of 16 (the right to work) - partial administrative legal ability. Also in accordance with Article 11 of the Law of Ukraine "About Public Associations" after reaching the age of 15 citizen can be the founder of youth and children's organizations. [5]

From the foregoing it can be concluded that some aspects of administrative and legal status of juveniles in Ukraine are only partially regulated, and need a clear regulation and research for eliminating gaps in the current legislation.

REFERENCES:
1.   The Constitution of Ukraine on June 28, 1996 / / BD. - 1996. - № 30.
2.   The Code of Ukraine about administrative offenses of 07.12.1984, [the electronic resource] – Access: http://zakon2.rada.gov.ua/laws/show/80731-10/page.
3.   The Code of Administrative Proceedings of Ukraine of 06.07.2005 [the electronic resource] – Access: http://zakon.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=2747-15
4.   The Law of Ukraine "About Citizenship of Ukraine" dated 18.01.2001 [the electronic resource] – Access: http://zakon1.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=1636-12.

THE SEWAGE SLUDGE DETOXIFICATION

E. Chernish, *postgraduate student*
D. O. Marchenko, *EL supervisor*

Recycling of organic sewage sludge today is an urgent problem in the whole territory of Ukraine, which requires a solution. At the most of the municipal wastewater treatment plants, unfortunately, current removal, treatment and recycling of sewage sludge are not properly resolved. At present, the general part of sewage sludge is not carried out. Because it contains toxic chemicals, mainly heavy metals (HM) within the industrial waste water coming into the city sewer system after insufficient treatment or without treatment. As a result, sewage sludge is sent to the sludge pit and storage sites, which are assigned to the large land area. Therefore the process of HM removing from sewage sludge is of paramount importance to allow using sewage sludge as an organic fertilizer in agriculture.

The system of anaerobic microbiological degradation with the deposition of heavy metals by biogenic hydrogen sulfide is a promising orientation of recoverable resources treatment. Biogenic hydrogen sulfide is the product of sulfate-reducing bacteria (SRB). In this direction, biosulfidogenic detoxification sewage sludge together with gypsum waste was developed. Phosphogypsum is the source of sulfates for SRB. They were constantly introduced to the medium of bioreactor during investigations. When sulfate is used to degrate an organic compound, sulfate is reduced to hydrogen sulfide. Phosphogypsum also provides some of the major nutrients. This led to the creation of conditions in which the SRB dominate and inhibit methane-forming bacteria growth. Consequently, phosphogypsum was added to stimulate growth of SRB into sewage sludge.

Organic helatocomplexes with HM were destroyed during the biosulfidogenic treatment. The insoluble metal sulfides such as sulphides of cuprum, iron (marcasites), zinc (sphalerite) and nickel were formed. Efficiency of biochemical HM removal was experimentally substantiated. The ecological pure product was got.

IRON IN INDUSTRY

Klymenko Daria – *student, group I-12.2*
Mikhno S. V. – *E L Advisor*

Steel is the world's most important material. Steel production requires iron, steel scrap and flux. Iron production requires: iron ore, coal and limestone, dolomite. The iron ore is smelted to produce an impure metal called "hot metal" when liquid, or "pig iron" when solid. The hot metal is refined to remove impurities and to develop the desired composition. The liquid steel is continuously cast into semi-finished products which are processed into the desired shapes by rolling or forging. Iron is one of the most used metals, accounting 95% of world steel production. After oxygen, silicon and aluminium, iron is the fourth most plentiful element in Earth's crust.

Iron as a tool material is known since ancient times. The most ancient ironwork dates back to the 4th century BC. The oldest of the known iron tools – steel blade was found in the masonry of the pyramid of Cheops in Egypt. In ancient times iron was valued more than gold, in African tribes they gave 10 pounds of gold for 1 pound of iron. That is why ironmaking was by far the biggest industry in America until the late nineteenth century. The first iron works in America, called Hammersmith, began operation in 1647.

Iron alloys have different characteristics, chemical and physical properties. Iron in our time has such a high demand because: 1) iron is the main component of steel and cast iron – the most important structural materials; 2) magnetic iron oxide (magnetite) is an important material in the production of long-term computer memory devices: hard drives, floppy disks, etc.; 3) depending on the impurities, the characteristics and properties of iron are changed, it can be used for different purposes, for example, unique ferromagnetic properties of some iron-based alloys contribute to their wide application in electrical, magnetic cores for transformers and motors; 4) iron is used as the anode in iron-nickel batteries and iron-air batteries. Almost all domestic appliances contain parts of alloys of iron. Iron is the foundation of modern civilization.

PROVIDING PROTECTION OF INSTITUTIONS OF BANKS UNDER CURRENT CONDITIONS

Antonina Komissar – *student, group UBm-11*
S. V. Mikhno– *E L Advisor*

The research is caused by the spread of malicious attacks on material objects and money banks, as well as the need to find forms and methods of protecting banks and forming them into a safe mode of their activity. Bank security is a state of stable life at which the implementation of basic interests and priorities of the bank, to protect it from internal and external destabilizing factors, regardless of operating conditions.

