National Scientific Conference for PhD Students

02-03-2019 Cracow

PROBLEMS OF MODERN SOCIETY

- social sciences
- humanities sciences
- economics sciences
- law sciences

NATURAL

- BIOLOGICAL SCIENCES
- NATURAL SCIENCES
- EARTH SCIENCES

- military sciences
- technical sciences
- internal security

TOP SECRET

The Book of Abstracts

National Scientific Conference for PhD Students

II edition

The Book of Abstracts

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CONFERENCE PLACE

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CONFERENCE SCHEDULE

Best Western Plus Kraków Old Town
Św. Gertrudy 6, Kraków
March 02, 2019

08:00 – 14:00	**Registration** *(Reception)*	
09:00 – 09:30	**Opening of the Conference**	
09:30 – 11:00	**Poster Session**	
P-1	Bosacka Alicja	Synthesis and application of biocomposites
P-2	Czajkowska Edyta	Bioinformatic analysis of chromosome DNA isolated from Thermus aquaticus YT-1 bacteria
P-3	Daszczyńska Agnieszka	GhostKOALA – a tool for metaproteomic analysis in the study of the microbial community in the mine environment
P-4	Malec Mirosław	Nutritional and health value of mushrooms
P-5	Pietrzak Karolina	Determination of copper(II) ions with ion-selective electrodes - review
P-6	Siuta Małgorzata	Antioxidant activity and polyphenols content of commercial fruit wines
P-7	Spętana Joanna	Is personalized immunotherapy possible in B-cell non-Hodgkin lymphomas?
P-8	Trombik Paulina	How does cholesterol affect the DPPC/DPPG/PLL system?
P-9	Cieciura-Olczyk Małgorzata	Growing of yield of edible and steel potato on the effect of fertilization
P-10	Cieciura-Olczyk Małgorzata	Changes in the chemical composition of edible and steel potato under the effect of fertilization
P-11	Cieciura-Olczyk Małgorzata	Yielding of edible potato under the influence of natural fertilization with manure and mineral nitrogen
P-12	Kałuża-Haładyn	Technologies of composting systems
P-13	Kałuża-Haładyn	Production and application of vermicompost
P-14	Kałuża-Haładyn	Some parameters of compost maturity produced from municipal wastes according to different technologies: MUT-DANO and KKO-100
P-15	Płaneta Karolina	Application of Total Reflection X-ray Fluorescence (TXRF) method to identify elemental changes occurring in rat organs after intracranial implantation of human glioblastoma multiforme cell line
11:00 – 11:15	**Coffee Break**	
11:15 – 13:00	**Workshop**	
13:00 – 14:00	**Dinner**	

Plenary sessions		
Hall 1		
14:00 – 15:40	**NATURAL**	
14:00 – 14:10	Ślósarczyk Kinga	Carbamazepine in the aquatic environment of the Silesian Voivodeship
14:10 – 14:20	Ślósarczyk Kinga	The concentrations of pharmaceuticals in influents and effluents from Wastewater Treatment Plants
14:20 – 14:30	Bosacka Alicja	Nanocomposites and their applications
14:30 – 14:40	Czechowicz Paulina	The role of Candida biofilm in the pathogenesis of vulvovaginalcandidiasis (VVC)
14:40 – 14:50	Franczyk Marcin	Ayahuasca tourism in the Amazon region
14:50 – 15:00	Malec Mirosław	Is general anesthesia safe?
15:00 – 15:10	Pietrzak Karolina	Short characteristics of ion-selective electrodes
15:10 – 15:20	Steckiewicz Karol	Shape-dependent antimicrobial properties of silver nanoparticles. Possible therapeutic options?
15:20 – 15:30	Ścieszka Sylwia	The survival of lactic acid bacteria in adverse environmental conditions
15:30 – 15:40	Ścieszka Sylwia	Effect of algae Chlorella vulgaris on the survival of Lactobacillus brevis in the presence of phenol
15:40 – 16:00	**Coffee Break**	
16:00 – 17:00	**INTERDISCIPLINARY ENGLISH SESSION**	
16:00 – 16:10	Konopnicki Paweł	Predicting the future by simulating the past: method of historical simulation in investment profitability analysis
16:10 – 16:20	Konopnicki Paweł	Regulatory and economic determinants of renewable energy development in Poland
16:20 – 16:30	Mironenka Julia	Effect of Trichoderma harzianum extract on the growth and production of Fusarium culmorum mycotoxins
16:30 – 16:40	Pietrzak Damian	Column experiments in the migration studies of selected contaminants of emerging concern in the aquatic environment
16:40 – 16:50	Solarczyk Paweł	The quality of colostrum as a crucial factor influencing the development of calves
16:50 – 17:00	Solarczyk Paweł	Basic problems in dairy cattle breeding
Hall 2		
14:00 – 14:40	**TOP SECRET**	
14:00 – 14:10	Hrabia-Wiśnios Joanna	Investigations of Microstructure and Corrosion Behaviour of Tin Babbitt in H2SO4 Aqueous Solution
14:10 – 14:20	Kostrzewa Małgorzata	Critical analysis of superconductivity state induction in hydrogen based on solving Eliashberg generalized equations
14:20 – 14:30	Popiołek Kacper	Nuclear magnetic resonance in low magnetic fields
14:30 – 14:40	Wrona Izabela	Stability of the hydrogen molecule interacting with the environment
14:40 – 15:00	**Coffee Break**	

15:00 – 16:50	**MODERN PROBLEMS OF SOCIETY**	
15:00 – 15:10	Błoński Paweł	Assessment Center and its role in a recruitment
15:10 – 15:20	Dudzińska Katarzyna	The influence of physical activity on self-employment and self-assessment of students and licealists from rzeszów and kolbuszowa
15:20 – 15:30	Bednarz Gabriel	A Comparison of Leon Chwistek's and Witkacy's Aesthetics
15:30 – 15:40	Gałat Wioleta	New public management in the context of the University
15:40 – 15:50	Głomb Kaja	Can digital revolution revolutionize psychology?
15:50 – 16:00	Kisiel Weronika	Children victims of terror, or Polish language education in the initial teaching
16:00 – 16:10	Kołodziejska Dominika	Existential anxiety-human person life events
16:10 – 16:20	Nowak Alina	Can education be as addictive as a well-designed game?
16:20 – 16:30	Skowerski Szymon	Amendments to the part of the provisions on limitation of claims and the impact on the situation of consumers and entrepreneurs
16:30 – 16:40	Spaleniak-Jurkowska Mirosława	Mediation role of selected sociodemographic, psychological and medical variables in assessing the well-being of patients in perioperative conditions
16:40 – 16:50	Szewczykowska Anna	The Image of Romantic Love in the Letters of Zygmunt Krasiński

TABLE OF CONTENTS

Poster Session

Plenary Sessions

NATURAL

TOP SECRET

MODERN PROBLEMS OF SOCIETY

INTERDISCIPLINARY ENGLISH SESSION

POSTER SESSION

SYNTHESIS AND APPLICATION OF BIOCOMPOSITES

Alicja Bosacka

Maria Curie-Sklodowska University, Faculty of Chemistry,
Maria Sklodowska-Curie Square 3, 20-031 Lublin, Poland

alicja.bosacka@poczta.umcs.lublin.pl

A few words about the author:

I am PhD student at Maria Curie-Sklodowska University in Lublin in Poland. I am interested in physical chemistry, synthesis and biomaterials.

Abstract:

Synthesis of composite materials is a serious challenge because there are many methods of synthesis and many available raw materials. But which one to choose? Due to ecological reasons more popular are biosynthesis and natural raw materials recently. Natural fibers are commonly used for the synthesis of biocomposite materials. Biomaterials have many advantages above ordinary materials. Biocomposites are biodegradable and biocompatible therefore they can be applied in medicine, for example for bone tissue engineering or to produce various medical equipments which are adequate to human tissues. I will submit you important knowledge about natural raw materials used in synthesis, biosynthesis and some interesting applications of biocomposite materials.

Keywords:

biosynthesis, biomaterials, biocomposites, natural fibers

BIOINFORMATIC ANALYSIS OF CHROMOSOME DNA ISOLATED FROM THERMUS AQUATICUS YT-1 BACTERIA

Edyta Czajkowska*, Agnieszka Żylicz-Stachula

Universisty of Gdańsk, Faculty of Chemistry, Deparment of Molecular Biotechnology

*edyta_czajkowska@wp.pl

A few words about the author:

Edyta Czajkowska PhD student, Universisty of Gdańsk, Faculty of Chemistry, Deparment of Molecular Biotechnology.

Abstract:

Strains of Thermus aquaticus YT-1 (T. aquaticus YT-1) have been isolated from hot springs in Yellowstone Park. T. aquaticus YT-1 bacteria are gram-negative, nonsporulating, nonmotile rods, obligate aerobes with pH optimum 7,5-7,8. Temperature tolerance limits are 40°C and 79°C with 70°C being the optimum temperature for cell growth and divisions.
In 1984 Barker et al. isolated and characterized the enzyme RM.TaqII, which specifically recognizes two DNA sequences 5'-GACCGA-3' and 5'CACCCA-3'. Żylicz-Stachula et al. identified, sequenced and cloned the taqIIRM gene to Escherichia coli (E. coli) bacteria. The obtained recombinant RM.TaqII enzyme recognizes only one sequence 5'-GACCGA-3'. The difference in substrate specificity of the native and recombinant enzyme RM.TaqII has led to initiation of studies, aimed to explain observed phenomenon T.aquaticus YT-1 isolated DNA was sequenced using NGS (Next Generation Sequencing) methods, resulting chromosomal DNA sequences and 6 megaplasmids DNA sequences.
The obtained nucleotide (nt) sequences and amino acids (aa) sequences were compared to sequences deposited in the NCBI data stream, allowing for the T. aquaticus YT-1 complete genome analysis.

