



RESEARCH NEWSLETTER

OFFICE OF THE PROVOST - RESEARCH ADMINISTRATION
QUARTERLY EDITION

December 29, 2022 | Issue 37



IN THIS ISSUE

- Scopus Awards Kazakhstan 2022 2
- «Best Researcher» Award 2022 3
- NU professors in the world top 2% 3
- Development of a Kazakhstani Observation Protocol for Reformed Teaching Practices 4
- Political Economy of Education Research Network updates 6
- Research News of the Graduate School of Business 12
- Entrepreneurship, innovation, and technology: Challenges, opportunities, and prospects in the CIS region 15
- A New Extraction Method for Gold from Organic Matter 33
- How Boolean formulas can be sparsified using classical database theory? 35
- How to reduce number of dimensions in data? 36
- Dr. J. Michael Ryan has published two new edited volumes related to the ongoing COVID-19 pandemic 37

- Analytical predictions of concrete pumping: Current state of the art 38
- Infrastructure-less instant messaging system 39
- NU representatives participated in SIPS summit 40
- World Smart Energy Week 41
- Kazakh Text-To-Speech 2 42
- Kazakh Speech Corpus 2 42
- Kazakh Named Entity Recognition 43
- Research publications performance ... 44
- Funding Opportunities 45
- New research papers 48



2022 AWARDS

SCOPUS AWARDS KAZAKHSTAN 2022



The Elsevier Company, a recognized leader in the field of scientific information, actively promotes development of science in the world. The organization together with the governments have been awarding outstanding researchers and young scientists across the globe for many years.

The international Scopus Award is an objective indicator of scientific contribution made by an individual author to the development of national science that is measured by the number of published scientific articles and their corresponding citations in international journals. All considered articles are published in reputable journals indexed by the Scopus database, the world's largest multidisciplinary abstract database, which contains more than 23,000 titles of scientific, technical, and medical journals from 7,000 international publishers.

Scopus Awards Kazakhstan 2022 was held on 15th of November in Astana at Sheraton hotel. The event started with the opening speech by Sayasat Nurbek, Minister of Science and Higher Education of the Republic of Kazakhstan. As part of the Award ceremony program there was a round table inviting all award winners to participate in a discussion about Future of research in Kazakhstan.

Nazarbayev University received a Scopus Award in «Research Excellence» nomination. There are eight scientists from NU who received an award for research achievements in their fields - Abduzhappar Gaipov and Dimitri Poddighe from the School of Medicine, Zhumabay Bakenov, Ferhat Karaca, Mehdi Bagheri, and Behrouz Maham from the School of Engineering and Digital Sciences, Daniel Hernández-Torrano from the Graduate School of Education, and Saffet Yagiz from the School of Mining and Geosciences.

WINNERS OF THE «BEST RESEARCHER» AWARD 2022 HAVE BEEN SELECTED

The Ministry of Education and Science of the Republic of Kazakhstan have announced the [results](#) of the «Best Researcher» 2022 Award. In total there are 50 winners from research institutes and universities. Each of them will receive a certificate and a prize of 2000 MCI. For the second year in a row the Ministry hands over prizes to the best scientists for their significant contribution to the development of science and technology in Kazakhstan. A total of 468 applications were received for participation in the contest in 7 areas: «Natural Sciences», «Engineering and Technology», «Medicine and Health», «Social Sciences and Humanities», «Agricultural and Veterinary Sciences», «Military Sciences and National Security». Out of 50 successful applications there are 8 researchers from NU:

1. Galymzhan Nauryzbayev - School of Engineering and Digital Sciences
2. Yerbol Sarbassov - School of Engineering and Digital Sciences
3. Almas Shintemirov - School of Engineering and Digital Sciences
4. Ulykbek Kairov - National Laboratory Astana
5. Almagul Kushugulova - National Laboratory Astana
6. Ruslan Kalendar - National Laboratory Astana
7. Abdzhappar Gaipov - School of Medicine
8. Ainur Almukhambetova - Graduate School of Education

Congratulations to the winners!

NU RESEARCHERS IN THE TOP 2% OF THE WORLD'S BEST SCIENTISTS

NU professors are ranked in the top 2% of scientists in the world, according to a systematic bibliometric [study](#) by researchers from Stanford University`. Based on bibliometric data from the Scopus database of over 180 000 top-scientists, this list is widely regarded as the most renowned of its kind. Prof. John Loannidis and his colleagues at Stanford University classified scientists into 22 scientific fields and 176 sub-fields. The database provides information on citations, h-index, co-authorship adjusted hm-index, and a composite indicator (c-score).