The elements of banking security are: economic, physical and information security. The term "economic security" has many meanings. The main task of the department of economic security is to protect the economic interests of the bank from unlawful acts and unfair competition by collecting, summarizing and providing information for its management decisions to minimize bank risk. Physical security is a set of actions aimed at the protection of bank personnel, property, bank area and bank premises. In physical security measures include fire protection, inspection personnel during the hiring and ongoing supervision by bank staff, protection of cash, which is located at the bank or carried. Information security is an organization of guaranteed protection of information resources of the bank, the appropriate training of bank employees in information technology that protects information resources and data streams from unauthorized access.

Protection of banks is understood as a complex organization and specific measures aimed at restricting access to the bank, protecting its territory, premises and facilities from unlawful acts. Implementation of measures to protect the bank achieves a certain degree of economic security. The purpose of protection is to prevent unauthorized entry to the territory of the bank and kidnapping (destruction, damage) funds, property or injury to personnel, to create conditions for the safe operation of the planned bank units.

STIGMA AND DISCRIMINATION AGAINST HIV-INFECTED PEOPLE, AS A PROBLEM OF THE MODERN SOCIETY

Piddubna A. I – *Sumy State University, postgraduate student*

Marchenko D. O. – *E.L. Adviser*

HIV infection/AIDS is a global problem of mankind. It's important to talk about the impact of AIDS not only in shaping the worldview individual and humanity as a whole.

There are a number of issues requiring philosophical basis, such as medical confidentiality, HIV testing in the context of the principle of respect for the autonomy of the individual patient's right to die with dignity. But among the variety of moral and ethical issues related to AIDS, the central place belongs to stigma and discrimination.

Stigma is treated as a characteristic of a person that significantly discredits it in the eyes of others, a strong social media stereotype of undesirable qualities. Stigma leads inevitably to discrimination, which is its practical implementation. The causes of these phenomena are varied: a lack of understanding of the disease, the natural man's fear of an incurable disease, myths about HIV transmission.

Stigma and discrimination affect the capacity of society to take affirmative action in the response to the epidemic. There is an unconscious desire of the people to "forget" about the threat. Despite of the catastrophe, silence prevails in the society, and practical measures are taken slowly due to denial. Indifference and negative attitude to the fate of HIV-infected people is a threat to the further spread of the disease.

Thus, the stigma and discrimination associated with HIV/AIDS is a global phenomenon, which occurs in all regions of the world. Efforts should be made public to overcome all forms and manifestations of stigma and discrimination, as this fight is one of the components of AIDS itself. An adequate response to a deeper understanding of these issues reinforces the tools to overcome them by the values in the society.

THE MAGNETIC WATER TREATMENT

I. A. Roy, *postgraduate student*
D. O. Marchenco, *EL supervisor*

There are many intensification destinations for water purification. The most common is the use of effective technological schemes, modernization and development of new methods. Their implementation in practice is not always possible due to technical, economic and other reasons.

Physical methods play an important role in solving this problem now. They are based on the effects of physical fields on water (magnetic, electric, ultrasonic, etc.). These methods differ from other methods by universality, efficiency and effectiveness.

Magnetic water treatment technology is effectively used for intensification methods of water purification. There are many compelling examples of successful application of magnetic treatment in various industries. But it has not been widely used, because the mechanism of magnetic treatment is not determined.

This treatment consists of imposing a magnetic field on a moving stream of fluid. Magnetic induction vector is directed perpendicular to the velocity vector of the flow of water. Changes in physico-chemical characteristics of water systems depend on tension, gradient and configuration of the magnetic field, velocity of water, its composition, etc...

Magnetic treatment of water is not applicable as a separate node clearance, and is used in combination with other methods to increase their effectiveness. Determination of the mechanism of magnetic treatment is one of the urgent tasks and promising area of research in the development of environmentally friendly technologies. Besides, the simplicity of this treatment and its effectiveness make it one of the most promising methods for water treatment.

ADRB2 POLYMORPHISMS
AND ASTHMA SUSCEPTIBILITY

A. M. Bondarkova, *NR-1/1*

A. M. Dyadechko, *ELA*

Beta-2-Adrenergic receptors (ADRB2) participate in the physiologic responses of the lung, including bronchodilation and bronchoprotection, through mechanisms such as mucociliary clearance, fluid accumulation and mediator release from mast cells and basophils. Thus, these receptors may also play an important role in the pathophysiology of asthma. The gene encoding ADRB2 is extremely polymorphic, and studies of this gene improves our understanding of asthma and possibly lead to new methods to prevent, diagnose and treat it.

ADRB2 associations between ADRB2polymorphisms and intermediate phenotypes of asthma have been reported. Four polymorphisms (Arg16Gly, Gln27Glu, Val34Met, and Thr164Ile) and one polymorphism in the 5' leader cistron of the ADRB2 messenger RNA has been identified. In vitro studies have shown that these polymorphisms can affect ADRB2 function.

METHODS: To examine possible associations of ADRB2 polymorphisms with asthma susceptibility, we performed transmission disequilibrium tests (TDT) of 137 Ukrainian families identified through children with atopic asthma.