Keywords:

Thermus aquaticus YT-1, NGS, chromosome DNA

GHOSTKOALA – A TOOL FOR METAPROTEOMIC ANALYSIS IN THE STUDY OF THE MICROBIAL COMMUNITY IN THE MINE ENVIRONMENT

Agnieszka Daszczyńska

Laboratory of Environmental Pollution Analysis, Faculty of Biology, University of Warsaw, Miecznikowa 1, 02-096 Warsaw, Poland

adaszczynska@biol.uw.edu.pl

A few words about the author:

I am a PhD student at the Laboratory of Environmental Pollution Analysis, Faculty of Biology, University of Warsaw. I study the role of microorganisms in biogeochemical cycles of carbon, sulfur, nitrogen and other elements in the mine environment.

Abstract:

Microorganisms are ubiquitous. They live in complex microbial communities with a great taxonomic diversity and wide range of relationships with one another and with their environment. To get a true picture of microorganisms inhabiting tested environment, they should be investigated in-situ. Currently, environmental microbiology is based on metaproteomics and metagenomics studies that generate a great amounts of data to analyze.
GhostKOALA (KEGG Orthology And Links Annotation) is KEGG's (Kyoto Encyclopedia of Genes and Genomes) internal annotation tool that accepts large dataset and is suitable for functional characterization of metaproteome. The result is the pie chart that shows the functional category defined by the KEGG Orthology system. Another possibility to use GhostKOALA is to examine taxonomic compositions of metagenome data. The result is the pie chart that shows the taxonomic category defined by the third level of the KEGG Organisms hierarchy. The result files may be downloaded and used for further analysis.
GhostKOALA was proposed as a useful tool for preliminary functional characterization of metaproteome of the microbial community in the mine environment. It is a helpful tool in determining the dominant metabolic strategies of microorganisms and describing the biogeochemical cycles taking place in the investigated environment.

Keywords:

GhostKOALA, KEGG pathways, KEGG Orthology, metaproteome

NUTRITIONAL AND HEALTH VALUE OF MUSHROOMS

Mirosław Malec

Poznan University of Medical Sciences, Department of Clinical Pharmacy and Biopharmacy

miroslawmalec90@gmail.com

A few words about the author:

Mirosław Malec - pharmacist, traveler, blogger. Currently Ph.D. student at the Department of Clinical Pharmacy and Biopharmacy and the Department of Anaesthesiology and Intensive Pediatric Care at Poznan University of Medical Sciences.

Abstract:

Most of us have read about the problems associated with fungi and their implications for human health. To give due respect to these amazing life forms let's take a moment to look at their beneficial contribution to human society. Fungi were once considered to be primitive members of the plant kingdom, just slightly more advanced than bacteria. We now know that fungi are not primitive at all. Nutritional value of fungi results from the content of high-assimilable proteins, polysaccharides, essential unsaturated fatty acids as well as minerals and vitamins. Many cultivated and wild growing species also show pro-health properties. They are related to the presence of bioactive components, mainly polysaccharides, triterpenoids, and phenolic compounds. The immunostimulatory, antibacterial, antiviral, anti-inflammatory, anti-cancer, anti-diabetic and antiallergic effects of various fungal species have been documented. Substances obtained from fungi also have the ability to lower cholesterol and triacylglycerols in the blood, normalize the pressure, and also protect the liver. Currently, fungi are considered functional foods. A positive effect on health can be obtained by direct consumption of fruiting bodies or the use of dietary supplements in the form of preparations containing fungal extracts.

Keywords:

mushrooms, anticancer, anti-inflammatory, functional food

DETERMINATION OF COPPER(II) IONS WITH ION-SELECTIVE ELECTRODES - REVIEW

Karolina Pietrzak

Maria Curie-Sklodowska University, Faculty of Chemistry,
Maria Sklodowska-Curie Square 3, 20-031 Lublin, Poland

karolina.pietrzak@poczta.umcs.lublin.pl

A few words about the author:

I am PhD student at Maria Curie-Sklodowska University in Lublin in Poland. My research interests concern electrochemical sensors, their possible modifications and applications.

Abstract:

Copper is an element with a very versatile application widely distributed in nature. It is a micronutrient essential for the proper development of plant and animal organisms. Copper in the body is part of proteins and many enzymes. It participates in iron economy and hemoglobin formation, in the metabolism of nervous tissue and maintains vascular and keratin structures. It is also takes part in the production of connective and bone tissue, free radical decomposition and norepinephrine and melamine synthesis. The foods with a high content of copper include offal, nuts, chocolate and mussels. Copper deficiency in humans contributes to the development of anemia, as well as to disorders in connective tissue structure, elevation of cholesterol, glucose metabolism disorders and other disturbances in the functioning of the body, while its excess may lead to diseases of respiratory system, liver and heart or else muscle and stomach pain. However, in nature, in elevated concentrations, it can contribute to the inhibition of water self-purification and even to inhibiting the growth of aquatic plants. In addition, it is toxic to fish. Mining and metallurgy contribute the most to copper pollution. It is important to monitor copper contamination in water and in food. Numerous publications on the determination of copper(II) ions using ion-selective electrodes are available in the literature. I would like to present a review of a few selected ones in my work.

Keywords:

copper, ion-selective electrode, sensors, potentiometry, electrochemical analysis

ANTIOXIDANT ACTIVITY AND POLYPHENOLS CONTENT OF COMMERCIAL FRUIT WINES

Małgorzata Siuta*, Katarzyna Niemczyńska

Katedra Technologii Fermentacji i Mikrobiologii Technicznej, Wydział Technologii Żywności, Uniwersytet Rolniczy im. Hugona Kołłątaja, Kraków

*malgorzata.siuta@interia.pl

A few words about the author:

I am a final year student in Food Technology. After graduating, I would like to start PhD and deal with the subject matter of winemaking.

Abstract:

Antioxidant compounds (including polyphenols) belong to the group of biologically active compounds that have a beneficial effect on human health. Fruit is a rich source of antioxidants, therefore the consumption of fruit wines can increase the amount of these compounds in the diet. The purpose of this work is to characterize and evaluate the antioxidant activity and polyphenol content in fruit wines available commercially. The research material consists of 17 commercially available wines made from various fruits. The ABTS method was used to determine the antioxidant activity, while the Folin-Ciocalteu method was used to determine the total polyphenol content. The research results indicate that the content of biologically active compounds and antioxidant activity is closely related to the type of raw material used for wine production. The highest antioxidant activity among the tested fruit wines is shown by the briar wine, while the highest content of polyphenols among the analyzed wines is characterized by blackberry. The research also indicates the correlation between the color of fruits used for wine production and total polyphenol content (higher in currant, plum and strawberry wine; less in apple, apricot and peach wine). In the case of blackberry wines, there is a correlation (R=1) between high antioxidant activity and a high content of polyphenols. In the case of other wines, their antioxidative potential is also due to compounds other than polyphenols.

Keywords:

antioxidants, fruit, wine

IS PERSONALIZED IMMUNOTHERAPY POSSIBLE IN B-CELL NON-HODGKIN LYMPHOMAS?

Joanna Spętana

Department of Pathomorphology and Oncological Cytology, Wroclaw Medical University, Wroclaw, Poland

jspetana@outlook.com

A few words about the author:

I am a PhD student at the Medical University in Wroclaw in the Department of Pathomorphology and Oncological Cytology. I work as a cytologist, I am interested in new strategies of tumor treatment and new prognostic and predictive factors in oncology.

Abstract:

It is known that some cancers have the ability to avoid the body's immune response through various mechanisms. One of them is the activation of inhibitory receptor PD-1 on T lymphocytes surface. Activation of these receptors takes place after combining with appropriate protein ligands (PD-L1), located on tumor cells. Preventing the interaction between PD-1 receptor and PD-L1 unblocks the activity of T lymphocytes and leads to the destruction of tumor cells. Immunotherapy using monoclonal antibodies blocking PD-1 receptors is beginning to play a key role as one of the more effective and innovative methods of treating cancers, for instance non-small cell lung cancer. Do B-cell non-Hodgkin lymphomas also have a chance for successful therapy? The aim of the study was to determine the expression of PD-L1 in selected types of B-cell lymphomas. The study was retrospective and tissue material from 25 patients with diagnosed B-cell non-Hodgkin lymphomas, 8 women and 15 men were qualified for the study. An immunohistochemical technique was used with the PD-L1 monoclonal antibody and archival tissue material embedded in paraffin. It has been demonstrated that the expression of the antibody varies depending on the type of lymphoma. Diffuse large B-cell lymphoma (DLBCL) shows strong PD-L1 expression and follicular lymphoma (FL) weak PD-L1 expression. Studies show that in cases of lymphomas with strong expression of PD-L1 on their surface, attempts to use immunotherapy are appropiate.

