

AL-FARABI KAZAKH
NATIONAL UNIVERSITY



INFORMATION
about publication activity
FACULTY OF PRE-UNIVERSITY EDUCATION

№	Наименование публикации	Выходные данные (doi статьи)	Аннотация статьи	Ссылка для цитирования (Ф.И.О., название статьи, название, номер и/или выпуск, том журнала, страницы, doi статьи)
1	Cognitive linguistic analyses of the phraseological units in modern linguistics XLinguae 2020 . 13, с. 216-224	DOI: 10.18355/XL.2020.13.02.18	In our research, we set out to show the specifics of the implementation of the sign of constructive conditionality in the field of phraseology, to establish the syntactic constructions necessary for the semantics of phraseological units, characterized by the constructive conditionality of their functioning, to show the determinism of the structure that defines the use of phraseological units in speech, the grammatical structure and the lexical-grammatical composition of verbal complex-prototype of the phraseological unit. Phraseological units that realize their values under the condition of a strictly defined structure are characterized by a sign of constructive conditioning.	Kalybayeva, K., Odanova, S., Tymbolova, A., Erchozhina, S., Musayeva, G. Cognitive linguistic analyses of the phraseological units in modern linguistics XLinguae 2020 . 13, с. 216-224 https://www.kaznu.kz/content/files/pages/folder22526/XLinguae2_2020_18.pdf

			Such units are widely represented in modern English and, along with other types of phraseological units, are part of the English phraseological foundation. They are not able to independently represent what is indicated by means of the values assigned to them, irrespective of the mandatory actualizing effect on these values from the side of the verbal sign.	
2	Modified Activated Graphene-Based Carbon Electrodes from Rice Husk for Supercapacitor Applications	https://doi.org/10.3390/en13184943	The renewable biomass material obtained from rice husk, a low-cost agricultural waste, was used as a precursor to synthesize a highly porous graphene-based carbon as electrode material for supercapacitors. Activated graphene-based carbon (AGC) was obtained by a two-step chemical procedure and exhibited a very high specific surface area (SSA) of 3292 m ² g ⁻¹ . The surface morphology of the synthesized materials was studied using scanning and transmission electron microscopy (SEM, TEM). Furthermore, the AGC was modified with nickel hydroxide Ni(OH) ₂ through a simple chemical precipitation method. It was found that the most significant increase in capacitance could be reached with Ni(OH) ₂ loadings of around 9 wt.%. The measured specific capacitance of the pure AGC supercapacitor electrodes was 236 F g ⁻¹ , whereas electrodes from the material modified with 9 wt.% Ni(OH) ₂ showed a specific capacitance of up to 300 F g ⁻¹ at a current density of 50 mA g ⁻¹ . The increase in specific	Yeleuov M, Seidl C, Temirgaliyeva T, Taurbekov A, Prikhodko N, Lesbayev B, Sultanov F, Daulbayev C, Kumekov S. Modified Activated Graphene-Based Carbon Electrodes from Rice Husk for Supercapacitor Applications. Energies. 2020; 13(18):4943. https://doi.org/10.3390/en13184943

			capacitance achieved due to chemical modification was, therefore 27%.	
3	High-Efficiency Selective Solar Absorber from Nanostructured Carbonized Plant Raw Material.	https://doi.org/10.1007/s10891-020-02203-7	The results of investigation into the absorptivity of carbonized rice-husk plant material with regard to solar radiation have been given. It has been shown that an absorber based on leached carbonized rice husk has higher solar absorptivity than an absorber based on carbonized apricot pits with an Apricus coating and an absorber based on a commercial Chinese-made coating. The results of investigation into the physical and chemical properties of carbonized rice husk have been presented. It has been shown that the carbon content in the initial unleached rice husk powder is 82.3%, and after leaching, the percentage of carbon rises up to 93.3%. Based on the results of a BET (Brunauer–Emmet–Teller) analysis, it has been established that leached rice husk has a more developed specific surface (447–641 m ² /g) and a higher specific volume of pores (0.27–0.392 cm ³ /g) than unleached rice husk (127–160 m ² /g and 0.054–0.127 cm ³ /g respectively). The advantage of the considered plant-based carbon materials compared to the exiting coatings lies in their porous structure. Cavities are known to be a model of a blackbody, which is a decisive factor in using a material as an absorber, and, simultaneously, a porous structure has a heat-insulating property.	T. S. Temirgalieva, . High-Efficiency Selective Solar Absorber from Nanostructured Carbonized Plant Raw Material. J Eng Phys Thermophy 93, 1020–1029 (2020).3 https://doi.org/10.1007/s10891-020-02203-7
4	Synthesis of Multiwall Carbon	https://doi.org/10.1007/s10891-020-02094-8	Results of the functionalization of multiwall carbon nanotubes by an aqueous solution of	Temirgaliyeva, T.S

