



Oleksandr Dumanskyi

Passport: 011594390 | **Work permit:** Poland | **Date of birth:** 31/01/1980 | **Place of birth:** Kamianets-Podilskyi, Ukraine | **Nationality:** Ukrainian | **Gender:** Male | **Phone:** (+380) 987240187 (Work) | **Email address:** dumanskyiov@pdatu.edu.ua | **Facebook:** Oleksandr | **Viber:** duman.alexandr@gmail.com | **Address:** Shevchenko Street, 12, 32300, Kamianets-Podilskyi, Ukraine (Work)

● WORK EXPERIENCE

01/09/2020 - CURRENT - KAMIANETS-PODILSKYI, UKRAINE

ASSOCIATE PROFESSOR AT THE DEPARTMENT OF ELECTRICAL ENGINEERING, ELECTROMECHANICS AND ELECTROTECHNOLOGIES, PHD IN TECHNICAL SCIENCES HIGHER EDUCATIONAL INSTITUTION «PODILLIA STATE UNIVERSITY»

- Organization of training of teachers
- Scientific research
- Lectures on electrical machines
- Deliver undergraduate and graduate courses in electrical engineering, electromechanics, and electrotechnologies in accordance with accredited curricula.
- Develop, update, and modernize course syllabi, lecture materials, laboratory manuals, and assessment tools.
- Conduct laboratory and practical classes, ensuring compliance with electrical safety standards and proper use of equipment.
- Supervise bachelor's and master's theses, course projects, and internships; provide academic and technical guidance to students.
- Participate in curriculum design and quality assurance processes within the department and faculty.
- Conduct scientific research in relevant areas of electrical engineering and electromechanics; publish results in peer-reviewed journals and conference proceedings.
- Apply for and participate in research grants, funded projects, and contractual research with industry partners.
- Integrate research outcomes into the educational process and promote research-based learning.
- Participate in departmental, faculty, and university governance, including academic councils and committees.
- Contribute to accreditation, licensing, and ranking procedures; prepare required academic and methodological documentation.
- Mentor junior academic staff, PhD candidates, and early-career researchers.
- Participate in organization of conferences, workshops, seminars, and scientific events.
- Establish and maintain collaboration with industry, research institutions, and international partners.
- Engage in academic mobility programs, international projects, and joint research initiatives.
- Ensure compliance with academic integrity, ethical standards, and occupational health and safety regulations.
- Perform other academic, research, and organizational duties in accordance with university regulations and job description.

Business or sector Education | **Department:** Faculty of Energy and Information Technologies | **Email:** feit@pdatu.edu.ua | **Website:** <https://pdatu.edu.ua/>

● EDUCATION & TRAINING

01/09/2001 - 30/06/2005 - KAMIANETS-PODILSKYI, UKRAINE

● **LANGUAGE SKILLS**

Mother tongue(s): **UKRAINIAN**

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	A2	A2	A2	A2	A2

● **SKILLS**

electrical machines | combined heat and power generation | electric current | alternative energy | mini wind power generation | fossil fuels | manufacturing of heating equipment | thermal treatment | anodising specifications | transmission towers | solar absorption cooling system | Electrician House wearing | electricity | power engineering | perform lectures | electricity consumption

● **PUBLICATIONS**

Application of robotics in automation of livestock feeding and farm management 2025

The study aimed to assess the impact of automated feeding on the physiological state, productivity and conditions of livestock. The study analysed the effect of automated feeding systems on physiological parameters, stress levels, cattle productivity and sanitary conditions in the feeding area. The experiment was conducted on 200 dairy cows and 150 beef bulls, divided into control (traditional feeding) and experimental (automated feeding) groups. Body temperature, heart and respiratory rates, stress levels, disease incidence, milk yield, average daily weight gain and microclimate parameters were measured. The study results demonstrated that the body temperature in the experimental group was 0.3°C lower (38.6°C vs. 38.9°C in the control group), the heart rate decreased by 9% (60 ± 3 beats/min vs. 66 ± 4 beats/min), and the respiratory rate by 14.3% (24 ± 2 breaths/min vs. 28 ± 3 breaths/min). Stress levels, as measured by cortisol, decreased by 29.4% compared to traditional feeding. The incidence of gastrointestinal disorders decreased from 22.5% to 9.5%, and cases of metabolic disorders from 13.2% to 6.7%. Milk yields in the automated system increased by 19.1% (26.8 ± 1.1 litres/day vs. 22.5 ± 1.2 litres/ day), and average daily weight gain in beef cattle increased by 23.2% (1.38±0.05 kg/day vs. 1.12±0.07 kg/day). The analysis of the microclimate in the feeding area determined a 22% reduction in ammonia levels, an improvement in humidity to the optimum 65-70% and a 17% increase in the cleanliness of the feeders. Comparisons with European farms demonstrated that automated feeding can reduce the gap between Ukrainian farms regarding animal productivity and sanitary conditions. The findings confirm the feasibility of introducing automated feeding systems to reduce morbidity, increase feeding efficiency and create more comfortable conditions for cattle