Keywords:

immunotherapy, diffuse large B-cell lymphoma, follicular lymphoma, PD-L1

HOW DOES CHOLESTEROL AFFECT THE DPPC/DPPG/PLL SYSTEM?

Paulina Trombik*, Katarzyna Cieślik-Boczula

Uniwersytet Wrocławski, Fryderyka Joliot-Curie 14, 50-383 Wrocław

*paulina.trombik@chem.uni.wroc.pl

A few words about the author:

Paulina Trombik is a PhD student at the University of Wrocław interested in chemistry and its connection with biology. She spends her free time reading, sewing and watching new Netflix productions.

Abstract:

The eukaryotic cell membranes consist mainly of lipids, proteins and cholesterol (Chol). The content of individual components is determined by the location of the membrane. Chol, whose physiological concentration varies from 20 - 50%, helps to maintain the proper fluidity of the membrane in a wide temperature range and also affects its physical properties such as stability and permeability [1].
Liposomes doped with poly-L-lysine (PLL) are used as a drug delivery system, so it's important to examine how the addition of Chol can modify those structures and the process itself [2].
In this study, three regions of the FT-IR spectra were analyzed. Additionally, PCA analysis of the obtained spectra was carried out, which allowed to deepen the information acquired from the analyzed spectra.
Both PLL and Chol modify the structure of the lipid membrane, but in different ways. They tend to change the hydration level in the membrane's interphase region. The lipid membrane also has a tremendous effect on the secondary structure of PLL.

The authors acknowledge the financial support provided by the NCN, Poland, with a decision number of project OPUS 2015/17/B/ST4/03717.

[1] Yang, S.T. et al. "The role of cholesterol in membrane fusion" Chem Phys lipids, 2016, 199, 136-143.

[2] Volodkin D. et al. "Complexation of phosphocholine liposomes with polylysine. Stabilization by surface coverage versus aggregation" Biochim Biophys Acta, 2007, 1768, 280-290.

Keywords:

DPPC, DPPG, cholesterol, lipid membranes, FT-IR

GROWING OF YIELD OF EDIBLE AND STEEL POTATO ON THE EFFECT OF FERTILIZATION

Małgorzata Cieciura - Olczyk

Instytut Agroekologii i Produkcji Roślinnej, Uniwersytet Przyrodniczy we Wrocławiu

malgorzata.cieciura@upwr.edu.pl

A few words about the author:

I have graduated from Wroslaw University of Environmental and Life Sciences in 2015 with master engineer degree. I began 3rd degree study in 2016. I specialize in potato fertilization.

Abstract:

One of the most important factors among modern production technologies, which determines the size and quality of the crop and its storage stability is fertilization. The natural source of ingredients is a mineral and organic substance of soil. Another source that enriches the soil with macro- and micronutrients are natural, organic and mineral fertilizers, and their use should take into account soil fertility, expected yield level and varietal requirements.
The studies carried out in the years 2016 analyzed the effect of manure fertilization (30t • ha^{-1}) and manure (10t • ha^{-1}) and manure and manure in conjunction with mineral fertilizers on the dynamics of yield growth, the size of tubers of two potato varieties: edible - Typhoon, starchy - Kuras. The size and structure of the crop were analyzed in phases BBCH 60-69, 70-79, 80-89, 90-99. In the studied development phases, a significant influence of the genotype of varieties and the applied fertilization on the analyzed features was found. During the growing season, the higher yield developed the Tajfun variety compared to the Kuras variety. The yield was also modified by the fertilization applied. Both cultivars cultivated on natural fertilizers combined with mineral fertilization developed higher crops by about 5t • ha^{-1} compared to natural fertilization. Natural fertilization combined with mineral beneficial effect on the size of tubers.

Keywords:

potato, yield, fertilization

CHANGES IN THE CHEMICAL COMPOSITION OF EDIBLE AND STEEL POTATO UNDER THE EFFECT OF FERTILIZATION

Małgorzata Cieciura - Olczyk

Instytut Agroekologii i Produkcji Roślinnej

malgorzata.cieciura@upwr.edu.pl

A few words about the author:

I have graduated from Wroslaw University of Environmental and Life Sciences in 2015 with master engineer degree. I began 3rd degree study in 2016. I specialize in potato fertilization.

Abstract:

The production of potato intended for food processing should ensure obtaining the raw material with the best qualitative characteristics. The requirements as to the quality of the raw material are very strict, because a good product can be obtained only from the appropriate raw material, and the technological process can only slightly improve the quality of food products. In studies carried out in 2016, the effect of fertilization with manure (30t • ha^{-1}) and manure (10t • ha^{-1}) and manure and manure in combination with mineral fertilizers on changes in the chemical composition of two potato varieties: edible - Tajfun, starch was analyzed. - Kuras. The content of dry matter, starch and minerals was analyzed in phases BBCH 60-69, 70-79, 80-89, 90-99. In the studied development phases, a significant influence of the genotype of varieties and the applied fertilization on the analyzed features was found. In both varieties grown on natural fertilizers, in conjunction with mineral fertilization, the tubers were characterized by a higher content of dry matter, whereas tubers fertilized with natural fertilizers without mineral fertilization contained 2% more starch. There was no influence of the applied fertilization on changes in the content of macroelements in potato tubers.

Keywords:

potato, fertilization, manure, chicken manure, starch, mineral fertilization

YIELDING OF EDIBLE POTATO UNDER THE INFLUENCE OF NATURAL FERTILIZATION WITH MANURE AND MINERAL NITROGEN

Małgorzata Cieciura - Olczyk

Instytut Agroekologii i Produkcji Roślinnej, Uniwersytet Przyrodniczy we Wrocławiu

malgorzata.cieciura@upwr.edu.pl

A few words about the author:

I have graduated from Wroslaw University of Environmental and Life Sciences in 2015 with master engineer degree. I began 3rd degree study in 2016. I specialize in potato fertilization.

Abstract:

Among the agronomic factors that determine potato yielding, fertilization plays the most important role. In a two-factorial field experiment, the effect of natural manure fertilization and differentiated nitrogen fertilization on the mass growth and tuber structure in BBCH 41, 43 and 46 phases was analyzed. Manure fertilization in the discussed experiment applied in spring proved to be unfavorable in terms of tuber mass growth. Nitrogen fertilization 65 and 75 days after planting, the use of 100 kg N pre-sowing + 30 kg N top dressing turned out to be the best. Soil fertilization combined with foliar fertilization was revealed in later stages of development.

Keywords:

potato, mass of tubers, manure, nitrogen

TECHNOLOGIES OF COMPOSTING SYSTEMS

Andrea Kałuża-Haładyn

Wrocław University of Environmental and Life Sciences

andrea.kaluza@upwr.edu.pl

A few words about the author:

I am a PhD student at the University of Environmental and Life Sciences in Wroclaw. I am involved in the transformation of organic matter during composting of bio-waste and biomass of energetic plants.

Abstract:

Composting is a controlled oxygen process, in which organic wastes are spread over compost, being a different organic fertilizer. Composting involves the decomposition of organic compounds by microorganisms such as bacteria or fungi. The final result of this process is a product similar to soil, used to enrich the soil with fertilizing ingredients. The production of compost with high fertilizing values is connected with ensuring the proper course of the entire composting process, i.e. ensuring proper chemical composition of waste, maintaining proper humidity of the compost mass, proper regulation of air flow, the participation of appropriate microorganisms and of course the proper temperature. Composting can happen in many different ways using a variety of materials, methods, equipment, and scales of operation. An important factor affecting the quality and quantity of compost from municipal waste is the technological process used in its production. The selection of the right technology depends on many factors. The paper presents various waste composting technologies that can be divided into prismatic and chambered.

Keywords:

composting technologies, MUT-DANO, KNEER, Herhof technology

PRODUCTION AND APPLICATION OF VERMICOMPOST

Andrea Kałuża-Haładyn

Wrocław University of Environmental and Life Sciences

andrea.kaluza@upwr.edu.pl

A few words about the author:

I am a PhD student at the University of Environmental and Life Sciences in Wroclaw. I am involved in the transformation of organic matter during composting of bio-waste and biomass of energetic plants.

Abstract:

Vermicompost is a product of composting with a help of earthworms. Many species of earthworms can participate in the production of vermicompost, but the most appropriate species is Eisenia fetida (Sav.), colloquially called the California worm. The earthworm is characterized by a much longer survival rate and greater ability to reproduce than earthworms commonly found in the soil. During composting process due to activity of worms a product characterized by high porosity, high water accumulation capacity and high microbial activity is formed. Obtained as a result of the natural decomposition process of organic waste, the final product - a mature organic fertilizer, can be used to improve the quality of soils, improving primarily its fertility. The composting process with earthworms can also be used in the processing of biodegradable fraction of sewage sludge or for the production of earthworms, which can be used, among others, to improve the quality of soils, introducing them directly to degraded areas. The article presents the process of formation of vermicompost resulting from the activity of earthworms and the directions of its application.

Keywords:

vermicompost, composting, Eisenia fetida (Sav.)