	Nanotubes by the Cvd Method and their Functionalization		nitric acid and a mixture of nitric and sulfuric acids with subsequent treatment of them by ultrasound are presented. The presence of functional groups on the surface of multiwall carbon nanotubes was determined with the use of IR spectroscopy.	Synthesis of Multiwall Carbon Nanotubes by the Cvd Method and their Functionalization. <i>J Eng Phys Thermophy</i> 93, 91–94 (2020). https://doi.org/10.1007/s10891-020-02094-8
5	A Short Review on the N,N-Dimethylacrylamide-Based Hydrogels	https://doi.org/10.3390/gels7040234	Scientists have been encouraged to find different methods for removing harmful heavy metal ions and dyes from bodies of water. The adsorption technique offers promising outcomes for heavy metal ion removal and is simple to run on a large scale, making it appropriate for practical applications. Many adsorbent hydrogels have been developed and reported, comprising N,N-dimethylacrylamide (DMAA)-based hydrogels, which have attracted a lot of interest due to their reusability, simplicity of synthesis, and processing. DMAA hydrogels are also a suitable choice for self-healing materials and materials with good mechanical properties. This review work discusses the recent studies of DMAA-based hydrogels such as hydrogels for dye removal and the removal of hazardous heavy metal ions from water. Furthermore, there are also references about their conduct for self-healing materials and for enhancing mechanical properties.	Nurgul Amangeldi A Short Review on the N,N-Dimethylacrylamide-Based Hydrogels <i>Gels</i> 2021 , 7(4), 234; https://www.mdpi.com/2310-2861/7/4/234
6	Synthesis and Heavy-Metal Sorption Studies of N,N-Dimethylacrylamide	https://doi.org/10.3390/polym13183084	In this work, a hydrogel system was produced via radical polymerization of N,N-dimethylacrylamide and 2-acrylamido-2-methylpropanesulfonic acid in the presence of N,N-methylene-bis-acrylamide as a	Nurgul Amangeldi Synthesis and Heavy-Metal Sorption Studies of N,N-Dimethylacrylamide-Based Hydrogels <i>Polymers</i> 2021, 13(18) , 3084;

	de-Based Hydrogels		crosslinker and ammonium persulfate as an initiator. Parameters that impact the conversion of copolymerization (such as initial concentration of monomers, temperature, initiator dose, and time) were studied. The swelling degree of the hydrogel was investigated with the addition of a crosslinker and initiator at different pH levels. A hydrogel with high conversion and high swelling degree was selected to investigate their ability for adsorption of Pb(II) ions from solutions. Adsorption behavior of Pb(II) ions in a hydrogel was examined as a function of reaction time and concentration of lead ions from a solution of Pb(II) ions.	https://www.mdpi.com/2073-4360/13/18/3084
7	Effectiveness of Biologics Application Against Root Rot of Grain Crops	DOI : http://dx.doi.org/10.13005/bbra/2355	The article studies the application of biologics in agriculture. Laboratory and field experiments were conducted on spring wheat. The effect of biologics on germination and biomass accumulation of wheat was studied. Also, laboratory and field experiments were conducted with "Baisheshek" barley variety. Rating of winter wheat biometrics in soil salinity conditions was conducted as well. The effect of biologics on germination and yield of wheat was studied.	Nurgul Amangeldi Effectiveness of Biologics Application Against Root Rot of Grain Crops Biosciences biotechnology research Asia, volume 13,number 4 http://www.biotech-asia.org/vol13no4/effectiveness-of-biologics-application-against-root-rot-of-grain-crops/
8	The Story of Turkestan: Ethnic Distinction of Kazakhs in European Written Sources	DOI: http://www.spaceandculture.in/index.php/spaceandculture/article/view/659	This research aims to examine the ethnographic data about the Kazakh ethnic group from the European sources of the middle XIII to early XX centuries. The study uses problem-chronological and comparative-historical analyses to process data published by European travellers, merchants, soldiers and scientists.	A.K.Begalieva . Space and Culture, India , 2020 Page 210-218. tp://www.spaceandculture.in/index.php/spaceandculture/article/view/659/404