Garasymchuk, I., Dumanskyi, O., Pantsyr, Yu., Potapskyi, P., & Vusatyi, M. Scientific Horizons Garasymchuk, I., Dumanskyi, O., Pantsyr, Yu., Potapskyi, P., & Vusatyi, M. (2025). Application of robotics in automation of livestock feeding and farm management. Scientific Horizons, 28(4), 20-31. Scientific Horizons 28(4), 20-31.

Possibilities of landfills and solid waste sites for energy production in Ukraine 2024

Dynamic changes in the energy sector towards the priority of renewable energy are stimulated by the political decisions in the European integrated environment aimed at achieving climate neutrality within the framework of the European Green Deal. The study aims to provide an in-depth investigation of the potential of landfills and solid waste sites for energy production in Ukraine. The study was conducted using general scientific methods, in particular, analysis and synthesis, abstraction, and comparison. The study examined the issues of developing the bioenergy potential of solid waste sites in Ukraine, including organisational, regulatory, technological, financial and investment aspects. The position of various operations for bioenergy waste processing in the solid waste management system, in particular, anaerobic digestion and solid fuel production, was identified, and an analysis of several thermal waste processing technologies was carried out. Among the

features and characteristic requirements for the biogas production process using anaerobic methodology, the aspects of technological availability and economic feasibility are highlighted. The study examines the experience of production and use of organic Refuse Derived Fuel and Solid Recovered Fuel produced from solid waste sites, proving the need to optimise the regulatory support for biogas production at solid waste sites storage sites in the national legislative field. The article emphasises the possibility of practical use of Refuse Derived Fuel and Solid Recovered Fuel, in a partial format, to offset the shortage of fossil fuels in Ukraine and actively implement the concept of a sustainable green course for rational waste management. The results obtained can be used to improve the optimisation of strategic programmes for solid waste management in terms of their bioenergy potential

Mikhailova, L., Dubik, V., Dumanskyi, O., & Kozak, O. Machinery & Energetics Mikhailova, L., Dubik, V., Dumanskyi, O., & Kozak, O. (2024). Possibilities of landfills and solid waste sites for energy production in Ukraine. Machinery & Energetics, 15(1), 86-94. . Machinery & Energetics 15(1), 86-94.

BIOENERGETIC EVALUATION OF MISCANTHUS GIANT PRODUCTIVITY IN CONDITIONS OF WESTERN FOREST-STEPPE OF UKRAINE FOR USE AS SOLID FUEL

The regularities of dependence of conditions of growth, development and formation of productivity of a miscanthus giant and increase of productivity at the expense of influence of agrotechnical factors are established in the work: terms of planting and depth of wrapping in the conditions of the western forest-steppe in Podillya. The results of the research are obtained on the peculiarities of the formation of biometric indicators of giant miscanthus depending on the application of a set of technology elements - planting dates, depth of rhizome wrapping. It was found that the increase in land mass of plants in the formation of yield 55.7 t·ha⁻¹ was obtained by planting in the first period (I-II decade of April) to a depth of rhizome wrapping 9 cm. Intensity of land mass increase affected the yield of solid biofuels. During the first planting period with a rhizome wrapping depth of 9 cm, the maximum calculated energy yield of 206.09 GJ·ha⁻¹ was obtained. It is established that the highest yield of bioenergy productivity of perennial miscanthus of the giant variety Autumn Starflower was obtained taking into account soil and climatic factors in the first planting period at rhizome depths of 9 cm, which allows efficient use of soil moisture and temperature during planting.