RESULTS: We did not find associations between any alleles of the ADRB2 polymorphisms and asthma by TDT ($p > 0.1$). We also performed a meta-analysis of data from all available studies. The random-effects model showed no significant odds ratio for the Arg16Gln (odds ratio = 1.05, $p = 0.53$) or Gln27Glu (odds ratio = 1.12, $p = 0.22$) polymorphism.

CONCLUSION: Our data indicate that ADRB2 does not contribute substantially to susceptibility to asthma, but it is possible that these polymorphisms influence disease activity and drug responses in individuals with asthma.

ALGORITHMIZATION DIAGNOSIS OF PROLIFERATIVE PROCESSES OF THE BREAST

M. S. Lyndin, *NR-1/1*
A. M. Dyadechko, *ELA*

Decision support system (DSS) is used in various medical fields for over 20 years. The principle of the system is based on finding the participants in the program image in the presence of signs imposed on them. Expert systems (decision support) would facilitate the setting pathoanatomical diagnosis in doubtful cases.

The aim is to create a new method of diagnosing breast cancer as a result of histological analysis of biological objects and histograms obtained by histological study using light microscopy and development of information and software intellectual decision support system.

Results. Together with the Laboratory of Intelligent Systems Sumy State University developed a hierarchical structure for the brightness of Nonstationary alphabet images – histograms. An optimization of spatial and temporal parameters of the system of recognition through targeted transformation in learning a priori fuzzy partitioning feature space into classes is a clear recognition division, which provides construction training for matrix unmistakable decision rules. Program helps to differentiate such pathological processes as cancer, fibroadenoma and fibrocystic breast disease, and put the correct morphological diagnosis.

The results can be used in clinical medicine - pathological anatomy, oncology, surgery, developed a program to help young professionals in the differential diagnosis of breast diseases.

Prospects for further research: improving the existing program that will help not only to differentiate the group of proliferative processes, but also establish a more accurate diagnosis pathohistological.

POSSIBILITIES OF EVALUATION OF ENDOGENOUS INTOXICATION IN PATIENTS WITH ACUTE PANCREATITIS DUE TO LEVELS OF C-REACTIVE PROTEIN AND LEUKOCYTE INDEX OF INTOXICATION

N. A. Maiura, *NR-1/1*
A. M. Dyadechko, *ELA*

Acute pancreatitis - acute aseptic inflammation of the pancreas, demarcation type, which is based on morphologic alterations of pankreatotcytes and enzyme autoagression with subsequent necrosis and dystrophy of the gland and joining secondary purulent infection. The main criterion marker of severity of acute pancreatitis and the development of postnecrotic complications is the level of endogenous intoxication. There are a great deal of described means of specific criteria for evaluation of endogenous intoxication. But do not lose their relevance in determining such simple indicators such as C-reactive protein and leukocyte index of intoxication (LII).

The study involved 73 patients aged 37-65 years with acute pancreatitis who were treated at the surgical departments Sumy City Clinical Hospital № 5 and Sumy Regional Hospital in the period from October 1, 2010 to October 1, 2012. Selection of patients for the study was carried out by general clinical indicators are level of diastase in the urine. 22 patients were operated, 51 - held conservative therapy according to the standards of treatment of acute pancreatitis. The analysis of the dynamics of the above indicators shows that: 1) in the course of uncomplicated acute pancreatitis CRP level and tends to LII normalization already on the 3rd day; 2) in the course of complicated pancreatitis the level of parameters is kept still high at the 5th day of the disease.

Our results indicate that the dynamic study and CRP levels LII enables high probability in the first 5 days to assess the prospect of disease and predict risk of destruction and septic complications of the disease with subsequent correction of treatment.

THE TRACE ELEMENT BLOOD COMPOSITION VARIATION OF ACUTE DESTRUCTIVE PANCREATITIS

I. A. Pustovoy, *NR-1/1*
A. M. Dyadechko, *ELA*

Acute destructive pancreatitis (ADP) describes an acute inflammatory process of pancreas with autodigestion of pancreatic tissue with pancreatic necrosis and concominant multiorgan failure.

Objective: To improve the diagnostic results of AP which are based on the level of the trace elements in blood plasma.

Materials and methods: We have investigated 46 patients who received treatment for ADP in the surgical department in Sumy State Hospital for the period since 2010 to 2012 years. We analyzed the level of urinary diastase and the level of trace elements (Calcium, Potassium and Magnesium) in blood plasma from everyone patient from the first till the seventh day and on discharge day they had received treatment for ADP in surgical department.

Result: The average urinary diastase indexes (M±m) in the group with ADP during the first day of treatment were 981±125 units, during the third day were 1273±181 units, during the seventh day were 257±50 units, and on discharge day were 35±3 units. The average Calcium indexes (M±m) during the first day of treatment were 2.08±0.08, during the third day were 1.79±0.74, during the seventh day were 1.97±0.14, and on discharge day were 2.32±0.13. The average Potassium indexes (M±m) during the first day of treatment were 5.41±0.24, during the third day were 5.22±0.18, during the seventh day were 3.41±0.12, and on discharge day were 3.87±0.21. The average Magnesium indexes (M±m) during the first day of treatment were 1.15±0.06, during the third day were 1.39±0.03, during the seventh day were 1.20±0.08, and on discharge day were 0.81±0.12.