			<p>The European works contain factual inaccuracies, unverified information and speculations. Their quality has improved since the XVIII century though. The findings of European explorers allow a better understanding of the ethnogenesis of Kazakhs and their transition to statehood. Data available in these sources will help find the historical roots of contemporary ethnic and inter-ethnic problems in Kazakhstan and Central Asia. The present study allowed a look at the past life of Kazakh people and their ethnic distinction in Turkestan through the lens of European mentality.</p>	
9	<p>A mini-review on recent trends in prospective use of porous 1D nanomaterials for hydrogen storage</p>	<p>https://doi.org/10.1016/j.sajce.2021.11.008</p>	<p>The sustainable development of hydrogen energy is a priority task for a possible solution to the global energy crisis. Hydrogen is a clean and renewable energy source that today is used exclusively in the form of compressed gas or in liquefied form, which prevents its widespread use. Storing hydrogen in solid-state systems will not only increase the bulk density and gravimetric capacity, but will also have a positive impact on safety issues. From this point of view, the current review considers the latest research in the field of application of 1D nanomaterials for solid-state hydrogen storage, and also discusses the mechanisms of its adsorption and desorption. Despite the high publication activity, the use of 1D nanomaterials for hydrogen storage has not been fully studied. In the current review, modern developments in the field of hydrogen</p>	<p>Chingis Daulbayev, Bakhytzhan Lesbayev, Baglan Bakbolat, Bayan Kaidar, Fail Sultanov, Mukhtar Yeleuov, Gauhar Ustayeva, Nurgali Rakhymzhan, A mini-review on recent trends in prospective use of porous 1D nanomaterials for hydrogen storage, South African Journal of Chemical Engineering, Volume 39, 2022, Pages 52-61, ISSN -9185, ://doi.org/10.1016/j.sajce.2021.11.008.</p>

			storage using 1D nanomaterials and composites based on them are investigated in detail, and their problems and future prospects are discussed.	
10	The recent progress in pitch derived carbon fibers applications. A Review	https://doi.org/10.1016/j.sajce.2021.07.001	Interest in carbon fibers (CFs) is due to their chemical properties, high electrical conductivity and mechanical strength, which makes them promising candidates for various kinds of practical applications. The need to develop low-cost technologies for producing CFs is a major factor in research in this area. Currently, the widespread commercial use of CFs is limited by their high cost, which primarily depends on the type of carbon feedstock. Conventional methods for producing CFs use expensive raw materials such as hydrocarbons and graphite. A possible solution to this problem is the use of coal, petroleum and coal tar as an effective precursor to produce CFs. The review examines recent progress in the synthesis of CFs using petroleum and coal tar and details the prospects for their application in the energy sector and as a structural material for the adsorption of volatile organic compounds. In addition, methods for improving the chemical and structural properties of these CFs have been reviewed and described.	Chingis Daulbayev, Bayan Kaidar, Fail Sultanov, Baglan Bakbolat, Gaukhar Smagulova, Zulkhair Mansurov, The recent progress in pitch derived carbon fibers applications. A Review, South African Journal of Chemical Engineering, Volume 38, 2021, Pages 9-20, ISSN 1026-9185, https://doi.org/10.1016/j.sajce.2021.07.001 .
11	Recycling of Low-Density Polyethylene Waste for	https://doi.org/10.1007/s10891-021-02313-w	The authors have presented results of synthesis of carbon nanotubes from low-density polyethylene. The synthesis was carried by thermal destruction of the polyethylene in a chemical-vapor-deposition unit. The process of	Smagulova, G.T., Vassilyeva, N., Kaidar, B.B. et al. Recycling of Low-Density Polyethylene Waste for Synthesis of Carbon Nanotubes. J Eng Phys Thermophy 94, 431–436 (2021).