Ulyana Nedilska, Serhii Yermakov, Anatolii Rud, Oleg Kucher, Oleksandr Dumanskyi Jelgava U. Nedilska, S. Yermakov, A. Rud, O.Kucher, O. Dumanskyi, (2023), BIOENERGETIC EVALUATION OF MISCANTHUS GIANT PRODUCTIVITY IN CONDITIONS OF WESTERN FOREST-STEPPE OF UKRAINE FOR USE AS SOLID FUEL, Jelgava, (2023), pp. 1017-1025. Jelgava (2023), pp.1017-1025.

Академічна доброчесність в науковому та освітньому середовищі закладів освіти України: погляд крізь призму наявності штучного інтелекту

Академічна доброчесність є однією з найперших умов здобуття хорошої репутації будьяким закладом освіти. У статті охарактеризовано поняття академічної доброчесності, наведено основні аспекти її дотримання педагогічними та науковими працівниками у закладах освіти. Проаналізовано основні положення законодавства України, які регулюють процес забезпечення академічної доброчесності в Україні. Було досліджено, у яких випадках та яку саме академічну відповідальність несуть науковці та здобувачі освіти у випадку порушення принципів академічної доброчесності. Визначено, що однією зі складових академічної недоброчесності останнім часом стало використання штучного інтелекту (ШІ). Охарактеризовано поняття «штучний інтелект», а також один із найновіших інструментів з його використанням, а саме ChatGPT від OpenAI. Було наведено та проаналізовано основні програми для перевірки текстів на плагіат для визначення тексту, написаного штучним інтелектом.

Філіпенко, Л. В., Думанський, О. В., & Козак, О. В. Академічні візії Філіпенко, Л. В., Думанський, О. В., & Козак, О. В. (2023). Академічна доброчесність в науковому та освітньому середовищі закладів освіти України: погляд крізь призму наявності штучного інтелекту. Академічні візії, (19). . Академічні візії Випуск 19/2023.

STUDY SOURCES OF THE ELECTROMAGNETIC FIELD OF THE HIGH-HIGH FREQUENCY RANGE FOR THE TREATMENT OF SOWS WITH MASTIT-METRIT-AGALACTIA SYNDROME

The article proposes to investigate highly stable sources of the electromagnetic field of the ultrahigh frequency range for the treatment of animals, in particular sows with mastitis-metritis-agalactia syndrome. To create electrical technologies related to the influence of EMF on biological objects, research is needed to create highly stable microwave EMF sources that meet high requirements for the spectrum of output signals, the range of

frequency adjustment and power of the output signal. In the treatment of sows with metritis-mastitis-agalactia, radiation sources in the range of 141 ... 143 GHz with an output power level of at least 250 mW, frequency instability of the order of 10^{-6} ... 10^{-7} , phase noise level -90 are required. ... 100 dB / Hz at the rebuild frequency from a carrier of 10 kHz. One of the effective ways to solve the problem of matching the impedances of the diodes and the load in the microwave range is to use waveguide-coaxial lines with the parameters: $D_2 = 1$ mm, $D_1 = 0.5$ mm, $n = 2$, $a = 1.6$ mm, $b = 0,8$ mm, $L_p = 0.25\lambda$, $W_{0k} = 42$ Ohm, $R_p = 0.06$ Ohm, $W_{01} = 250$ Ohm. Analysis of the results shows that the criticality of the adder setting to obtain the maximum efficiency decreases with decreasing R_{ap} and increasing N . The increase in the summation efficiency with increasing N is due to the need to reduce the load resistance. This feature of the considered scheme significantly distinguishes it from other known schemes in which the summation efficiency decreases with increasing N . To determine the number of diodes providing total power within 250 mW at frequencies 141 ... 143 GHz, numerical calculations were performed for the diode parameters 2A762A: operating frequency range $f = 140$... 145 GHz, rated power $= 0.09$ W, operating current $I_0 = 150$ mA, operating voltage $U_0 = 12$ V, $R_s = 0.5$ Ohm, $R_p = 0.06$ Ohm, $C = 0.2$ pF, $p_2 = 1$, $I_0 / I_{ns} = 4$. Discussion: The results of numerical analysis showed that to meet the requirements for the radiation source in the frequency range 141 ... 143 GHz with an output power of at least 250 mW, it is possible on the basis of the power adder of a four-diode generator on LPD with OBR

Mikhailova L.M., Dumanskyi O.V. Podilian Bulletin:agriculture,engineering, economics Mikhailova L.M., Dumanskyi O.V., (2021) STUDY SOURCES OF THE ELECTROMAGNETIC FIELD OF THE HIGH-HIGH FREQUENCY RANGE FOR THE TREATMENT OF SOWS WITH MASTIT-METRIT-AGALACTIA SYNDROME, Podilian Bulletin:agriculture,engineering, economics, p. 78-85(2021). Podilian Bulletin:agriculture,engineering, economics p. 78-85(2021).