SOME PARAMETERS OF COMPOST MATURITY PRODUCED FROM MUNICIPAL WASTES ACCORDING TO DIFFERENT TECHNOLOGIES: MUT-DANO AND KKO-100

Andrea Kałuża-Haładyn

Wrocław University of Environmental and Life Sciences

andrea.kaluza@upwr.edu.pl

A few words about the author:

I am a PhD student at the University of Environmental and Life Sciences in Wroclaw. I am involved in the transformation of organic matter during composting of bio-waste and biomass of energetic plants.

Abstract:

In many studies, particular attention is paid to the maturity of composts, which is one of the essential conditions for their natural or agricultural use as organic fertilizers. Some substances, formed in different stages of maturation, can affect biological activity and have different effects on the growth of plants. To prevent negative phenomena, different compost maturity assessment criteria apply, which can be grouped into the following groups:

- physical: measurement of material temperature during composting, determination of color, odor and structure;
- microbiological: compost maturity is strongly correlated with the stability of microbiological processes, which determine a certain level of oxygen consumption, amount of enzymes, amount of biomass, content of easily degradable components, content of biologically active substances, etc.
- biological: defining the rate of germination and development of test plant seeds, incubated in aqueous extracts of composts;
- chemical: defining C and N content in dry matter and aqueous extracts, pH, sorption capacity, N-NH4 and N-NO3, quantitative and qualitative composition of humus compounds.

Below are shown selected maturity parameters of composts produced from municipal waste produced in the MUT-DANO and KKO-100 systems.

Keywords:

compost maturity, composting process, composting parameters

APPLICATION OF TOTAL REFLECTION X-RAY FLUORESCENCE (TXRF) METHOD TO IDENTIFY ELEMENTAL CHANGES OCCURRING IN RAT ORGANS AFTER INTRACRANIAL IMPLANTATION OF HUMAN GLIOBLASTOMA MULTIFORME CELL LINE

K. Płaneta* (1), Z. Setkowicz (2), D. Ryszawy (3), N. Janik-Olchawa (1), K. Matusiak (1), B. Ostachowicz (1), J. Chwiej (1)

(1) AGH University of Science and Technology, Faculty of Physics and Applied Computer Science, Krakow, Poland
(2) Jagiellonian University, Institute of Zoology and Biomedical Research, Krakow, Poland
(3) Jagiellonian University, Faculty of Biochemistry

*Karolina.Planeta@fis.agh.edu.pl

A few words about the author:

K. Płaneta - PhD student in Biophysics at the Faculty of Physics and Applied Computer Science AGH in Krakow.

Abstract:

Glioblastoma multiforme (GBM) is the most aggressive type of glioma – central nervous system tumour. At present, the treatment of patients suffering from GBM bases on surgical resection with maximal saving of tumour-surrounding tissue followed by radio- and pharmacological therapy using temozolomide as the most frequently recommended drug. This strategy does not guarantee a success and has devastating consequences. Therefore, many interdisciplinary teams try to improve the low effectiveness of therapy gaining the new knowledge about the pathogenesis and progress of GBM. As pathological processes occurring in the tissues may be reflected in its elemental composition, the aim of our study was to determine changes in elemental composition of rat organs occurring as a result of intracranial implantation of T98G human GBM cells to brain. To achieve this goal, two groups of laboratory male Wistar rats were examined. First group consisted of animals that were subjected to tumour cells implantation whilst the second group included naive normal rats. Brain, heart, lung, spleen, liver, kidney and serum were collected from animals. Prior to elemental analysis organs were digested in high purity nitric acid using microwave energy. P, S, K, Ca, Cr, Mn, Fe, Cu, Zn, Se, Br, Rb and Sr content in the liquid samples were determined using total reflection X-ray fluorescence spectroscopy applied in Nanohunter II (produced by Rigaku).

Keywords:

total reflection x-ray fluorescence (TXRF), elemental composition of rat organs, glioblastoma multiforme (GBM), T98G

PLENARY SESSION

NATURAL

CARBAMAZEPINE IN THE AQUATIC ENVIRONMENT OF THE SILESIAN VOIVODESHIP

Kinga Ślósarczyk

University of Silesia, Faculty of Earth Sciences, Będzińska 60, 41-200 Sosnowiec, Poland

kinga.slosarczyk@onet.pl

A few words about the author:

The PhD student of hydrogeology, in the Department of Hydrogeology and Engineering Geology (University of Silesia). The main field of interest is emerging contaminants in the aquatic environment, especially in groundwater.

Abstract:

Carbamazepine is commonly used for the treatment of epilepsy and hyperactivity. Its consumption is especially high among patients of psychiatric hospitals. The urination and excretion of this drug result in entering of carbamazepine into the aquatic environment. This pharmaceutical is very stable and therefore dangerous because of its potential bioaccumulation. Moreover, its persistance and migration lead to contamination of groundwater which may serve as the source of drinking water.

In this study, 20 samples of water were collected in the area of the Silesian Voivodeship. The concentrations of carbamazepine were determined in groundwater, surface water as well as treated and untreated sewage. The presence of the compound (using the LC-MS/MS method) was detected in 18 samples. The conducted analyses revealed relatively high concentrations of carbamazepine in both influents and effluents from selected Wastewater Treatment Plants (up to 2690 ng/L). The small differences in the amount of carbamazepine between untreated and treated sewage suggest a low efficiency of wastewater treatment in the case of this pharmaceutical. As the result, this compound also occured in sampled rivers which are recipients of sewage, and thus may affect the quality of groundwater.

Keywords:

carbamazepine, pharmaceutical, water environment, Silesia

THE CONCENTRATIONS OF PHARMACEUTICALS IN INFLUENTS AND EFFLUENTS FROM WASTEWATER TREATMENT PLANTS

Kinga Ślósarczyk

University of Silesia, Faculty of Earth Sciences, Będzińska 60, 41-200 Sosnowiec, Poland

kinga.slosarczyk@onet.pl

A few words about the author:

The PhD student of hydrogeology, in the Department of Hydrogeology and Engineering Geology (University of Silesia). The main field of interest is emerging contaminants in the aquatic environment, especially in groundwater.

Abstract:

Pharmaceuticals have gained growing attention in last years since these compounds have been found to negatively affect ecosystems. These pollutants are provided to the environment from a lot of sources, including the use of medicines for human healthcare and their later excretion as well as disposal of expired drugs down sinks or toilets. Many studies have revealed that most of Wastewater Treatment Plants are unable to effectively eliminate micropollutants from influents. Therefore, some pharmaceuticals can be found in effluents, too.
For this research, four Wastewater Treatment Plants (WWTP) were selected for sampling. All the WWTPs are located within the Upper Silesia Industrial Region (cities: Tychy, Sosnowiec, Gliwice and Tarnowskie Góry). Eight samples of waste water were taken: 4 of untreated and 4 of treated sewage. The analyses of concentration of 82 organic micropollutants were conducted using the method of liquid chromatography and mass spectrometry. The results showed that none of collected samples is free of investigated contaminants. The majority of pharmaceuticals (73 of 82 compounds) were detected at least once. Their concentrations ranged from below the limit of quantification (< LOQ) to 393 μg/L. Although micropollutants in effluents are not so abundant compared to influents, many of them still occur in relatively large amounts, posing a threat to the water environment.

Keywords:

pharmaceutical, wastewater treatment plant, sewage, micropollutants

NANOCOMPOSITES AND THEIR APPLICATIONS

Alicja Bosacka

Maria Curie-Sklodowska University, Faculty of Chemistry,
Maria Sklodowska-Curie Square 3, 20-031 Lublin, Poland

alicja.bosacka@poczta.umcs.lublin.pl

A few words about the author:

I am PhD student at Maria Curie-Sklodowska University in Lublin in Poland. I am interested in physical chemistry, synthesis and nanotechnology.

Abstract:

Nanotechnology is the general name of techniques and methods for creating various structures with nanometric dimensions (at the level of individual atoms and molecules). Nowadays nanotechnology is ubiquitous. Nanomaterials are obtained worldwide, which have various important applications. Very interesting are nanocomposite materials. Nanocomposite materials or nanocomposites are materials consist of two phases: the matrix and the nanofiller. A wide range both matrices and nanofillers can be distinguished, which are used to synthesis. The aim of the scientists is design, study and eventually obtaining materials with better properties for many industries. I will present a short characteristic of nanocomposites and their application possibilities.

Keywords:

nanotechnology, nanocomposites, nanocomposite materials

THE ROLE OF CANDIDA BIOFILM IN THE PATHOGENESIS OF VULVOVAGINALCANDIDIASIS (VVC)

Paulina Czechowicz

Department of Microbiology, Faculty of Medicine, Wroclaw Medical University, Chalubinskiego 4, 50-368 Wroclaw

paulina.czechowicz@student.umed.wroc.pl

A few words about the author:

The youngest researcher in Department of Microbiology, first-year PhD student. Interested in new approaches to fight against resistant bacteria and fungi, particularly using AMPs.