NU most cited scholars and authors across the globe in the scope of their career-long impact:

1. Pignatelli Massimo - Vice President for Medicine - Dean of the School of Medicine
2. Memon Shazim Ali - School of Engineering and Digital Sciences, Associate Professor
3. Akhtar Muhammad Tahir - School of Engineering and Digital Sciences, Associate Professor
4. Paunov Vesselin N. - School of Sciences and Humanities, Department Chair
5. Singh Prim B. - School of Medicine, Professor
6. Sarría-Santamera Antonio - School of Medicine, Professor
7. Yagiz Saffet - School of Mining and Geosciences, Associate Professor
8. Lee Woojin - School of Engineering and Digital Sciences, Professor
9. Hazlett Randy - Dean of the School of Mining and Geosciences
10. Valagiannopoulos Constantinos - School of Sciences and Humanities, Associate Professor
11. Desyatnikov Anton - School of Sciences and Humanities, Department Chair
12. Tosi Daniele - School of Engineering and Digital Sciences, Associate Professor
13. Atabaev Timur Sh. - School of Sciences and Humanities, Associate Professor
14. Maham Behrouz - School of Engineering and Digital Sciences, Associate Professor
15. Brus Viktor V. - School of Sciences and Humanities, Assistant Professor
16. Do Ton Duc - School of Engineering and Digital Sciences, Associate Professor

We pay tribute to the memory of our late Professors Jean-Jacques Zondy and Alexander Ruderman who were also listed in this ranking. They are no longer with us but their research impact is seen and valued.



Graduate School of Education News

DEVELOPMENT OF A KAZAKHSTANI OBSERVATION PROTOCOL FOR REFORMED TEACHING PRACTICES

GULFARIDA MYRZAKULOVA AND JANET HELMER



A research team led by Associate Professor Janet Helmer from the Graduate School of Education is conducting a project aiming to develop a standardized teacher observation protocol for science subjects that can be used to understand how the recent reforms in education are being implemented. The research team includes Kathy Malone, Matthew Courtney, Enrico Marsili, Bridget Goodman, Filiz Polat, Kulzhan Beisembayeva, and William Boone.



Research Assistants supporting the team are Gulfarida Myrzakulova, Idayatulla Adikhanova and Gulnura Daripbayeva.

Why is it crucial to develop an observation protocol?

Today Kazakhstani government is actively striving to remodel the education system by making changes to the curriculum, assessment, and teaching methods and implementing new policies and practices. These approaches are being taken to address the tasks stated in the National project “Quality education “Educated nation” for the strategic development of the education system in Kazakhstan for 2021-2025 years (2021).

However, while numerous reforms have been put into practice, the question remains as to how the implementation of these changes is evaluated and how practices in the classroom align with the purposes of the reforms. This tool will be valuable to understand the status of the implementation process and plan professional development.

What is the purpose of this study?

The Kazakh Teaching Observation Protocol (KTOP) was produced to observe STEM subjects at high school and undergraduate level. It considers main priorities in the current Kazakhstani education reforms. The Protocol is in both Kazakh and English.

The current study is valuable to reveal the information that might be helpful for evaluating the effectiveness of new changes, assessing the progress of teacher practices, designing professional development of teachers, and understanding the classroom environment, student and teacher relationship and students’ progress on the subject area (Evenhouse, et al., 2018).

How is the study being conducted?

The three-year project was launched in 2021 and is funded through the FDCRGP. This project involves three phases: *development, implementation, and revision*.

During the first development phase, after consultation with the representatives of the Ministry of Education and Science and the Academy of Education, the research team produced the Kazakhstani Teaching Observation Protocol (KTOP). Initially, the protocol was developed in the English language. Ten NU professors read the protocol in order to assess the content and wording of each item. Then, the protocol was trialed in 25 STEM classes at the secondary school and universities in Astana city. After each observation, a short interview with a teacher was conducted to further clarify the moments of the observed lesson. Based on the results of the piloting phase the protocol was reviewed, enhanced, and translated into Kazakh.

Currently, the second implementation phase of the project is in process. The Kazakh protocol is being tested in 150 STEM classes. The current tool also includes a short post-interview with a teacher which is for gaining more information about the observed lesson. In addition, teachers' feedback on the protocol will be also collected in order to take a look from the practitioner's side how the protocol aligns with the current educational reforms.

The last revision phase aims to develop the final version of the instrument taking into consideration all the data received from the observations and interviews which will be analyzed to determine the instrument reliability and validity.

The tool will be shared with educational institutions to evaluate the lessons and their align with reforms which are now being implemented in Kazakhstan.

References

Evenhouse, D., Zadoks, A., Silva de Freitas, C. C., Patel, N., Kandakatla, R., Stites, N., ... & DeBoer, J. (2018). Video coding of classroom observations for research and instructional support in an innovative learning environment. *Australasian Journal of Engineering Education*, 23(2), 95-105.

Official website of the Ministry of Justice of the Republic of Kazakhstan. (2021). About the National Project "Quality Education "Educated Nation". <https://adilet.zan.kz/rus/docs/P2100000726>

Political Economy of Education Research Network updates



The PEER Network is a three-year initiative led by four universities (Ulster, Cape Town, Nazarbayev and Sussex). The network is working towards developing regional hubs of expertise in Central Asia and Africa. The Central Asia hub includes four post-Soviet countries (Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan). It is led by Professor Naureen Durrani (Graduate School of Education) in collaboration with Associate Professor H el ene Thibault (School of Sciences and Humanities) <https://peernetworkgcrf.org/>

In this research update, we would like to share the key activities of the hub in 2022, including:

1. Research and Practice Fellowships
2. Knowledge sharing events

1. Research and Practice Fellowships

Research and Practice Fellowships in the Political Economy of Education for early career researchers aim to provide research development funding, training and mentorship as well as develop a new cohort of researchers working on education issues through a critical political economy lens.