Conclusions: The results of our research indicate that the dynamic studying of trace elements level (Calcium, Potassium and Magnesium) in blood plasma give the possibility to estimate the therapeutic efficiency, and also predict the complication of ADP.

MORPHOGENETIC ASPECTS OF BIOMINERALIZATION IN THYROID GLAND TUMOR DISEASES

A. V. Reznik, *NR-1/1*
A. M. Dyadechko, *ELA*

The problem of differential diagnosis and prognosis of thyroid proliferative diseases is extremely important and difficult issue. One unexplored morphological phenomena is biomineralization of tissue. This process accompanies most proliferative processes in the thyroid gland.

The aim of the work was to investigate the process of biomineralization in tumor diseases of the thyroid gland and determine the prognostic value of calcification. We used anatomical method, generally routine histological methods, X-ray diffraction phase analysis to achieve the goal.

Results of work. At the macro- and microscopic examination of 32 thyroid tissue samples, which revealed calcifications, it was found that in 3 cases identified signs of thyroid nodular goiter, in 6 - mixed thyroid goiter and in 17 cases the pathological tissue malignant tumors (14 cases of papillary cancer in 3 of them - follicular carcinoma). During the X-ray diffraction research of biominerals thyroid it was found that the predominant mineral calcificates are hydroxyapatite. In some cases also proving significant proportion of β-tricalcium-magnesium-phosphate. Establishment of biominerals help in further studies to establish the mechanisms of biominerals in the thyroid gland.

Conclusions. Formation of psammom cells in the thyroid tissue can be considered as pathognomonic symptom of papillary cancer. Having unstructured calcificates (formation of biominerals in the matrix of connective tissue fibers capsules node colloidal substances follicles, vessel walls) are more typical for benign proliferative diseases of the thyroid.

ACUTE INTESTINAL INFECTIONS IN CHILDREN

K. O. Smiyan, *NR-1/1*

A. M. Dyadechko, *ELA*

Acute intestinal infections - a large group of human infectious diseases caused by pathogenic and opportunistic bacteria, viruses and protozoa. Intestinal infections until now occupy a leading position in infectious diseases, especially in childhood, second in incidence only to influenza and acute respiratory infections. Registered in the world each year to 1-1.2 billion diarrheal diseases, about 5 million children die each year from intestinal infections and their complications.

Intestinal infections can be spread in many ways. Some people become infected by eating contaminated shellfish, raw or undercooked meat, or unpasteurized dairy products, or from drinking or swimming in contaminated water. Others get sick after touching a surface (such as a kitchen counter) or bowel movement (when changing a diaper or doing laundry, for example) contaminated with an infectious organism. If they forget to wash their hands, they can carry the organism to their mouths on their hands or on food that they eat. Outbreaks of intestinal infections occur when many people eat or drink the same contaminated food or water.

For intestinal infections of bacterial etiology are common in summer-autumn rise in incidence for viral – in the autumn-winter period.

Clinically, intestinal infection characterized by symptoms of intoxication (lethargy, decreased appetite, fever, etc.), often the development of infectious toxicosis syndrome (hyperthermia, convulsions, fainting, dehydration, etc.) are one of the causes of deaths. In almost all cases, there are disorders of the gastrointestinal tract vomiting, abdominal pain and diarrhea, i.e., more frequent bowel movements and increased at the expense of the liquid.

So, acute intestinal infection remain topical problem of modern pediatrics. When the advent of weakness, fever, vomiting or diarrhea require immediate hospitalization to prevent death in children.

THE TRACE ELEMENT BLOOD COMPOSITION VARIATION OF ACUTE INTERSTITIAL PANCREATITIS

V. M. Chumakov, *NR-1/1*

A. M. Dyadechko, *ELA*

Acute interstitial pancreatitis (AIP) is an acute inflammatory disease of the pancreatic gland with autodigestion of pancreatic tissue often incurring variable damage to adjacent organs.

Objective: To improve the diagnostic results of acute pancreatitis which are based on the level of trace elements in blood plasma.

Materials and methods: We had investigated 67 patients who received treatment for AIP in surgical department in Sumy State Hospital for the period since 2010 to 2012 years. We analyzed the level of urinary diastase and the level of trace elements (Calcium, Potassium and Magnesium) in blood plasma from every patient from the first till the seventh day and on discharge day they had received treatment for AIP in surgical department.

Results: The average urinary diastase indexes (M±m) in the group with AIP during the first day of treatment were 371±40 units, during the third day were 243±32 units, during the seventh day were 43±5 units, and on discharge day were 33±3 units. The average Calcium indexes (M±m) during the first day of treatment were 2.32±0.09, during the third day were 2.57±0.08, during the seventh day were 2.52±0.14, and on discharge day were 2.31±0.11. The average Potassium indexes (M±m) during the first day of treatment were 4.45±0.21, during the third day were 3.87±0.24, during the seventh day were 2.72±0.17, and during on discharge day were 3.84±0.27. The average Magnesium indexes (M±m) during the first day of treatment were 1.02±0.04, during the third day were 0.57±0.02, during the seventh day were 0.65±0.06, and on discharge day were 0.83±0.11.