	Synthesis of Carbon Nanotubes		<p>decomposition of the polyethylene and the synthesis of carbon nanotubes were implemented in one stage in a triple-fired furnace for chemical vapor deposition. Consideration has been given to the influence of temperature on the decomposition products of polyethylene in the range of temperatures 450–550°C. The gas- and vaporphase decomposition products of polyethylene, obtained at different temperatures, were investigated by the infrared spectroscopy method. It has been established that the necessary and sufficient temperature of decomposition of polyethylene is 450°C. Carbon nanotubes were grown on a catalyst that represented cenospheres impregnated with a ferrous nitrate solution. On exposure to high temperatures, ferrous nitrate decomposes to form pure iron particles on the cenospheric surface, which are active sites of growth of carbon nanotubes. The formation of iron particles on the cenospheric surface upon the impregnation with ferrous nitrate and thermal treatment is confirmed by the results of x-ray phase analysis. A semiquantitative analysis shows that the content of iron in the total catalysts mass amounts to about 2.3%. The synthesis gives rise to carbon nanotubes with diameters of 50–60 nm on the cenospheric surface. Thus, it has been shown that carbon nanotubes can be synthesized from low-density polyethylene waste.</p>	<p>https://doi.org/10.1007/s10891-021-02313-w</p>
--	-------------------------------	--	--	--

12	Compositional fibers based on coal tar mesophase pitch obtained by electrospinning method	https://doi.org/10.23939/chcht15.03.403	This research examines the use of coal-processing wastes of Shubarkol deposit (Kazakhstan) in obtaining useful materials such as carbon fibers. For our experiments, mesophase pitch was obtained by coal tar heat treatment at 773 K. Spinnable solution was prepared by crushing mesophase pitch into the pieces with adding poly(methylmethacrylate) as a fiber-forming material and 1,2-dichloroethane as a solvent. Elemental analysis revealed that the chemical composition of mesophase pitch (C – 91.48 %; O – 8.52 %; S – 0.00 %) showed that heat treatment up to 773 K leads to the complete removal of sulfur-containing components which affect the mesophase formation. Raman data of the obtained pitch revealed the appearance of D (1366 cm ⁻¹) and G (1605 cm ⁻¹) peaks, which are responsible for carbon materials; another peak at 2900 cm ⁻¹ shows the presence of C–H bonds. Carbon fibers with the diameter of 0.8–1.75 μm were obtained by electrospinning method in laboratory settings.	Aldan Imangazy, Gaukhar Smagulova, Bayan Kaidar, Zulkhair Mansurov, Almagul Kerimkulova, Kuanysh Umbetkaliev, Anvar Zakhidov, Pavel Vorobyev, Talkybek Jumadilov. Compositional Fibers Based on Coal Tar Mesophase Pitch Obtained by Electrospinning Method // Ch&ChT Vol. 15, No. 3, 2021, pp. 403-407, https://doi.org/10.23939/chcht15.03.403
13	Synthesis of carbon nanotubes from benzene in a fluidised bed reactor	https://doi.org/10.18321/ectj982	The paper presents the results of carbon nanotubes synthesis from benzene in fluidised bed reactor. Al ₂ O ₃ spheres with iron and nickel nanoparticles coating were used as a catalyst for the synthesis of carbon nanotubes. To deposit nickel nanoparticles on the surface of Al ₂ O ₃ spheres, the method of solution combustion was used. Optimum temperature conditions and gas flow rates were worked out for each of the catalysts. It was found that the	G. Smagulova, B. Kaidar, N. Yesbolov, N. Prikhodko, and N. Maxumzhanova, “Synthesis of Carbon Nanotubes from Benzene in a Fluidised Bed Reactor”, Eurasian Chem.-Technol. J., vol. 22, no. 3, pp. 235-239, Sep. 2020.