Second Workshop

From 7th February to 4th March 2022, the University of Ulster organised an online workshop for Central Asia hub fellows. The aim of the workshop was to develop research ideas into relevant, feasible and competitive proposals. Each week fellows were provided with resource packs and opportunities for online drop-in sessions.

In summer 2022, eleven fellows of the Central Asia Hub received funding up to 10 000 GBP to conduct small scale research projects

1. Aigerim Mussabalinova – Research Assistant, Graduate School of Education, Nazarbayev University, Kazakhstan – “The right to education of disabled children in Semipalatinsk in the context of the post-Cold War”
2. Ainur Almukhambetova - Instructor, Graduate School of Education Nazarbayev University, Kazakhstan – “Exploring STEM teacher educators’ understanding of gender-responsive pedagogies in Kazakhstan”
3. Alexandra Nam – Research Assistant, Nazarbayev University, Kazakhstan – “Medium of instruction, national identity and attitudes towards gender roles”
4. Diana Toimbek - Associate Professor of Political Science at Astana IT University, Kazakhstan - “Political economy of Soviet education in Kazakhstan: A critical review”
5. Fariza Tolesh – Associate Professor, Department of Social Sciences, Astana IT University, Nur-Sultan, Kazakhstan – “The politics of languages in education: issues of access to education and labour market participation of minority ethnic groups in Kazakhstan”
6. Natalya Hanley - Post-doctoral researcher, University of Oxford, UK – “The role of NGOs within the education sector”.
7. Rahimjon Abdugafurov - Research Associate at Candler School of Theology, Senior Fellow at the Center for the Study of Law and Religion, Emory University. Director of the Vatandosh Institute for Central Asian Research, Vatandosh Connect – “Islam, women, and higher education in Uzbekistan”
8. Sherzod Khaydarov – PhD student, The University of Edinburg, UK – “A political economy analysis of factors influencing the expansion of Russian international branch campuses in Uzbekistan”
9. Vasila Bozichaeva – Junior researcher, Sociology Department, Institute of Philosophy, Political Science and Law named after A. Bahovaddinov, National Academy of Sciences of Tajikistan – “Equity-minded assessment from the perceptions of university stakeholders in Tajikistan”
10. Zhazira Bekzhanova – Teacher-Researcher, Department of Foreign Philology and Translation Studies, K.Zhubanov Aktobe Regional State University, Kazakhstan - “Gender, language and social inequalities in the textbooks in the History of Kazakhstan”
11. Zilola Khalilova - Post-Doctoral researcher, Beruni Institute of Oriental Studies Academy of Science Uzbekistan – “Religion and education in contemporary Uzbekistan: Religious and spiritual challenges in public education”

Third Workshop

On 1-2 of December 2022, the Central Asia Hub hosted a two-day workshop, “Researching the Political Economy of Education in Central Asia: data analysis”. The Central Asia Hub Director, Prof Naureen Durrani, welcomed ten fellows across **Kazakhstan, Tajikistan, and Uzbekistan.**



The team discussed data analysis strategies and approaches as well as potential analysis issues within the current research projects. Fellows had an opportunity to present preliminary findings of their small-scale research projects funded by the PEER Network and to receive feedback from peers and the workshop facilitators, Professor Naureen Durrani, Associate Professor H el ene Thibault and Post-Doctoral Researcher Assel Sharimova (Nazarbayev University).



2. Knowledge sharing events



Lecture in Japan

On 9 August 2022, the PEER Network Research Assistant Vanessa Ozawa gave a lecture **"The political economy analysis of education in Central Asian contexts"**. The lecture was part of MA Summer course at Kobe University (Japan) on education and conflict led by Professor Tejendra Pherali from IOE, UCL

Public Lecture at Nazarbayev University

On 28 September 2022, the Central Asia hub hosted a public lecture, "The Imperial Entanglements of 'Education in Emergencies': From Saving Souls to Saving Schools?" led by **Mario Novelli, Professor in the Political Economy of Education at the Centre for International Education, University of Sussex**. The recording is available [here](#).



Introductory workshop for NUGSE PhD students

On 29 September 2022, the Central Asia hub conducted an introductory workshop for NUGSE PhD students “**Researching the Political Economy of Education and Conflict in Times of Conflict & Crises**”. The workshop was facilitated by Professor Mario Novelli (University of Sussex), Professor Naureen Durrani and Associate Professor H el ene Thibault (Nazarbayev University).

During the introductory one-day workshop, participants explored several questions relating to the political economy analysis of education, e.g. why it might be useful, and how it relates to research on education in Kazakhstan and the broader Central Asia region. The workshop also provided the opportunity for the students to explore tools, methods and ways of researching the political economy of education.



Lecture in Kazakhstan (Kokshetau)

On 30 September 2022, as an Editorial Board member of *Compare: A Journal of Comparative and International Education*, Professor Naureen Durrani (Nazarbayev University) and BAICE President (2021 - 2022) Professor Mario Novelli (University of Sussex) gave a talk to the faculty staff of Kokshetau University named after Sh. Ualikhanov on “**Writing for publication in Compare**”.