Conclusions: The results of our research indicate that the dynamic studying of trace elements level (Calcium, Potassium and Magnesium) in blood plasma give the possibility to estimate the therapeutic efficiency, and also predict the complication of AIP.

DETECTION OF CHRONIC ENDOMETRITIS AT FLUID HYSTEROSCOPY

A. V. Ezhova, *NR-1/1*
A. M. Dyadechko, *ELA*

Objective: Chronic endometritis is a subtle condition that is difficult to detect; however, it may cause abnormal uterine bleeding and infertility. Few data exist about the appearance of chronic endometritis at fluid hysteroscopy and about the value of diagnostic fluid hysteroscopy in the detection of this condition. In our experience, at fluid hysteroscopy chronic endometritis is characterized by consistent association of stromal edema and either focal or diffuse hyperemia; in some cases, this finding is associated with endometrial micropolyps (less than 1 mm in size).

Materials and methods: Nine hundred-ten women in whom hysteroscopy was indicated. Fluid hysteroscopy followed by endometrial biopsy.

Results: Sensitivity, specificity, positive and negative predictive values, and accuracy of fluid hysteroscopy in the detection of chronic endometritis, based on the association of edema; hyperemia; and, if present, micropolyps were calculated. Based on the presence of hyperemia and edema, chronic endometritis was diagnosed in 158 patients (17.4%); in 61 patients (6.7%), micropolyps also were present. Histology confirmed the diagnosis in 101 patients (63.9% of positive cases at hysteroscopy) and was positive in 9 additional cases not detected by hysteroscopy. The sensitivity, specificity, and positive and negative predictive values of hysteroscopy for chronic endometritis based on detection of only hyperemia and edema were 91.8%, 92.9%, 63.9%, and 98.8%, respectively; the diagnostic accuracy was 92.7 %. The combination of hyperemia, edema, and micropolyps had sensitivity, specificity, and positive and negative predictive values of 55.4%, 99.9%, 98.4%, 94.5%, respectively, with a diagnostic accuracy of 93.4%.

Conclusions: Fluid hysteroscopy is very reliable in diagnosing no inflammation, while detection of micropolyps is a very reliable sign of inflammation. When performing hysteroscopy for abnormal uterine bleeding or infertility, signs of chronic endometritis should always be sought.

BRONCHIAL ASTHMA AND OBESITY ASSOCIATION: PATHOGENETIC MECHANISM OF HARMFUL INFLUENCE REALIZATION AND QUALITY OF LIFE

V. V. Kmyta, *NR-1/1*
A. M. Dyadechko, *ELA*

The goal of the research was the comparative study of the level of inflammation markers during the isolated cases of bronchial asthma (BA) and when it was accompanied with visceral obesity (VO) and quality of life (LQ)

Materials and methods of investigation. The diagnostics of VO was conducted according to the recommendations of World Health Organization (WHO). The investigation of inflammation markers was conducted for 71 patients with BA, among which: Group 1 included 35 BA patients with normal body weight, and Group 2 had 36 VO patients. The Control Group consisted of 22 practically healthy people. The level of interleukins (IL) IL-6, IL-8 and the tumor necrosis factors-α (TNF-α) in blood serum was determined using immunefermenthardphesed (IFH) method, the antigenic composition of the membrane of mononuclears in peripheral blood was determined using indirect immunoflorescent method, the level of α_1-inhibitor proteinase (α_1-IP) and α_2-macroglobullin (α_2-MG) was determined using spectrofotometric method. Quality of life was measured with the help of Asthma Quality of Life Questionnaire (AQLQ). The achieved results were analyzed using the methods of variance statistics. The correctness of the difference in the average measurements was evaluated using Student's t - criterion.

Results of investigation. Group 1 patients had 3x and Group 2 patients 8x the level of FNP-α, and IL-6 level was elevated by 2,5 and 5,6, respectively. The level of IL-6 in blood serum was abnormal for both patient groups compared to the Controls, while its level for VO patients was evidently higher compared to Group 1 patients ($p < 0,05$).

Group 2 patients had levels of CD3, CD4, CD8 and CD16 evidently lower compared to Group 1 patients ($p < 0,05$). The levels of adhesive molecules (CD11b, CD54), expression of receptor to IgE (CD23), activation markers of lymphocytes (receptors to IL-2, HLA-DR) were evidently higher for patients of both groups compared to the Control, and higher for Group 2 patients compared to Group 1. It was observed that α_1-IP and α_2-MG were elevated by 2x and 2,6x respectively compared to healthy individuals.

Results of investigation convey that the presence of VO in BA patients leads to: hyperproduction of proinflammation cytokines (IL-6, IL-8, TNF-α); increase of T - lymphopenia, deficiency of cytotoxic cells, increased expression of activation markers, adhesive molecules, receptors to IgE, HLA-DR; increased level of α_1-IP and α_2-MG proteins.