Abstract:

Candidiasisis the most common cause of vaginitis. According to epidemiological data Candida spp. is a colonizing flora on the vaginal mucosa for around 15-20% of women. However, up to 75% of women in childbearing age will be affected by a VVC (vulvovaginal candidiasis) at least once during their lifetime and about 8% of them will develop a recurrent VVC (defined as four or more episodes per year without any predisposing factors).
Although Candida virulence factors are well known and described, the pathogenesis and development of VVC is unexplained. The cause of transformation Candida spp. on the vaginal mucosa from asymptomatic colonizers to invasive pathogens remains unknown.
The most common hypothesis is that the key is the ability to form a biofilm structure by yeast strains and many researchers agree with that opinion. Biofilm as a heterogenous and well-organized multicellular community is highly resistant to antimicrobial agents and host defences. Its role in the pathogenesis of BV (bacterial vaginitis) is well documented. However, there is still lack of evidence for a similar role of Candida biofilm in VVC. On the other side, first histological research deny the presence of fungal biofilm on the vaginal mucosa in VVC.
All authors agree that further research on this issue is necessary. The aim of my presentation is to discuss all arguments for and against the presented hypothesis.

Keywords:

Candida, vulvovaginal candidiasis, VVC, biofilm

AYAHUASCA TOURISM IN THE AMAZON REGION

Marcin Franczyk*, Diana Mazek, Dominik Łoboda, Magdalena Wróbel

University of Rzeszow

*mmarcin9808@gmail.com

A few words about the authors:

We are student of tourism and recreation on University of Rzeszów. Moreover, we are members of the student scientific club of travelers.

Abstract:

Availability in communication helps people discover the world. An example of such a place is Amazon and new kind of tourism – ayahuasca tourism, because many people who choose Amazon as the destination of the expedition connect this with recognize interesting plant decoction ayahuasca.
The main purpose of the work is to check why people decides to know the secret of ayahuasca and in connection with this fly to the other end of the globe. To get this information we created an electronic questionnaire consisting of 9 questions. Respondents were found on Facebook and internet forums. The questionnaire was completed by 108 people of different sex, age and education. For some answers, results were surprising. For example, in question about the consumption of Ayahuasca as the main motive of the trip to Amazon almost half of the respondents answered affirmative.
Ayahuasca tourism, even though it is more and more disseminated, it is still not very popular. It is hard to say whether it carries more positive or negative aspects, but sure is that we should remember about respect to ceremony of eating ayahuasca. The problem can be in the future also with too big environment degradation in order to obtain necessary ingredients.

Keywords:

tourism, ayahuasca, Amazon, travels, ceremony

IS GENERAL ANESTHESIA SAFE?

Mirosław Malec

Poznan University of Medical Sciences, Department of Clinical Pharmacy and Biopharmacy

miroslawmalec90@gmail.com

A few words about the author:

Mirosław Malec - pharmacist, traveler, blogger. Currently Ph.D. student at the Department of Clinical Pharmacy and Biopharmacy and the Department of Anaesthesiology and Intensive Pediatric Care at Poznan University of Medical Sciences.

Abstract:

General anesthesia causes the reversible loss of consciousness and anesthesia so that both simple and complicated operations can be performed. These drugs have been widely used in surgery since 1842 when Crawford Long gave the patient diethyl ether and performed the first painless operation. General anesthesia generally causes a medical coma, not sleep. Even particularly ill patients can be safely treated with full anesthesia. However, older adults and people undergoing prolonged procedures are most at risk of adverse effects.
Optimization of perioperative processes, in which anesthesiology plays a key role, is gaining importance in the last few years. Recent studies have shown that adequate anesthetic care can have a significant impact on patient outcomes and survival. The results of recent studies also indicate that anesthetic therapy can have a significant impact on the patient's immune function. Also, we can conclude that the mortality associated with anesthesia in patients without significant systemic disease is still low. However, the increasing numbers of elderly patients and patients with multiple disabilities who have been considered inoperable in the past and who are currently undergoing extensive procedures that were unthinkable in the past have caused anesthesia-related mortality to increase again in numbers.

Keywords:

anaesthesia, safety, clinical pharmacy

SHORT CHARACTERISTICS OF ION-SELECTIVE ELECTRODES

Karolina Pietrzak

Maria Curie-Sklodowska University, Faculty of Chemistry,
Maria Sklodowska-Curie Square 3, 20-031 Lublin, Poland

karolina.pietrzak@poczta.umcs.lublin.pl

A few words about the author:

I am PhD student at Maria Curie-Sklodowska University in Lublin in Poland. My research interests concern electrochemical sensors, their possible modifications and applications.

Abstract:

Chemical sensors are devices whose task is to process chemical information into an analytically useful signal. Among them, potentiometric sensors are distinguished, including ion-selective electrodes. As the name suggests, ion selective electrodes allow to measure the concentration (and more specifically the activity) of selected ions in solution in the presence of other interfering ions. Currently, ion-selective electrodes are an important tool in chemical analysis. They find application, among others in analytical laboratories, in clinical and biochemical analysis to determine the concentrations of selected ions in body fluids, in industry to control the course of technological processes, or in environmental analysis to determine the presence of various anions in natural water and potable water or wastewater. In order to meet the growing requirements regarding lowering the limit of detection of determinations, increasing selectivity, facilitating service and miniaturization of sensors, new sensors with better analytical parameters are constantly being created. I would like to present a short history, characteristics and possible applications of ion-selective electrodes.

Keywords:

ion-selective electrode, sensors, potentiometry, electrochemical analysis

SHAPE-DEPENDENT ANTIMICROBIAL PROPERTIES OF SILVER NANOPARTICLES. POSSIBLE THERAPEUTIC OPTIONS?

Karol P. Steckiewicz* (1), Ewelina Barcińska (1), Szymon Kowalski (1), Maciej Jaśkiewicz (2), Wojciech Kamysz (2) Iwona Inkielewicz-Stępniak (1)

(1) Chair and Department of Medical Chemistry, Faculty of Medicine, Medical University of Gdansk, ul. Dębinki 1, 80-211 Gdańsk
(2) Chair and Department of Inorganic Chemistry, Faculty of Pharmacy, Medical University of Gdansk, Al. Gen. J. Hallera 107, 80-416 Gdańsk

*steckiewicz.karol@gmail.com

A few words about the author:

Karol Steckiewicz is a four-year medical student from Gdansk. Since 2015 he is taking part in research in his department. He was a leader of two grants. His achievements were awarded multiple times.

Abstract:

Introduction
Infectious complications of orthopedic surgeries are a major epidemiological problem and often led to another surgery. Silver is known to have antimicrobial properties, but its nanoparticles have a lot of beneficial properties. The aim of the work was to examine the impact of a shape of silver nanoparticles (AgNPs) on their antimicrobial properties and cytotoxicity.

Materials and methods
Antimicrobial properties were assessed by determining minimal inhibitory concentration for reference strain of bacteria and fungi. hFOB 1.19, C2C12, HDF-1 cell lines were used in in vitro studies. Cytotoxicity of AgNPs were examined by MTT, BrdU and LDH assay. In order to better explain the molecular mechanism of AgNPs action TEM, flow cytometry and Western-blot were done.

Results
We have proven that AgNPs cytotoxicity is shape and time-dependent. Our nanoparticles induced oxidative stress by increased ROS production. Antimicrobials properties were also shape-dependent. AgNPs were more effective against bacteria than fungi.

Conclusion
A shape of nanoparticles is an important factor modulating their antimicrobial properties and cytotoxicity. So modifying the shape of nanoparticles can lead to more safety biological application.

Project „Wpływ funkcjonalizacji nanocząstek srebra na ich właściwości przeciwdrobnoustrojowe. Nowa opcja terapeutyczna?" was funded by grant „Wspieramy rozwój" by Cedrob S.A.

Keywords:

silver nanoparticles, nanoparticles shape, antimicrobial properties, bone infection

THE SURVIVAL OF LACTIC ACID BACTERIA IN ADVERSE ENVIRONMENTAL CONDITIONS

Sylwia Ścieszka*, Elżbieta Klewicka

Instytut Technologii Fermentacji i Mikrobiologii, Wydział Biotechnologii i Nauk o Żywności, Politechnika Łódzka

*sylwia.scieszka@edu.p.lodz.pl

A few words about the author:

I am a PhD student and working with the Probiotic Group Research in The Institute of Fermentation Technology and Microbiology, Lodz University of Technology, Poland.

Abstract:

The aim of this work was to determine the survival of lactic acid bacteria in adverse environmental conditions: bile salts, phenol, sodium chloride and low pH.
Four strains belonging to the species Lactobacillus brevis, which were isolated from vegetable silages, were used for the study.
The survive Lactobacillus brevis in the presence of 0.4% and 2.0% bile salts and low pH (1,5; 2,0; 2,5) was tested during 4 hours of incubation by plate method. The impact of sodium chloride (in the concentration of 5.0% and 10.0%) and phenol on the survival of lactic acid bacteria was tested during 72 hours of incubation using two methods. Using a multimode reader TriStar2 S LB 942 by Berthold Technologies and 96-well microtest plate and by plate method. The results showed that the presence of bile salts, phenol, sodium chloride and especially low pH negatively affects the survival of the tested bacteria. However, the largest decrease in the number of lactic bacteria was observed in low pH. In the other adverse conditions, the tested Lactobacillus strains characterized high survivability. Furthermore, the Lactobacillus brevis 0944 was characterized by the highest survival rate.