TV interview in Uzbekistan

The PEER Network Research Assistant Vanessa Ozawa gave an interview on a national tv channel of Uzbekistan, Uzbekistan 24, which was broadcast on October 1, 2022. As a doctoral scholar researching the relationship between school education and Uzbekistani youth national identities, she shared her perspectives on youth and education in Uzbekistan.

Lecture in Uzbekistan (Tashkent)

On 18 of November 2022, the PEER Network Research Assistant Vanessa Ozawa delivered a lecture on “Approaching Educational Research in Central Asia Using a Political Economy Lens” in Tashkent. The event was held at Creative School named after Abdulla Qodiriy under the Agency for Presidential Educational Institutions and the Cabinet of Ministers of Uzbekistan. As a hybrid mode, teachers from Presidential Schools across Uzbekistan, including a representative from the Agency, attended the event.



Conference presentations

On 17-18 of November 2022, The Central Asia Hub Director, Prof Naureen Durrani, contributed to the conference «FAMILY, DEMOGRAPHIC AND GENDER POLICY AT A NEW STAGE OF DEVELOPMENT OF KAZAKHSTAN». The conference was organised by the National Commission for Women’s Affairs, Family and Demographic Policy under the President of Kazakhstan, together with the Ministry of Information and Social Development of the Republic of Kazakhstan and UN Women. Discussing gender equality in and through education in Kazakhstan, Professor Naureen Durrani shared the results of her recent mixed-method study that aimed to explore school textbooks and teachers’ gender attitudes and practices in Kazakhstan.



On 14 September 2022 the PEER Network Research Assistant Vanessa Ozawa contributed **British Association for International and Comparative Education (BAICE) conference** “Power partnership and politics in international education: critical reflections of ECR positionalities”.

Presentations Online

1. **Comparative and international education society Conference (CIES):** "The political economy of society and education in Central Asia: a scoping literature review" - the PEER Network Research Assistant Vanessa Ozawa (20 April 2022).
2. **VIII International Forum on Teacher Education (IFTE):** “Harnessing social media for professional networking of teachers in rural schools of Kazakhstan” - the PEER Network Post-Doctoral Researcher Assel Sharimova (26 May 2022).
3. **BAICE International webinar series:** “The impact of COVID-19 on Education: lessons learnt for access, quality and pedagogy” – The PEER Network Co-Investigator Professor Naureen Durrani (12 October 2022).
4. **Network of international policies and cooperation in education and training (NORRAG) Special Issue Launch:** “Equitable access to education in the times of COVID-19: Insights from Kazakhstan” - The PEER Network Co-Investigator Professor Naureen Durrani (8 November 2022).



Graduate School of Business News

The First International Conference of the Nazarbayev University Research Centre for Entrepreneurship (NURCE)

On November 11, 2022, the first international conference of the Nazarbayev University Research Centre for Entrepreneurship (NURCE) was held on *“Entrepreneurship, Innovation, and Technology: Challenges, Opportunities, and Prospects in the CIS Region”* at the Graduate School of Business of Nazarbayev University. The conference was organized in partnership between Nazarbayev University and the Al-Farabi Kazakh National University and was sponsored by the Nazarbayev University and the Suleyman Demirel University, as well as the American University of Central Asia of Kyrgyzstan. The conference was also organized as part of the grants received for the ‘Collaborative Research Projects’ from both Nazarbayev University and the Ministry of Science and Higher Education of the Republic of Kazakhstan.

Prior to the conference, on November 4, 2022, the Department of Religious Studies and Cultural Studies of the Al-Farabi Kazakh National University held a workshop on "Developing Scientific Cases on CIS Contexts and Publication Opportunities" mainly



for undergraduate, graduate, and postgraduate students of that university, in which Dean of Faculty of Philosophy and Political Science, Associate Professor Bekzhan Meirbayev from Al-Farabi Kazakh National University, Associate Professor Onajomo Akemu from Nazarbayev University, and Associate Professor Anjan Ghosh from SDU University were invited as speakers.

On November 4, 2022, Associate Professor Onajomo Akemu and Associate Professor Anjan Ghosh also conducted a Case Development Workshop about the one-day International Conference on "Entrepreneurship Innovation and Technology: Challenges, Opportunities, and Prospects in the CIS Region" at Nazarbayev University for the faculty, staff, and students of the Suleyman Demirel University, who were encouraged to participate in the conference, especially if they are interested in developing their own case studies which might then be possible to publish in two conference-associated leading Scopus-Indexed Journals.

PhD in Business Administration Program

NUGSB launched its PhD in Business Administration Program designed for students who aspire to become faculty members at leading academic institutions or conduct applied research in relevant organizations. The program will provide a solid foundation in both the theoretical and empirical tools of their relevant research. By the completion of the PhD program, students will be capable of designing and conducting independent, innovative, original, and high-quality research related to a variety of topics. All National students admitted to the PhD program are eligible for state grants and a stipend funded by the government. Equivalent support for qualified international PhD students will be provided by the University. The support will cover tuition fees and stipend. In addition, PhD students are eligible to apply for the GTAs, and commit to provide teaching support to courses as assigned by the GTA policy.