Study of the Effect of Grain Pipe Variations on the Supply of Grain in Coulter Space 2020

The study of vibrations of the grain pipe drill along which the seeds of cereal crops move and the influence of the main physical-mechanical and geometric characteristics, method of consolidation and the relative velocity of the grain along the tube on the amplitude-frequency characteristic of oscillation is made. The problem of analytical study of dynamic processes of systems characterized by longitudinal movements with regard to their flexural rigidity remains open. To solve the problem we propose the approach takes into account that the number of the relative motion of grain in the grain pipe is a small amount compared to the movement of the pipe during its bending vibration, and the speed of continuous grain flow in the grain pipe is changing slowly. To solve this problem authors used the principle of the single-frequency of the oscillations in nonlinear systems with lumped masses and distributed parameters and asymptotic methods of nonlinear mechanics.

Rud, A., Pavelchuk, Y., Mykhailova, L., Dumanskyi, O., Semenyshyna, R., Hutsol, T. Renewable Energy Sources: Engineering, Technology, Innovation Rud, A., Pavelchuk, Y., Mykhailova, L., Dumanskyi, O., Semenyshyna, R., Hutsol, T. (2020). Study of the Effect of Grain Pipe Variations on the Supply of Grain in Coulter Space. Renewable Energy Sources: Engineering, Technology, Innovation. Springer.. Renewable Energy Sources: Engineering, Technology, Innovation pp 989–998.

PHYSICAL-MATHEMATICAL MODELING OF VIBRATING CONVEYOR DRYING PROCESS OF SOYBEANS. ENGINEERING FOR RURAL DEVELOPMENT

The parameters of the operating modes of vibration wave transportation of products for infrared drying were determined under the conditions that allow with the minimum energy consumption to provide the maximum productivity of the apparatus, which takes place in the case of providing the desired reduction of the moisture of the bulk mass for one pass of the product flow with a satisfactory uniformity of production. The implementation of these conditions requires synchronization of the operating parameters of the two vibrators of the vibrating conveyor infrared dryer, which are aggregated in the supporting rolls of the deformed transport element. The article deals with determination of regularities of basic parameter change of the infrared drying process, which allows to determine development tendencies of technical and technological efficiency of mechanization means of the high-temperature storage system of seed material of oil-bearing products, which is solved due to use of innovative vibrating conveyor technologies and equipment in the process of vibration, wave, impulse, and combined physical and mechanical factors that make available minimizing energy and material consumption at maximum output maintaining the properties of agricultural raw materials. These measures are implemented through the development of vibration wave inter-operative transportation under the conditions of soybean infrared drying. According to experimental studies, using the "dimension analysis" method and the Federman-Buckingham theorem the criterion equation of the process of mass transfer during drying in the fluidized bed of products has been obtained, which is determined by the

criteria of Péclet, Stanton, Bourdieu, a function that characterizes the energy, heat and mass transfer parameters, the performance of the studied process, which allows to form the recommended series when designing conveyor infrared dryers for storage systems of bulk agricultural products.

Serhii Kiurchev , Valentyna Verkholtantseva , Lyidmila Kiurcheva , Oleksandr Dumanskyi. Jelgava S. Kiurchev , V. Verkholtantseva , L. Kiurcheva , O. Dumanskyi. PHYSICAL-MATHEMATICAL MODELING OF VIBRATING CONVEYOR DRYING PROCESS OF SOYBEANS. ENGINEERING FOR RURAL DEVELOPMENT. Jelgava, 2020. p.p. 991-996 . Jelgava p.p. 991-996.