Keywords:

lactic acid bacteria, Lactobacillus brevis, adverse environmental conditions

EFFECT OF ALGAE CHLORELLA VULGARIS ON THE SURVIVAL OF LACTOBACILLUS BREVIS IN THE PRESENCE OF PHENOL

Sylwia Ścieszka*, Elżbieta Klewicka

Instytut Technologii Fermentacji i Mikrobiologii, Wydział Biotechnologii i Nauk o Żywności, Politechnika Łódzka

*sylwia.scieszka@edu.p.lodz.pl

A few words about the author:

My interests are connected with probiotics, functional food, diet and fermented food

Abstract:

The aim of this study was to determinate the effect of algae Chlorella vulgaris on the survival of tested lactic acid bacteria in adverse environmental conditions.
The biological material was four strains of Lactobacillus brevis, isolated from cabbage, cucumber and beetroot silage. The research material was Chlorella vulgaris from Bellis Pharma in the concentration of 1.5%.
The impact of Chlorella vulgaris on grow and survive Lactobacillus brevis in the presence of 0.4% phenol was tested by 96-well micro-tube and using a multimode reader TriStar2 S LB 942 by Berthold Technologies. The absorbance was measured at 0, 2, 4, 6, 16, 21, 24, 48, 72 hours at the 540 nm wavelength.
The results showed that all tested Lactobacillus strains characterized high survival in the presence of phenol. The decrease in the number of lactic acid bacteria is observed after 48 hours of incubation. Moreover, the Lactobacillus brevis cultured in the presence of Chlorella vulgaris also characterized very high survivability, despite the addition of phenol.
High survival lactic acid bacteria cultured in presence of Chlorella vulgaris in adverse conditions allows to use algae in fermented dietary products. Therefore, to construct a new offer in the segment of health-promoting foods.

Keywords:

Chlorella vulgaris, algae, lactic acid bacteria, Lactobacillus brevis, phenol

PLENARY SESSION

TOP SECRET

INVESTIGATIONS OF MICROSTRUCTURE AND CORROSION BEHAVIOUR OF TIN BABBITT IN H2SO4 AQUEOUS SOLUTION

Joanna Hrabia-Wiśnios* (1), Beata Leszczyńska-Madej (1) , Remigiusz Kowalik (2), Anna Kwiecińska (2)

(1) Department of Materials Science and Non – Ferrous Metals Engineering, Faculty of Non-Ferrous Metals, AGH University of Science and Technology, Mickiewicza 30 Av., Cracow 30059, Poland, (2) Department of Physical Chemistry and Metallurgy of Non-Ferrou

*hrabia@agh.edu.pl

A few words about the author:

PhD student of Department of Materials Science and Non – Ferrous Metals Engineering, Faculty of Non-Ferrous Metals, AGH University of Science and Technology, main subject of research are tin-based bearing alloys.

Abstract:

One of the important properties of bearing alloys is corrosion resistance. Electrochemical corrosion can contribute to acceleration of bearing wear and consequent bearing damage. In this study the results of microstructure and the electrochemical corrosion behavior of two bearing alloys: SnSb11Cu6 (B83) and SnSb8Cu4 (B89) used for pouring bearing bushings are presents. The electrochemical corrosion of these alloys has been investigated in 0.1M H2SO4 solution using electrochemical technique Open Circut Potential (OCP) measurement and mass loss test. Microscopic observations were made using scanning electron microscopy. The obtained results indicate better corrosion resistance of alloy B89, which has the lower content of the SnSb phase in microstructure, than B83 alloy. In addition, it was found that the dominant mechanism of corrosion degradation in H2SO4 solution is selective corrosion which is a particularly undesirable type of corrosion because it involves the loss of one alloying component.

Keywords:

Bearing alloys, tin Babbitt, corrosion behavior, corrosion resistance, microstructure

CRITICAL ANALYSIS OF SUPERCONDUCTIVITY STATE INDUCTION IN HYDROGEN BASED ON SOLVING ELIASHBERG GENERALIZED EQUATIONS

Małgorzata Kostrzewa

Institute of Physics, Jan Długosz University in Częstochowa,
Ave. Armii Krajowej 13/15, 42-200, Częstochowa, Poland

malgorzata.kostrzewa@ajd.czest.pl

A few words about the author:

I am a PhD student in physics. I'm interested in theoretical physics, in particular superconductivity.

Abstract:

Theoretical results presented in the literature suggest that metallic hydrogen under high pressure may show superconducting properties in high temperatures. However nowadays there is no reliable experimental data that would confirm these theoretical predictions. In addition, it should be noted that the theoretical models used to analyze the superconducting state in hydrogen aren't complete too. In particular, they overlook the influence of strong electron correlations on the thermodynamic properties of superconducting condensate. These facts prompt to an insightful analysis of the problem.
The aim of the work is to present conclusions resulting from the conducted critical analysis regarding the problem of induction of high-pressure superconducting state in metallic hydrogen. The original Ashcroft's arguments is presented, subsequently the results obtained in the more advanced DFT method (Density Functional Theory). Next, a dimeric approximation for the metallic hydrogen Hamiltonian is discussed (from the position representation to the derivation of the Eliashberg equation system). The results obtained based on the analysis of generalized Eliashberg's equations are also presented.
Critical analysis of the problem allows at least in part to get the answer to the key question, whether the induce of a superconducting state in hydrogen at room temperature is possible.

Keywords:

Eliashberg formalism, superconductivity, metallic hydrogen

NUCLEAR MAGNETIC RESONANCE IN LOW MAGNETIC FIELDS

Kacper Popiołek*, Piotr Put, Szymon Pustelny

Marian Smoluchowski Institute of Physics, Jagiellonian University, Łojasiewicza 11, 30-348 Krakow, Poland

*kacperpopiolek1@wp.pl

A few words about the author:

Member of the Jagiellonian University Photonics Department, Master of Advanced technology and nanomaterials (2018), Engineer of Nanotechnology and nanomaterials (2016), participant of the 50th Anniversary EGAS conference Kraków 2018

Abstract:

Nuclear magnetic resonance in low magnetic fields is becoming an alternative way to study intermolecular interactions and may be interesting instrument in medicine or security improvement. Presentation will describe history, creators and advantages of this phenomenon, building an experimental setup, its elements, functions and operations in the NMR. The measure of nuclear polarization in distilled water will also be presented.

Keywords:

Nuclear Magnetic Resonance, low magnetic fields. Pseudo-Halbach magnet, Destilled water

STABILITY OF THE HYDROGEN MOLECULE INTERACTING WITH THE ENVIRONMENT

Izabela Wrona

Institute of Physics, Jan Długosz University in Częstochowa,
Ave. Armii Krajowej 13/15, 42-200, Częstochowa, Poland

izabelawrona2107@op.pl

A few words about the author:

I am a PhD student in physics. I am interested in quantum mechanics and superconductivity, especially in the framework of the Eliashberg approach.

Abstract:

The main objective of the work is to examine the properties of the hydrogen molecule interacting with the environment in a stationary case.
Classical quantum mechanics is based on the Hermiticity of Hamilotonian axiom. This condition guarantees the real energy spectrum of the physical system and its unitary time evolution. However, there is an alternative formulation of quantum mechanics, based on the requirement of invariance of the Hamiltonian in relation to PT symmetry (symmetry of reflection in space (P) and time (T)). What is particularly important, such approach allows performing characteristics of physical states of open systems which are indescribably by hermitian Hamiltonians.
Generally, to describe the physical properties of the discussed system, the calculus and formalism of the second quantization, was used. To account for the interaction of the hydrogen molecule with the environment, an additional operator was introduced into the Hamiltonian (according to the balanced gain and loss energy scheme).
The energy of the basic state of the molecule was calculated for different values of the parameter controlling the interaction with the environment. The effect of PT symmetry breaking on the electronic Hamiltonian and reducing the stability of the system were observed. In addition, observables of the electronic subsystem were calculated. The results showed that the hydrogen molecule interacting with the environment is dynamically unstable.

Keywords:

hydrogen molecule, PT symmetry breaking, interaction with the environment

PLENARY SESSION

MODERN PLOBLEMS OF SOCIETY

ASSESSMENT CENTER AND ITS ROLE IN A RECRUITMENT

Paweł Błoński

Kujawsko-Pomorska Szkoła Wyższa w Bydgoszczy

pawelblonski11@gmail.com

A few words about the author:

I study economics - postgraduade study, I am interested in management, using and developing soft skills. I run soft skills workshops.

Abstract:

Assessment Center becomes the popular method of selection and recruitment employees, especially managers. It lets recruit the best candidates who possess required skills for given posts. The method imitates the real condition of work which shows behaviour and usage of soft skills amongst candidates. The most popular skills that are checked in this way are the following: relationship building, team building, planning, negotiation, motivation, communication, assertiveness, persuasion etc.. Assessment Center process usually takes 1-2 days and candidates take part in a few tasks, both individual and corporate ones. Assessment Center process is longer than a typical recruitment but it results in choosing the right person to the post.

Keywords:

assessment center, development center

THE INFLUENCE OF PHYSICAL ACTIVITY ON SELF-EMPLOYMENT AND SELF-ASSESSMENT OF STUDENTS AND LICEALISTS FROM RZESZÓW AND KOLBUSZOWA

Katarzyna Dudzińska*, Diana Mazek, Karolina Łoś, Marcin Franczyk

University of Rzeszów, Aleja Rejtana 16c, 35-959 Rzeszów

*kasia0911@onet.pl

A few words about the authors:

We are students of tourism and recreation on University of Rzeszów. Moreover, we are members of the student scientific club of travelers.