AACSB Accreditation

The initial accreditation committee of AACSB has accepted GSB's Initial Self Evaluation Report (ISER). The Committee now requests a Progress Report to be submitted within a year. This is a very promising and important milestone for NUGSB's ranking, its international reach and reputation, making it part of the selected club of AACSB accredited top business schools.

NUGSB is on the International Ranking of the Business Schools

NUGSB is ranked number 5, according to a recent [article](#) reporting on the international ranking of the business schools in Russia and the CIS. Some of the basic criteria include publications in the top management journals (ABCD list), accreditation, and having international partnerships (with a number of some other criteria).

Top 10 Universities in CIS Ranked by Publication activity in the Area of Management (18.05.2022):

University		Университет	Всего	A*	A	B
HSE University -Moscow	1 (1)	НИУ ВШЭ — Москва	672 (591)	86 (81)	325 (262)	261 (248)
Saint Petersburg State University	2 (2)	СПбГУ	172 (161)	12 (11)	86 (81)	74 (69)
HSE - National Research University Higher School of Economics –Saint Petersburg	3 (5)	НИУ ВШЭ — Санкт-Петербург	132 (89)	20 (9)	58 (34)	54 (46)
Ural Federal University	4 (4)	УрФУ	129 (94)	6 (4)	64 (41)	59 (49)
NU GSB	5 (6)	Назарбаев Университет (Казахстан)	110 (80)	20 (6)	49 (36)	41 (38)
Moscow State University	6 (3)	МГУ	104 (117)	10 (12)	63 (66)	31 (39)
<u>RANEPA</u>	7 (7)	РАНХИГС	76 (63)	10 (9)	27 (24)	39 (30)
Peoples' Friendship University of Russia.	8 (9)	РУДН	53 (46)	0 (1)	25 (18)	28 (27)
ITMO University	9 (8)	ИТМО	50 (58)	3 (5)	34 (38)	13 (15)
Moscow State Institute of International Relations	10 (13)	МГИМО	43 (28)	2 (1)	16 (7)	25 (20)
<u>Tomsk Polytechnic University</u>	10 (11)	ТПУ	43 (36)	7 (7)	25 (15)	11 (14)

Awards and Grants

Chandra Pathki and Mayowa T. Babalola received the best paper award at the Asian Management Research and Case (AMRC) Conference in Dubai.



Doron Israeli and Venkat Subramanian received a successful outcome on the FDCRGP grant (a.k.a. small grant) for the project Price Discovery and Firm level use of twitter. This is a multi-year project on the role of social media messaging from firms and how investors price them.

Research Seminars

- Tom Vinaimont (NUGSB) presented his project “Dual-Class Equity Structures, Entrepreneurial Incentives, and Social Efficiency” on 9 December.
- Fernando Bernstein (Duke University) presented his project “Managing Customer Search: Assortment Planning For A Subscription Box Service” on 8 December.
- Linxiang Ma (University of Melbourne) presented his project “Ruling with Ideology: Politicians' Beliefs and Privatizations” on 6 December via Zoom.
- Anjan Ghosh (Suleyman Demirel University) presented his project “Agile Hybridity: A Process Model Of Navigating The Challenges Of Turning Hybrid In Addressing Grand Challenges” on 30 November.
- PKV Kishan (Institute of Rural Management Anand/ Nazarbeyev University’s Research Centre for Entrepreneurship) presented his project “Business Practices and Entrepreneurial Performance: Does Management Training Improve SMEs' Performance?” on 26 October.
- Claire Liu (University of Sydney Business School) presented her project “Activist Short Selling and Product Innovation” on 19 October via Zoom.
- Mayowa T. Babalola (NUGSB) presented his project “On the Sole Pursuits of Profits Over People: Understanding the Implications of Bottom-Line Mentality in Organizations” on 12 October.

Publications

The paper of Denis de Crombrughe and his former PhD student Catarina Midões has been accepted for publication in *The Journal of Economic Inequality* (5-year IF 2.26; A journal ABCD list). Title: “Assumption-light and computationally cheap inference on inequality measures by sample splitting: the Student-t approach”.

Other

Vice Dean for Research Venkat Subramanian and the admissions team conducted a series of events “EMBA Business Breakfast” in Almaty and Atyrau in early November. The main purpose of the events was providing professional session about Executive MBA Program. There were special guests invited—Lyazzat Ibragimova, Chair of Otbas Bank, and alumni of NUGSB.

1st Nazarbayev University Research Centre for Entrepreneurship (NURCE) International Conference 11th November 2022



*Entrepreneurship, innovation, and technology:
Challenges, opportunities, and prospects in the
CIS region*

Sponsors



Partners



NAZARBAYEV
UNIVERSITY
Graduate School
of Business



INTRODUCTION

On November 11, 2022, the first international conference of the Nazarbayev University Research Centre for Entrepreneurship (NURCE) was held on **“Entrepreneurship, innovation, and technology: Challenges, opportunities, and prospects in the CIS region”** at the Graduate School of Business of Nazarbayev University of Kazakhstan. The conference was organized in partnership between Nazarbayev University and the Al-Farabi Kazakh National University of Kazakhstan and was sponsored by the Nazarbayev University and the Suleyman Demirel University of Kazakhstan as well as the American University of Central Asia of Kyrgyzstan. The conference was also organized as part of the grants received for the ‘*Collaborative Research Projects*’ from both Nazarbayev University and the Ministry of Science and Higher Education of the Republic of Kazakhstan.