Study of LQ showed that in patients with obesity the level of physical activity ($p < 0.05$) and emotional status ($p < 0.05$) were lower along with a more pronounced influence of the environment ($p < 0.05$). Overall rating of LQ were in patients of I group (4.5 ± 0.4) points against (3.4 ± 0.3) points in II group ($p < 0.05$).

Conclusions. These changes, along with known negative impacts of obesity on the process of BA (bronchial hyperactivity, increased frequency of hastroesophageal reflux, aggravation of pulmonary deficiency), represent one more pathogenetic mechanism – the exacerbation of inflammatory process. Presence of obesity complicated BA duration, entailing a more pronounced reduction LQ that dictates new conditions of including in their process. We can make conclusions that level of inflammation markers is higher in group of patients with bronchial asthma and obesity, as a obesity tissues is an active endocrine organ which produce different types of inflammatory factors including proinflammatory cytokines.

FINANCING OF SCIENTIFIC RESEARCH OF THE NATIONAL ACADEMY SCIENCE OF UKRAINE.

Y. I. Korobkina, *NR-1/1*
A. M. Dyadechko – *ELA*

According to the current legislation the national Academy of Sciences of Ukraine (NASU) is the highest state scientific organization of Ukraine, which organizes and carries out fundamental and applied researches on the most important issues of natural, technical and humanitarian sciences.

Today, NAS of Ukraine comprises 6 regional centers and 173 of scientific institutions and agencies. At the same time it is the only representative of Ukraine, which was included in the list of more than 3 thousand scientific institutions of the world.

Analysis of statistical data shows, that in our country the science works mainly at the expense of the state funds budget and funds of customers. The share of this source, as a means of clients (enterprises and organizations of Ukraine and other countries), continues to grow at a faster pace than the funds of the state budget.

Table − The Rate of funding for R & d (% of GDP till 2011)

Indicator	Years					
	2006	2007	2008	2009	2010	2011
Total	0,37	0,47	0,64	0,73	0,82	0,79
Funds of the state budget,%	0,20	0,28	0,32	0,35	0,38	0,39
Off-budget means,%	0,10	0,12	0,21	0,26	0,30	0,28
Performance-oriented and competitive financing,%	0,07	0,07	0,11	0,12	0,14	0,12

According to the official data, the share of the total volume of financing scientific and scientific-technical works in Ukraine in terms of GDP makes 0.79%. While in the article 34 of the Law of Ukraine «About scientific and scientific-technical activity», indicated that funding for science should be 1.7% of GDP. The level of science financing is noticeably low. Even in the history of the independence of our country, this indicator does not exceed the value of 1.5%. In such a situation, the science manifests itself mainly as a consuming sector of the economy of the country, that is, the economic profit from investment into science appears only when critical values of imports makes 0.9% of GDP.

At that time, expenditure on R & d in the developed countries provide for not less than 3.5% of GDP, and the optimal level of expenditure, which provides a self-contained development of science, amounts to 2% of GDP.

In the States of the European Union there is the requirement the 3% of GDP should be allocated to scientific research and

development. The state budget of Ukraine this year provided 3 times less than the share of GDP - 0, 79%. Achievements of Ukrainian scientists in many spheres testify that Ukraine has a considerable scientific potential.

An important indicator is the «index of innovation» - which characterizes the level of interaction between science and business, as well as the speed of introduction of scientific developments in the economy. According to this indicator, the world leaders are the United States, Taiwan, Finland, Sweden and Japan. Russia occupies 34-the place, Ukraine - 38 the place. From the post-Soviet States according to this criterion, the leader is Latvia (26-the place).

In Ukraine for the past 22 years, the enterprises mainly developed without investing into scientific-technical development. The majority of large Ukrainian enterprises are concentrated in the metallurgy sector, that is, in an industry where it was possible to make profit without investments into modern technology.

Economic growth in the world is possible only on the basis of the hi-tech, science-intensive production. Underfunding of the Ukrainian science will lead to the fact, that Ukraine will be forced to buy technology and research workers in other countries, and it is considerably more expensive, so we will be less competitive and thus the less wealth.

ИЗМЕНЕНИЕ РОЛИ ЖЕНСКОЙ ТРУДОВОЙ МИГРАЦИИ В НЕЗАВИСИМОЙ УКРАИНЕ

Павленко А.В. – аспирантка
(г. Харьков, ХНУ им. В.Н. Каразина)

Процессы трудовой миграции всегда были в центре внимания исследователей, однако с обретением Украиной независимости, с созданием открытой рыночной системы и переходом на новый етап в межгосударственных отношениях, эти процесы не только

активизировались, но и видоизменились. Одним из наиболее характерних изменений в миграционном движении стала его фиминизация. Не смотря на то, что традиционно, основную часть миграционной волны составляют мужчины (по данным социологических исследований – приблизительно две трети от общего количества трудовых мигрантов (62,3 %), число женщин-мигранток продолжает расти с каждым годом. Если до обретения Украиной статуса независимого государства, женщины выезжали за границу, просто сопровождая мужей-заробитчан, то сегодня они все чаще покидают страну самостоятельно, оставляя здесь свои семьи. Эта тенденция обусловлена как общей эмансипацией женщин, расширением их возможностей, повышением уровня образования и профессиональной квалификации, так и расширением сферы предложений на рынке труда [1].