			<p>best efficiency in the synthesis of carbon nanotubes from benzene is shown by catalysts based on aluminium oxide coated with iron. The obtained carbon nanotubes were studied by scanning electron microscopy and Raman spectroscopy. It was found that at temperatures above 850 °C from benzene on Al₂O₃ spheres with Ni/NiO, carbon frame structures are formed.</p>	
14	The Complex of Experimental Facilities for the Cosmic Ray Investigation at the Tien Shan Mountain Station	https://doi.org/10.3390/app12010465	<p>The study describes the experimental complex of the station located in the Tien Shan mountains at an elevation of 3340 m above sea level. The complex consists of detectors of different types scattered across the station area, such as scintillation particles detectors, Cherenkov detectors, radio emission detectors for the measurement of the electron component of extensive air showers (EAS) created by the (1–1000) PeV cosmic ray particles, an ionization calorimeter and neutron detectors for the study of the nuclear-active component of EAS cores, and the underground particle detectors for the detection of cosmic ray muons. The data acquisition system allows the simultaneous recording of parameters from various stand-alone detectors registering an EAS, and storage of the acquired data in the database. As an illustration of research capability, the results of the EAS study are presented here which were obtained during the last few years at the different experimental set-ups constituting the Tien Shan complex.</p>	<p>Mukashev K, Argynova A, Zhukov V, Idrissova T, Iskakov B, Piskal V, Sadykov T, Sadykov Z, Stepanov A, Serikkanov A. The Complex of Experimental Facilities for the Cosmic Ray Investigation at the Tien Shan Mountain Station. <i>Applied Sciences</i>. 2022; 12(1):465. https://doi.org/10.3390/app12010465</p>

15	Solar cell research at an altitude of 3340 meters above sea level	https://doi.org/10.1016/j.matpr.2021.06.097	<p>Providing electricity to consumers in the mountainous regions is one of the urgent problems of power engineers. Laying and maintenance of power lines is expensive because of the difficult terrain and climatic conditions. Providing a heating system for heating boilers, requires the acquisition and delivery of large quantities of combustible material. The heating season in the highlands lasts up to nine months. Considering all the costs of electricity consumption and heating, it becomes necessary to conduct research and evaluate the economic efficiency of using solar power plants, focused on providing electricity to consumers in mountain regions. In order to create a scientific basis for solving innovative problems in solar energy at the Tien Shan high-mountain cosmic ray scientific station (TSHSS), located at an altitude of 3340 m above sea level, initiative work is underway to create a solar power station (SPS), assess its effectiveness, safety, environmental friendliness and reliability in work. At the moment, a solar power station has been created at an altitude of 3340 m above sea level. A comparative analysis of the results of generating electricity from the same type of solar power stations located at altitudes of 800 and 3340 m above sea level was carried out. It is shown that the amount of electricity generated by a solar power station at an altitude of 3340 is 20 percent more than at an altitude of 800 m.</p>	<p>Sadykov Turlan, Zhukov Valeriy, Iskakov Bakhtiyar, Nevmerzhitskiy Ivan, Serikkanov Abay, Novolodskaya Olga, Tautayev Yernar. Solar cell research at an altitude of 3340 meters above sea level // <i>Materials Today. Proceedings.</i> <u>Volume 49, Part 6</u>, 2022, Pages 2537-2539. DOI: https://doi.org/10.1016/j.matpr.2021.06.097</p>
----	---	---	---	---

16	Study of the energy spectrum of cosmic rays obtained at the Hadron 55 installation located at an altitude of 3340 m.	https://doi.org/10.22323/1.395.0185	<p>“HADRON-55” with scintillation detectors and ionization calorimeters is used for studies in high-energy gamma-astronomy and cosmic ray physics. The “HADRON-55” consists of two parts - the upper gamma block and the lower hadron block. The gamma block absorbs and detects the electron-photon components of cosmic rays, while hadrons are not absorbed when they pass through the gamma block and begins to form particles in the hadron block. Project’s main idea is to select events where there is the interaction in gamma block and no interaction in hadron block. Analysis of experiments results on “HADRON-55” accounts for ~ 6% of such events. The peripheral part of "HADRON-55" consists of 8 scintillation detectors placed in 2 circles with radii of 40 and 100 m. Over 4 years, more than 120,000 events with high energy of 10^{15} eV were detected.</p>	<p>T. Berdykhalyk, B. Iskakov, A. Argynova, M. Altayqyzy, T. Idrisova, O. Novolodskay, V. Piscal, V. Ryabov, T. Sadykov, Z. Sadykov, Y. Tautayev and N. Yerezhep. Study of the energy spectrum of cosmic rays obtained at the Hadron 55 installation located at an altitude of 3340 m. // <u>37th International Cosmic Ray Conference (ICRC2021)</u>. Proceedings of Science. Volume 395. DOI: https://doi.org/10.22323/1.395.0185</p>
----	--	---	---	--