" Participation in the conference enabled me to broaden my research horizon and look at Kazakhstan's creative industry from a different perspective. Other participants' topics, from theatres to circuses, were fascinating and drew attention to various areas and ranges of economic activities. Presentations by other participants not only shed light on how diverse Kazakhstan's creative industry is but also how interconnected and influenced by each other the economic and cultural sectors are. The conference helped me to get answers, and yet, made me ask myself questions about my scientific field and issues that now require my attention and answers." Amina Yessekeyeva, Ph.D. Candidate at the Radboud University of Netherlands

CONFERENCE OBJECTIVE

The main objective of the conference was to provide networking, learning, and research-sharing opportunities for the participants and more importantly to build and foster collaborative relationships for research between Nazarbayev University and other research-active universities in Kazakhstan and Central Asia. The conference was also organized to further develop and explore issues related to the FOUR projects of the Nazarbayev University Research Centre for Entrepreneurship (NURCE) which are:

- 1- "Towards a Gender-aware Entrepreneurial Ecosystem for Women's Entrepreneurship: A study of Kazakhstan's and Kyrgyzstan's Community-based Tourism Sector" FACULTY DEVELOPMENT GRANT, NU.
- 2- "Technology Entrepreneurship in Kazakhstan: The Role of Incubators in Enabling Entrepreneurship Restarts (2022-2024)" FACULTY DEVELOPMENT GRANT, NU.
- 3- "Value Creation within Kazakhstan's Entrepreneurial Ecosystem: Towards an Understanding of Informal and Formal Entrepreneurs (2022-2024)", COLLABORATIVE RESEARCH GRANT, NU.
- 4- "Mapping the Entrepreneurial Ecosystem (EES) for Women Entrepreneurs of Kazakhstan (2022-2024)" KAZAKHSTAN MINISTRY OF SCIENCE AND EDUCATION.



CONFERENCE ROADSHOWS

Prior to the conference, its details were shared through various channels and platforms with prospective participants from institutions and organizations in Kazakhstan and beyond, especially the CIS region. For example, on November 4, 2022, the Department of Religious Studies and Cultural Studies of the Al-Farabi Kazakh National University of Kazakhstan held a workshop on "Developing Scientific Cases on CIS Contexts and Publication Opportunities" mainly for undergraduate, graduate, and postgraduate students of that university in which Dean of Faculty of Philosophy and Political Science, Associate Professor Bekzhan Meirbayev from Al-Farabi Kazakh National University, Associate Professor Onajomo Akemu from Nazarbayev University, and Associate Professor Anjan Ghosh from SDU University were invited as speakers.

The speakers particularly shared information not only about the one-day international conference on "Entrepreneurship, Innovation, and Technology: Challenges, Opportunities, and Prospects in the CIS Region" at Nazarbayev University but also about publication opportunities on selected proposals in the special issues of two reputable SCOPUS-indexed journals: South Asian Journal of Business and Management Cases and Emerald Emerging Market Case Studies. During the workshop, bachelor, master, and Ph.D. students also had an opportunity to receive feedback on their case proposals for the conference.



On November 4, 2022, Associate Professor Onajomo Akemu and Associate Professor Anjan Ghosh also conducted a Case Development Workshop about the one-day International Conference on "Entrepreneurship Innovation and Technology: Challenges, Opportunities, and Prospects in the CIS Region" at Nazarbayev University for the faculty, staff, and students of the Suleyman Demirel University of Kazakhstan, who were encouraged to participate in the conference, especially if they are interested in developing their own case studies which might

then be possible to publish in two conference-associated leading Scopus-Indexed Journals. Participants of the workshops also shared their ideas on future case studies specific to the Kazakhstani experience, received feedback, and at the end registered for the conference.