Рассматривая профессиональную сегрегацию трудовых мигрантов более конкретно, можно увидеть несоответствие уровня образования работников к занимаемым ими должностям. Мужчины-мигранты не только имеют более широкий диапазон возможных профессий, от неквалифицированной работы, до престижной и требующей высоких профессиональных качеств, но и могут устроиться на более высокооплачиваемую работу. Женщины же, занимающиеся трудовой миграцией, как правило, могут претендовать на узкий круг «женских» профессий (персонал в гостиницах и ресторанах, няни, домработницы, танцовщицы, аниматоры, стриптизерши), хотя, среди мигрантов мужчин высшее образование имеют приблизительно 11 %, а среди женщин почти 20 %.

Массовый выезд на заработки женщин с целью трудоустройства домработницами, нянями, горничными, ученые связывают не только с изменением возможностей трудоустройства (спроса), но и с обострением визового режима. С вступлением стран Вишеградской группы в Евросоюз, произошло исключение из западноевропейского рынка труда

нелегальных работников из стран СНГ [2]. В связи с этим, возможность трудоустроиться нелегально осталась лишь в тех отраслях, где вероятность различного государственного контроля наименьшая. Наибольшая доля украинских мигрантов без официального статуса наблюдается в Польше и Италии, именно в этих странах преобладает женская миграция. По данным общенационального социологического исследования, проведенного в 2010 году, удельный вес женщин, которые не смогли или не захотели получить официальный статус за время работы за границей, выше, чем аналогичный показатель у мужчин (25 % и 22,3 % соответственно) [3]. По данным обследования Госкомстата 2008 года, деньги на родину переводили 62,3% мужчин-мигрантов и 58,8% женщин. Лица, имевшие разрешение на проживание и работу (среди которых существенно преобладают мужчины), смогли отправить на родину в среднем больше, чем те, кто не имел правового статуса [4].

Участие женской части населения в процессах трудовой миграции часто приводит к отрицательным последствиям, к ним обычно относят ухудшение демографической ситуации в стране (распад браков, низкая рождаемость) и повышенную опасность дискриминации, эксплуатации и нарушения прав. В связи с тем что женщины чаше находят работу в «неформальном» секторе рынка труда, существует также большой риск стать жертвами торговли людьми. Но все же женская миграция имеет и положительные черты, для многих она является возможностью доказать свою материальную и социальную независимость, улучшить условия жизни, наладить личную жизнь.

Учитывая то, что выезд женщин за границу на сегодняшний день является закономерным процессом, основным заданием миграционной политики в этом вопросе является налаживание двухсторонних соглашений со странами-реципиентами для легализации такого вида заработка и уменьшения рисков, связанных с криминализованными сегметами рынка труда.

Список источников:

1. Герасименко Г.В. Гендерні аспекти трудових міграцій населення України / Г.В. Герасименко, О.В. Позняк // Демографічні процеси. – 2009. №11 – С. 46-54.

2. Левцун О. Зовнішня трудова міграція в Україні як демографічна проблема [Електронний ресурс] / О.Левцун // Діалог. - 2005. - 20 вересня. Режим доступу: http://dialogs. org.ua/project_ua_full.php?m_id=4040.

3. Населення України. Трудова еміграція в Україні [Електронний ресурс]. – К.: Інститут демографії та соціальних досліджень ім. М.В. Птухи НАН України, 2010. – 233 с. Режим доступу: http://www.idss.org.ua/monografii/poznyak_2010.pdf.

4. Малиновская Е. Трудовые мигранты из Украины в странах ЕС и их переводы на родину в посткризисный период. [Електронний ресурс] / Е. Малиновская // Отчет об исследовании. – 2013. – 40 с. Режим доступа:http://mirpal.org/files/files/Malynovska%27s_report_rus_fi nal_w%20cover.pdf

МОДЕРНЕ ПОТРАКТУВАННЯ МІСЦЯ ЖІНКИ У МАСКУЛІННО-СПРЯМОВАНОМУ СУСПІЛЬСТВІ

Ревтьє А.В.

На сучасному етапі розвитку суспільних відносин актуальним є питання стосовно реальної соціально-правової рівності між чоловіком та жінкою. Воно бере початок з XX ст., коли жінки з усього світу започаткували активний міжнародний рух за права жінок. Це знайшло вираження у понятті про ґендерну рівність – рівний правовий статус жінок і чоловіків та рівні можливості для його реалізації, що дозволяє особам обох статей брати рівну участь у всіх сферах життєдіяльності суспільства[i].

Незважаючи на певні зрушення в сфері просування ґендерної рівності в Україні, а саме – формування законодавчої бази (Конституція України: Ст. 3, 21, 23, 24, Закони України «Про забезпечення рівних прав та можливостей жінок і чоловіків», «Про об'єднання громадян», «Про колективні договори і угоди», «Про

Уповноваженого Верховної Ради України з прав людини», постанова Кабінету Міністрів України «Про проведення гендерно-правової експертизи» [ii]), яка не поступається кращим міжнародним прикладам, визнання актуальності даних проблем на державному рівні, розробку державних програм та планів дій з утвердження гендерної рівності, включення гендерних питань до освітніх програм та значний науковий інтерес до цієї проблематики, – фактичні дані не відображають будь-якого покращення ситуації [iii].