Abstract:

Admission
Physical activity (movement) accompanies man from the youngest years of his life and it is then that he is most shaped. It is an indispensable factor affecting the physical and psychological well-being of a human being. It occurs in various forms. From everyday household duties such as cleaning, mowing the lawn or raking leaves to physical exercise classes, gym exercises, competition and sporting competitions, and many more.

Methodology of research
The main purpose of the work was to determine how physical activity affects the well-being and self-esteem of students and high school students from Rzeszów and Kolbuszowa. The method of diagnostic survey was used in the work. The tool used was a questionnaire independently prepared by the authors of this work. The research technique used in the work was a questionnaire.

Findings
The role of physical activity is quite high in the respondents' opinion. Self-assessment for 68% of respondents is on the average level. In turn, obstacles that most restrict the group of respondents in undertaking physical activity are lack of time, laziness and learning. The main motives for undertaking physical activity of the subjects are mainly better well-being and maintaining better condition.

Keywords:

physical activity, well-being, self-esteem, Rzeszów, Kolbuszowa

A COMPARISON OF LEON CHWISTEK'S AND WITKACY'S AESTHETICS

Gabriel Bednarz

Jagiellonian University

gabriel.bednarz@student.uj.edu.pl

A few words about the author:

Currently preparing Ph.D. thesis concerning Leon Chwistek's aesthetics. Interested in relationships between logic and aesthetics.

Abstract:

The aim of the presentation to compare main notions of Chwistek's and Witkacy's aesthetics. The former is more concerned with the notion of reality, while the latter stresses more the notion of the form of the work of art, abstracting from its reference to any reality. Also, the two philosophers and artists, use the notion of "metaphysical experience", but it means different experiences if one looks closer to the aesthetics of both thinkers. The common feature of their aesthetics is, however, their rejection of realism and naturalism in the arts.

Keywords:

Chwistek, Witkacy, theory, art, aesthetics

NEW PUBLIC MANAGEMENT IN THE CONTEXT OF THE UNIVERSITY

Wioleta Gałat

Cracow University of Economics

wioleta.joanna.gawel@gmail.com

A few words about the author:

PhD student at the Faculty of Economics and International Relations at the University of Economics in Krakow. A graduate of MA studies in Economics with a specialization in Personnel Management and Consulting at the University of Economics in Krakow.

Abstract:

In the 1980s, the process of implementing the principles of new public management in higher education began. The reforms of higher education undertaken were intended to increase efficiency. The rules of the new public management by their character are also introduced by changes at the university itself. Analyzing them and reflecting on future trends is therefore particularly important. The paper will present the principles of new public management in the context of the university.

Keywords:

management, university, new public management

CAN DIGITAL REVOLUTION REVOLUTIONIZE PSYCHOLOGY?

Kaja Głomb

The Institute of Applied Psychology, Jagiellonian University

kaja.glomb@doctoral.uj.edu.pl

A few words about the author:

PhD student mostly interested in forensic psychology and neuroscience in courtroom. Conducts research in a field of eyewitness testimony and its cognitive and affective aspects.

Abstract:

In times of digital revolution, modern technologies are of interest to psychologist mainly in context of threats related to their abuse. However, psychology could benefit greatly from including them in the repertoire of tools – both research and therapeutic. From the standpoint experimental psychologists, interested among others in behavior, emotions, cognitive and decision-making processes, digital technologies could change reseach paradigm. One way of achiving it is by implementation of virtual reality (VR) enviroment and similar technologies. It has the potential to revolutionize laboratory studies by giving reasearches chance to observe real behavior and authentic reactions in strictly controlled condition that imitates reality. Despite the undoubted advantages of VR, psychologist use that technology sparsely and mainly in therapeutic context. It finds applications primarily in phobias therapy, as well as in the treatment of Post Traumatic Stress Disorder (PTSD). An obstacle to the popularisation of the VR environment in experimental research seems to be, above all, the costs of creating appropriate simulations, as well as the need of better understandng the phenomenon of immersion, which seems to be crucial to imitate the desirable states or mental processes.

Keywords:

virtual technology, experimental psychology, digital tools, methodology, therapy

CHILDREN VICTIMS OF TERROR, OR POLISH LANGUAGE EDUCATION IN THE INITIAL TEACHING.

Weronika Kisiel

University of Lodz, Faculty of Educational Sciences/ Uniwersytet Łódzki, Wydział Nauk o Wychowaniu

weronika.kisiel.poczta@onet.eu

A few words about the author:

I'm a PhD student of the first year, I deal with glottodidactics - a specific method of learning to read and write children at a younger school age.

Abstract:

Writing and reading are the basic skills that a child at a younger school age should have in the framework of Polish language education. Writing is a more complicated activity, because it requires active knowledge of letters and developed motor skills. Adults who live in shining letters do not notice many of the difficulties that children's phones in the world must face. Speaking of writing, you can not forget about its correctness, eg in terms of spelling. Dictation is the most popular method of recording known spelling rules and checking students' knowledge. Professor Bronisław Rocławski defines such a traditional dictation as a manifestation of educational terror, while proposing an alternative in the form of "spelling windows" (Rocławski, 1998, 2008).

It's time to tell the truth about the hardships of our spelling. The alphabetical writing, whose fathers are the brilliant ancient Greeks, requires constant corrections. This is due to the variability of the spoken variety. We are not able to stop these changes and every teacher should be aware that, therefore, it is extremely easy to become a mindless perpetrator. It is enough to apply traditional dictations in your educational practice. The results of the study confirm that the use of traditional dictations does not serve to develop children's spelling skills and deprives them of the chance to write correctly spelling. The use of spelling windows, on the other hand, builds sensitivity and spelling awareness.

Keywords:

learning to write, spelling, dictation, initial education

EXISTENTIAL ANXIETY-HUMAN PERSON LIFE EVENTS

Dominika Kołodziejska

Katolicki Uniwersytet Lubelski Jana Pawła II; Mazowiecki Szpital Specjalistyczny w Radomiu

d-kolodziejska@wp.pl

A few words about the author:

I'm working in Hospital in Radom in the Hematology Unit. I conduct research in the file of psychology. i have finished neuropsychology specialization.

Abstract:

Existential anxiety qualitatively different than from fear and anxiety. It is not a direct reaction to a threat connected with escape or fight with danger (fear). It is proportional to external stimuli and devoid of vegetative and behavioral symptoms (anxiety). The problem raised in the research concerns the structure and function of existential anxiety. The methods used in the conducted study are the Qualitative Personalist Analysis Test of the Uchnast and Personal Resilience Test of the Uchnast. Its topic is personal experience presented in the form of written reports presenting specific life events. The analysis of 124 life events for people aged 18-76 is the basis for drawing the following conclusions: existential aanxiety is a complex human experience in a difficult, often unexpected, life situation that questions the ways in which the world works.

Keywords:

existential anxiety, personal experience, life event

AMENDMENTS TO THE PART OF THE PROVISIONS ON LIMITATION OF CLAIMS AND THE IMPACT ON THE SITUATION OF CONSUMERS AND ENTREPRENEURS

Szymon Skowerski

Katolicki Uniwersytet Lubelski Jana Pawła II

szyonskowerski@tlen.pl

A few words about the author:

The author is a PhD student and an employee of the legal adviser's office. His interests focus on private law, especially in inheritance law.

Abstract:

On July 9, 2018, after introduction of acto zmianie ustawy – Kodeks cywilny oraz niektórych innych ustaw of April 13, 2018 (Dz.U. poz. 1104), a part of the rules has received the new wording concerning the limitation of claims.
The changes concerned in particular the length of the limitation periods. The amendment also defined the day on which the claim falling with the creditor is time-barred. The introduction of such a significant amendment to the Civil Code, which essentially affects the possibility of pursuing claims in the light of a long period of time, required the development of intertemporal provisions that will clearly determine what regulation - new or existing - will apply to continuing legal relations.

1) It can be noticed that in the relations between entrepreneurs and consumers an important issue is defining which group of civil law entities the amendment will strike the most and whether changes introduced by the legislator do not violate the basic principle of equality of the parties. Shorter limitation periods put traders at a disadvantage compared to the consumer.
2) In the context of the amendment, doubts arise. In particular, the appropriateness of changes in the subject matter of limitation periods and their length.
3) Introduction of the regulation of art. 117 1 k.c. it is a kind of "restoration" of the repealed Article 117 § 3 k.c.

Keywords:

term of the claim limitation, amendment, Civil Code, Entrepreneur

MEDIATION ROLE OF SELECTED SOCIODEMOGRAPHIC, PSYCHOLOGICAL AND MEDICAL VARIABLES IN ASSESSING THE WELL-BEING OF PATIENTS IN PERIOPERATIVE CONDITIONS

Mirosława Spaleniak-Jurkowska

PCZ SP.z.o.o. Szpital Kartuzy, ul Ceynowy 7, 83-300 Kartuzy

mirka@psycholog-dlaciebie.pl

A few words about the author:

The author is a health psychologist. He conducts research in a district hospital. She extended her education to psychotraumatology and psychooncology. He uses mindfulness techniques in psychological support, reducing stress and pain.