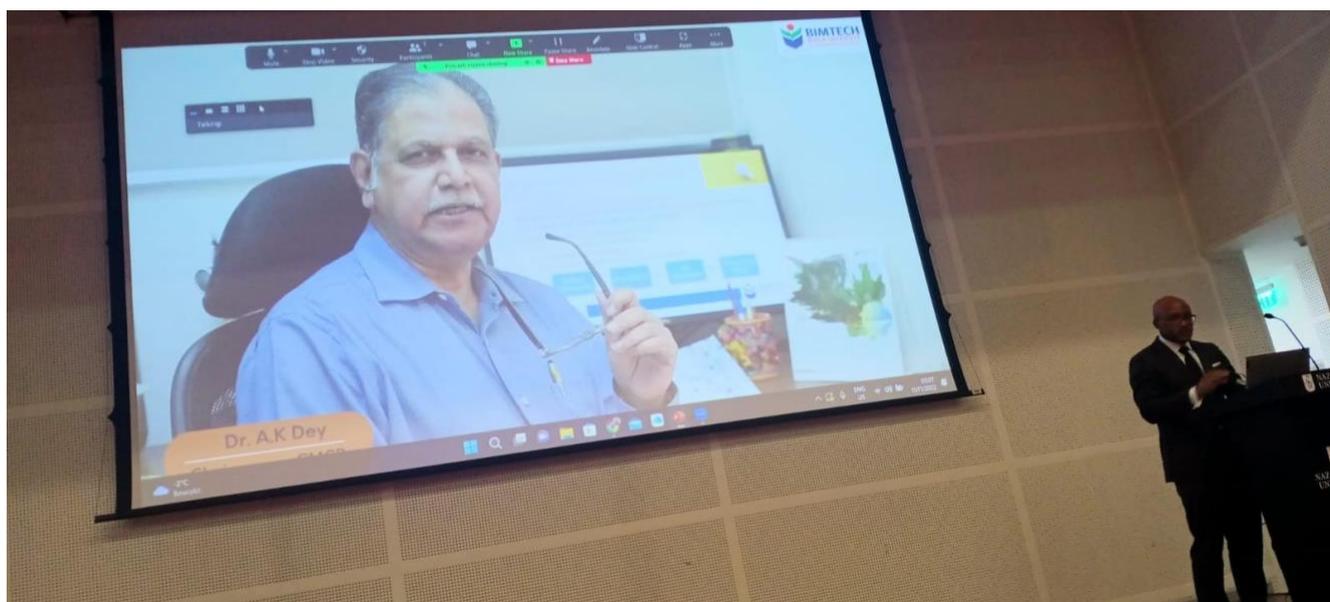


On October 18, 2022 Associate Professor of SDU University Anjan Ghosh and Dr. Nurlykhan Aljanova Senior Lecturer, Al-Farabi KazNU conducted a Case Development Workshop for the postgraduates of the National Attestation Commission under the President of the Kyrgyz Republic. Over 150 PhD students and faculty members representing various universities of Kyrgyzstan attended the conference. The ministry representatives encouraged the participating scholars to attend the conference and also expressed interest in developing institutional collaborations with Narxoz.



COLLABORATION WITH LEADING CASE JOURNALS

Two SCOPUS indexed case journals agreed to collaborate with NURCE to publish special issues on the emerging dynamics of entrepreneurship from Central Asia. The SAGE South Asian Journal of Business and Management Case – Asia's first dedicated qualitative case research journal will select the best research cases from the conference and will work with the authors to fully develop the cases towards consideration for publication in SAJBMC. The Emerald Emerging Market Case Study Journal – one of the leading SCOPUS indexed Teaching Case Journal also came on board to select the best teaching cases from the conference and develop those further toward consideration for publication. The editors of both the journals attended the opening ceremony online.



Editor of South Asian Journal of Business Management and Case (SAJBMC) Dr Ajoy Dey welcomed the conference attendees

The conference brought together 67 participants- both online and offline- including scholars, policymakers, and practitioners mainly in the field of entrepreneurship from 18 different institutions and organizations not only in Kazakhstan but also other Central Asian countries to discuss theoretical advances, critical issues, policy opportunities, and challenges related to the conception, practice, and implementation of entrepreneurship in the CIS region.

Specifically, participants of the conference were from the Nazarbayev University of Kazakhstan, Suleyman Demirel University of Kazakhstan, Al-Farabi Kazakh National University of Kazakhstan, the American University of Central Asia of Kyrgyzstan, International Information Technology University of Kazakhstan, Kazakh-British Technical University of Kazakhstan, Narxoz University of Kazakhstan, Turan University of Kazakhstan, Almaty Management University of Kazakhstan, Baishev University of Kazakhstan, Kazakh National Agrarian Research University of Kazakhstan, Abai Kazakh National Pedagogical University of



Kazakhstan, Radboud University of Netherlands, IITU Innovation Center of Kazakhstan, The Centre for Postnormal Policy and Futures Studies (CPPFS), JSC “Science Fund” of Ministry of Science and Higher Education of Kazakhstan, The Center for Entrepreneurship “Qolday” of Kazakhstan, as well as the United Nation (UN) representative from Kazakhstan.



THE OPENING CEREMONY

The one-day international conference started with registration for the conference and refreshments. The conference formally began with a welcome speech by Dr. Loretta O'Donnell, the Vice Provost for Academic Affairs at Nazarbayev University, where she, on behalf of the Nazarbayev University executive management team, extended a very warm welcome to the audience participating from Kazakhstan and beyond. She also provided information about Nazarbayev University, its values, missions, visions, programs, and schools to the participating audience. Then, Professor Joep Konnings, Dean of the Graduate School of Business at



Nazarbayev University, delivered a keynote speech on "*Importance of Entrepreneurship and Innovation for Kazakhstan's Economy*".