A GROUND IS AS EMITTER FOR TREATMENT OF ENDOMETRITU OF ZOONS 2020

The article proposes to experimentally investigate the corrugated conical emitter in order to confirm the theoretical calculation of the reflection coefficient of the electromagnetic field from the opening of the investigated corrugated conical emitter. Research is based on the influence of electromagnetic fields on the physicochemical processes in biological objects. Theoretical studies have shown that for industrial use requires a radiator with a frequency range of 30-31 GHz and a diameter of not more than 30 mm, which should provide a width of the radiation pattern within 24-30 mm. For practical purposes, it is necessary to estimate the reflection coefficient of the calculated corrugated emitter. For the study we use a conical corrugated irradiator, the length of which from the opening to the phase center is 21 mm. The diameter of the radiating aperture is 25 mm. The basic geometrical parameters of the corrugation: $h = 2.5$ mm, $c = 1.25$ mm, $b = 1.25$ mm. To feed the transmitter under consideration, a transition from a rectangular waveguide with a cross section of 7.2×3.4 mm to a circular diameter of 7 mm is used. Measurements were made at 30 GHz. Since the modulus of the reflection coefficient of the emitter must be close to zero, the method of reflectometer must be used for accurate measurements

Dumansky O.V., Mikhailova L.M., Podilian Bulletin: agriculture, engineering, economics Dumansky O.V., Mikhailova L.M, (2020), A GROUND IS AS EMITTER FOR TREATMENT OF ENDOMETRITU OF ZOONS, Podilian Bulletin: agriculture, engineering, economics, Issue 32, p. 108-112. Podilian Bulletin: agriculture, engineering, economics Issue 32, p. 108-112.

THE INFLUENCE OF THE COMPRESSION FORCE (TENSION) OF THE SEED PIPE OF THE STRIP PLANT AND SPEEDS OF SEED MOVEMENT ON TRANSVERSE OSCILLATIONS

a nonlinear mathematical model is equivalent to a one-dimensional system with distributed parameters, besides, it takes into account the longitudinal component of the speed of movement of the distributed mass (grain) along the elastic body (pipe). The main difficulties of studying the dynamics of the mechanical system of nozzles – the flow of moving grain – are connected with the above factors. After all, within the limits of the linear theory of oscillations, it is not possible to explain a whole series of phenomena that occur in a similar type of mechanical systems. At the same time, the mathematical apparatus for studying nonlinear models of systems with distributed parameters is relatively fully developed only for their so-called quasi-linear counterparts of limited length, partially for systems with power-law nonlinearity and those close to them. For such systems, based on the general ideas of perturbation methods or their modifications, it is possible to construct asymptotic approximations that are sufficiently adequate to the dynamic process. As for continuous media characterized by longitudinal movement (in addition to a pipe with a flow of moving grain, such systems include rope hoists, flexible working elements of drive and transportation systems, etc.), they remain poorly researched primarily due to the lack of a perfect apparatus for analyzing them even linear mathematical models. However, their wide application in various branches of the national economy and technology has led to the fact that in recent decades, different approaches (numerical and analytical to the study of linear and nonlinear models of these systems have become widespread. In most cases, models of longitudinally moving systems (one-dimensional or two-dimensional) were considered under the condition that their bending stiffness can be neglected. Such a reasonable, for a certain class of dynamic systems, simplification made it possible to extend the basic ideas of the wave theory of motion to the case of their longitudinal or transverse oscillations. However, for longitudinally moving systems with significant bending stiffness, the simplification of the physical, and hence the corresponding mathematical models, leads to certain inaccuracies in the determination of the main parameters that characterize the process as a whole. Taking into account the bending stiffness in longitudinally moving media leads to the construction of qualitatively new mathematical models of their dynamics. Finding analytical solutions corresponding to them, which would provide an opportunity to comprehensively analyze the process, is a complex mathematical problem. This means that the problem of analytical research of dynamic processes of systems characterized by longitudinal movement, taking into account their bending stiffness, remains open. The mathematical model of the nozzle-grain system

corresponds to the physical process of bending vibrations of the nozzle along which the grain moves. It takes into account the nonlinear elastic properties of the pipe during its bending vibrations and the movement of grain along it. The flow of grain into the nozzle is modeled by an incompressible solid medium that moves relative to the nozzle. Such

Pavelchuk Yu. F., Lyashuk O. L., Prokopova O. P., Dumanskyi O. V. Podilian Bulletin: agriculture, engineering, economics Pavelchuk Yu. F., Lyashuk O. L., Prokopova O. P., Dumanskyi O. V. (2023), THE INFLUENCE OF THE COMPRESSION FORCE (TENSION) OF THE SEED PIPE OF THE STRIP PLANT AND SPEEDS OF SEED MOVEMENT ON TRANSVERSE OSCILLATIONS, Podilian Bulletin: agriculture... Podilian Bulletin: agriculture, engineering, economics Issue 1 (38) 2023, pp. 110-117.