Хоча, Україна, як європейська країна, й визнала необхідність підтримки та захисту прав жінок з метою досягнення справжньої рівності в правах і можливостях чоловіків і жінок. Однак, незважаючи на законодавчо-регулятивну базу, жінки ще стикаються із повсякденною реальністю нехтування їхніми правами, пригніченням та дискримінацією, що обумовлено декларативним характером гендерної рівності та формальністю прав жінок.

Основними жіночими проблемами є домашнє насильство, проституція та торгівля жінками, наркоманія, безробіття, відсутність послідовної державної політики в цій сфері, виштовхування значної частини жінок в сферу домашнього господарства, більшій ймовірності жіночого безробіття, більшій можливості перетворення жінок в групу соціального ризику.

Думки різних людей стосовно того, чи повинна бути абсолютна ґендерна рівність між статями, до того що такої рівності принципово бути не може є діаметрально протилежні (ґендер – стать людини в соціальному, а не сексуальному вияві).

В останні роки на ринку праці простежується, пригноблююча права жінок, закономірність: чоловіки витісняють їх з перспективних і добре оплачуваних посад. Традиційні стереотипи масової свідомості суттєво обмежують можливості кар'єрного зросту для жінок та негативно впливають на їх сімейні відносини як тільки вони досягають перших успіхів. При працевлаштуванні у жінок менше шансів, ніж у чоловіків, отримати вакантне місце. До того ж нерідко роботодавець зазначає, що конкурс оголошується виключно для чоловіків. Чи є така позиція роботодавців виправданою? Так, дійсно, жінка може раптом піти у декретну відпустку, у відпустку по догляду за дитиною, але чоловіки частіше вживають спиртне, що відбивається на виконанні їх службових обов'язків[iv]. Майже в усіх галузях народного господарства жінки займають низькооплачувані посади.

Серед професорів відсоток жінок займає досить незначну частину. Де ж знайти істину, як сприйняти жінку-лідера?

Ця проблема на сьогодні є доволі актуальною і потребує удосконалення суспільного устрою у формуванні жінки як лідера, розкриття сутності жіночого потенціалу. Для зміни ситуації в країні на користь гендерної рівності необхідно готувати жінок до активної участі у суспільно-політичній діяльності, проводити роботу із формування культури суспільства. Для створення і зміцнення позитивного іміджу жінки-керівника та жінки-політика необхідно кардинально змінювати укорінені стереотипи у свідомості чоловіків і жінок на щодо їх функцій у суспільному житті країни, зруйнувати раніше прийняті цінності та засвоювати нові моделі поведінки.

Література:

. Асламова Т.А., Воскова І.В. Ґендерні аспекти соціалізації особистості [Електронний ресурс] – Режим доступу: http://archive.nbuv.gov.ua/portal/Soc_Gum/Tvo/2011_4/034.pdf

. Міністерство Юстиції України: Врахування гендерних аспектів у формуванні законодавства України [Електронний ресурс] – Режим доступу: http://www.minjust.gov.ua/7596

. СаєнкоЮ.І. Гендерні аспекти соціальної політики в Україні [Електронний ресурс] – Режим доступу: http://dspace.nbuv.gov.ua/dspace/bitstream/handle

. Фозикош М.М. Проблема гендерної рівності в сучасному українському суспільстві [Електронний ресурс] – Режим доступу: http://www.kds.org.ua/blog/fozikosh-mm-problema-gendernoi-rivnosti-v-suchasnomu-ukrainskomu-suspilstvi

ЗМІСТ

СОЦІАЛЬНО-ГУМАНІТАРНІ АСПЕКТИ РОЗВИТКУ СУЧАСНОГО СУСПІЛЬСТВА

Матеріали
Всеукраїнської наукової конференції
викладачів, аспірантів, співробітників та студентів
факультету іноземної філології та соціальних комунікацій

(Суми, 19–20 квітня 2013 року)

Частина четверта

Стиль та орфографія авторів збережені.

Література:

[i]. Асламова Т.А., Воскова І.В. Ґендерні аспекти соціалізації особистості [Електронний ресурс] – Режим доступу: http://archive.nbuv.gov.ua/portal/Soc_Gum/Tvo/2011_4/034.pdf

[ii]. Міністерство Юстиції України: Врахування гендерних аспектів у формуванні законодавства України [Електронний ресурс] – Режим доступу: http://www.minjust.gov.ua/7596

[iii]. СаєнкоЮ.І. Гендерні аспекти соціальної політики в Україні [Електронний ресурс] – Режим доступу: http://dspace.nbuv.gov.ua/dspace/bitstream/handle

[iv]. Фозикош М.М. Проблема гендерної рівності в сучасному українському суспільстві [Електронний ресурс] – Режим доступу: http://www.kds.org.ua/blog/fozikosh-mm-problema-gendernoi-rivnosti-v-suchasnomu-ukrainskomu-suspilstvi