Abstract:

The aim of the research is to verify hypotheses about the influence of sociodemographic, medical and psychological variables. Among many of them, the resilience factors such as hardiness, social support and alexithymia play a significant role. The presentation will refer to preliminary reports from studies involving 120 subjects from the departments of surgery and gynecology.

Keywords:

health psychology, conservation of resources, stres, hardiness, resiliece

THE IMAGE OF ROMANTIC LOVE IN THE LETTERS OF ZYGMUNT KRASIŃSKI

Anna Szewczykowska

Jan Długosz University in Częstochowa

annaszewczykowska1@gmail.com

A few words about the author:

I'm a student of literary science. The title of my master thesis was: Witness to the Epoch. Krasiński as an Epistolographer. I want to eleborate on the topic, so I decided to present romantic love in his letters.

Abstract:

Krasiński as a child of his time followed the romantic ideas according to which life without love was pointless. Romantic love rejected all norms and conventions and offered a sense of infinity and limitlessness.
It was that kind of love that Krasiński craved. Joanna Bobrowa and Delfina Potocka seemed to be ideal candidates as they perfectly fitted into the romantic vision of love. However, it is hard to determine whether the feelings described by the poet were genuine or rather a mere stylisation aimed at creating the image of a romantic lover. An answer to this question may be found in Krasiński's rich correspondence which dealt with the subject of love very frequently.

Keywords:

love, Romanticism, letters

PLENARY SESSION

INTERDISCIPLINARY ENGLISH SESSION

PREDICTING THE FUTURE BY SIMULATING THE PAST: METHOD OF HISTORICAL SIMULATION IN INVESTMENT PROFITABILITY ANALYSIS

Paweł Konopnicki

Poznań University of Economics and Business

51743@student.ue.poznan.pl

A few words about the author:

Student of Finance and Accounting at the Poznań University of Economics and Business. Interested in quantitative and qualitative data analysis, energy markets and risk management.

Abstract:

Historical simulation is a transformation procedure that employs the Monte Carlo method with historical realizations. By using historical data, it simulates possible products, such as number of elephants, revenue or profit. Since it uses empirical data (data may or may not concern carrots), this method has fewer assumptions related to the distribution of variables (in contrast to regular Monte Carlo method). We apply historical simulation in analysis of wind, photovoltaic, biogas and hydroelectric power plants (data does not concern carrots). We use historical data about prices on power exchange spot market and historical data about production volumes to calculate distributions of revenue that can be generated by such plants.

Keywords:

energy markets, historical simulation, monte carlo

REGULATORY AND ECONOMIC DETERMINANTS OF RENEWABLE ENERGY DEVELOPMENT IN POLAND

Paweł Konopnicki

Poznań University of Economics and Business

51743@student.ue.poznan.pl

A few words about the author:

Student of Finance and Accounting at the Poznań University of Economics and Business. Interested in quantitative and qualitative data analysis, energy markets and risk management.

Abstract:

The development of renewable energy in Poland has been slower than expected. Poland has not yet achieved the goal of 15 percent share of renewable energy sources (RES) in final energy consumption (to which it committed to the European Parliament) and probably will not achieve it by the designated date of 2020. Slow development of RES is due to regulatory constraints, instability of public aid and general lack of political will or politicians' basic understanding of how energy markets work. We analyze regulatory environment, current state of development and the impact of public aid (investment and operational) on economic conditions.

Keywords:

renewable energy sources, public aid, regulatory environment

EFFECT OF TRICHODERMA HARZIANUM EXTRACT ON THE GROWTH AND PRODUCTION OF FUSARIUM CULMORUM MYCOTOXINS

Julia Mironenka*, Przemysław Bernat

Faculty of Industrial Microbiology and Biotechnology,
Department of Biology and Environmental Protection, University of Lodz

*yuliya.datskova@unilodz.eu

A few words about the author:

I'm the PhD student in the Faculty of Industrial Microbiology and Biotechnology, Department of Biology and Environmental Protection, University of Lodz.

Abstract:

Fusarium culmorum is a ubiquitous soil-borne fungus able to cause foot and root rot. Fusarium head blight on different small-grain cereals, in particular wheat and barley. It causes significant yield and quality losses and results in contamination of the grain with mycotoxins. The main mycotoxins produced by F. culmorum include the trichothecenes (DON, nivalenol (NIV), 3-acetyldeoxynivalenol and acetyl T-2 toxin), zearalenone (ZON) and fusarins. Trichothecenes are the largest group of mycotoxins. The trichothecenes, including DON, acetyldeoxynivalenol, NIV, and fusarenone X, are common fungal contaminants of cereals and occur naturally worldwide. Consumption of these toxins is a potential problem for humans and farm animals.
In recent times, there has been a worldwide swing to the use of eco-friendly methods for protecting the crops from pests and diseases. Trichoderma have attracted the attention because of their multiprong action against various plant pathogens, among them Trichoderma harzianum is known as a cosmopolitan, commonly found in the soil. It is possibly the most commonly used name in agricultural applications involving Trichoderma, including biological control of plant diseases.
In present study, the influence of T. harzianum metabolites on the production of F. culmorum mycotoxins was investigated. The analysis was carried out using tandem mass spectrometry and chromatographic techniques.

Keywords:

mycotoxins, secondary metabolites, Fusarium, Trichoderma

COLUMN EXPERIMENTS IN THE MIGRATION STUDIES OF SELECTED CONTAMINANTS OF EMERGING CONCERN IN THE AQUATIC ENVIRONMENT

Damian Pietrzak

AGH University of Science and Technology, Mickiewicza 30 Av., 30-059 Kraków, Poland

pietrzak@agh.edu.pl

A few words about the author:

I am on the third year of PhD studies on Department of Hydrogeology and Engineering Geology at AGH University of Science and Technology in Cracow. I deal with groundwater quality and groundwater contaminations.

Abstract:

Recently, contaminants of emerging concerns (CECs), e.g. pesticides or pharmaceuticals are increasingly being detected in groundwater in the pg/L and ng/L range. Many factors can affect the mobility of these substances in soil and water, including soil characteristics (texture, organic matter and clay content, permeability), physicochemical properties of contaminants (e.g. solubility in water), as well as the timing and pathway of application. The migration of most of the CECs has not received sufficient examination so far, hence there is a necessity for further investigations. A column experiment can be applied for this purpose. Soil columns have been used for many years to evaluate transport models and to monitor the fate and mobility of contaminants in soil. Analysis of obtained breakthrough curves allow to reproduce the conditions encountered in different soils, and to determine contaminants migration processes and parameters, such as retardation factor (R), sorption parameters (Kd, Kf, Koc, sorption isotherm) and degradation parameters (DT50) etc., which in turn affect the amount and distance of CECs migration. This review summarises the different technical specification of the column experiment in these compounds migration studies. Finally, results of preliminary column test using chloride as a conservative tracer, which is a reference point for further investigation, were shown.

Keywords:

pesticides, pharmaceuticals, column experiment, contaminants migration

THE QUALITY OF COLOSTRUM AS A CRUCIAL FACTOR INFLUENCING THE DEVELOPMENT OF CALVES

Paweł Solarczyk*, Kamila Puppel, Grzegorz Grodkowski, Beata Kuczyńska

Warsaw University of Life Sciences, Faculty of Animal Science,
Department of Animal Breeding and Production, Cattle Breeding Division

*pawel_solarczyk@sggw.pl

A few words about the author:

PhD student at the Faculty of Animal Sciences, scientific interests: cattle breeding.

Abstract:

Colostrum is undoubtedly the most important food in the life of a calf. First of all, it is a source of antibodies for a calf, the so-called immunoglobulins. Due to the specific structure of placenta, when a calf is born the immunoglobulins do not circulate in its blood or only a small amount does because these compounds are not distributed from the mother's blood circulation system to the fetus unlike among humans. These compounds are distributed to a calf via colostrum. The effectiveness of the calf's immunological system in the first 2-3 weeks of life depends on receiving the colostrum and effectively the antibodies as the calf does not produce its own antibodies, or produces them in very small amounts.

Keywords:

colostrum, immunoglobulins, immunological

BASIC PROBLEMS IN DAIRY CATTLE BREEDING

Paweł Solarczyk*, Kamila Puppel, Grzegorz Grodkowski, Beata Kuczyńska

Warsaw University of Life Sciences, Faculty of Animal Science,
Department of Animal Breeding and Production, Cattle Breeding Division

*pawel_solarczyk@sggw.pl

A few words about the author:

PhD student at the Faculty of Animal Sciences, scientific interests: cattle breeding.

Abstract:

Breeding of dairy cattle is one of the most important branches of agricultural production. It owes its high quality to consistently conducted breeding works in terms of milk features and features of the type and structure. This would not be possible without the development of insemination, the great advantage of which (as a breeding method) is that the sperm of the best breeders, after prior assessment of their genetic value, can be used on a large scale. Unfortunately, apart from the positive effects of breeding works being carried out (e.g high productivity), negative ones connected with low-inherited traits are also becoming more and more frequent, which include deterioration of cow's health and immunology as well as inflammatory conditions of mastitis, fertility and longevity. Both the global and national population of Holstein cows is becoming more and more inbred, which consequently translates into an increase in inbreeding depression. This is due to the reduction of genetic diversity within the entire population and the increase in relatedness, which is largely due to the excessive use of sperm from the best breeders.

Keywords:

high productivity, mastitis, inbreeding depression

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