TRACKS AND PRESENTATIONS

The conference particularly provided a unique platform for not only undergraduate, graduate, and postgraduate scholars but also faculty members from different universities in Kazakhstan and other Central Asian countries to share their researches on various issues, especially related to entrepreneurship, innovation, and technology, to the international audience of the conference in order to receive their supportive feedback for their researches so that their researches can ultimately be ready for publication, specifically in two Scopus Indexed Journals which are linked to the conference- *South Asian Journal of Business and Management*, and *Emerald Emerging Markets Case Studies*.



BEST PAPER AWARDS

Overall, at this particular international conference, a total of 48 research papers were presented in 8 tracks with different themes, and each of the tracks was chaired by one mentor from different institutions in Kazakhstan and other Central Asian countries; and at the end of the presentations, one presenter from each track-8 in total- received "*The Best Paper Award*":

1. **Saikal Anvarkyzy, American University of Central Asia, Kyrgyzstan** "*Theorizing Variegated Bonding as SME Diversification Strategy to Extend Business from Traditional to Emergent Sectors*"
2. **Jansaya Janpeisova, Al-Farabi Kazakh National University** "*Family Stress Concept: Deaf Parents of Hearing Children*"
3. **Dauletzhan Baimukhanov, Graduate School of Business, Nazarbayev University, Kazakhstan** "*Technology Business Incubators and Accelerators of Kazakhstan*"
4. **Bakyt Bikebayev, Nurlykhan Ulyanova, Murat Zhamilya, Seken Aruzhan, Al-Farabi Kazakh National University** "*Identity Reconstruction Challenges of an Immovable Organization: Learnings from Kazakhstan National Circus*"
5. **Amina Chaia, Eva Lennartz, Dana Sailaukhanova, Sneh Shakti, and Shymaila Yousafzai, Graduate School of Business, Nazarbayev University, Kazakhstan** "*Winds of Change, a Chance to Become Equal: The Case for Community-Based Tourism in Kyrgyzstan*"
6. **Saikal Anvar Kyzy, Talant Asan Uulu, American University of Central Asia, Kyrgyzstan** "*Milky Way of "Shoro": Shall the Beverage Company Enter the Milk Market?*"
7. **Yelena V. Muzykina, Center for Postnormal Policy & Futures Studies** "*What's Next?: Islamic Finance in Kazakhstan Through the Eyes of Madina Tukulova and the AIF*"
8. **Symbat Moldabekova, Suleyman Demirel University** "*Marina and Lingvo Mania*"



ORGANIZERS AND PARTICIPANTS' REFLECTIONS ON THE CONFERENCE

At the end of the one-day international conference, both the organizers and participants- including the presenters- expressed their feelings and reflections on the conference that enabled them to come together from various backgrounds and institutions, learn from one another by sharing their research, and ultimately make long-lasting connections for future researches.

Associate Professor Shumaila Yousafzai, the founder and director of the NURCE as well as the main organizer of the conference, shared her reflection on the conference:

"This conference was arranged as part of the grants that we received for the Collaborative Research Project from Nazarbayev University and from the Ministry of Education and Science, Republic of Kazakhstan. The main aim of this conference was to build a collaborative research relationship between Nazarbayev University and other research-active universities in Kazakhstan and Central Asia. This conference provided a space for Masters and Ph.D. students and faculty from Al-Farabi University and Suleyman Demirel University in Kazakhstan to share their research with an international audience and get feedback on their work so it can be ready for publication in the 2 Scopus indexed journals that are linked to the conference. We also had colleagues from the American University of Central Asia, flying over from Kyrgyzstan to participate in the conference. The participants shared their pride and joy as a result of participating in this conference and expressed it as an "empowering experience".

Overall, a total of 48 research papers were presented in 8 tracks and each track received the best paper award. The winners were felicitated with winner certificates and NU gifts. As organizers, we are especially thankful to our sponsors who provided refreshment for our participants to stay energized throughout the day. The conference ended with a celebratory dinner at a Central Asian restaurant in Astana, Navat. It was a huge learning experience for us, one that we are already looking forward to improving and repeating in the Summer of 2023. "



Dr. Anjan Ghosh, Associate Professor of Strategy and Entrepreneurship of SDU University and one of the key convenors of the conference shared his post conference thoughts: *"Reflecting on the activities and outcomes of the 1st NURCE international conference, I see some critical achievements that defied the status quo of the region. Being a scholar from the grassroots working with some of the leading universities of Kyrgyzstan and Kazakhstan and at the same time interacting with hundreds of bachelor or master or Ph.D. students on a regular basis, I feel that this NURCE initiative has brought some refreshing social change and can turn into a positive social movement in the academic space in Central Asia. Below, are the four key points:*

Movement against PPP: *The global reputation of local higher education and research is low for three reasons that I tag as PPP (Predatory – Plagiarism, and Payment) victimizing hundreds of innocent scholars. Our conference, with its pre-conference activities, has demonstrated that good research must be free of PPP. By getting to know and then working closely with the co-founders – local scholars have started gaining confidence in clean research and publication. Seeing editors of leading SCOPUS Indexed case journals supporting NURCE and the Conference acted as motivators of the scholars of Kyrgyzstan and Kazakhstan whom the conference could reach;*



If RQ is the king, rich data is the queen: *The conference gave the participants exposure to reflexive research methods and inductive theory building from qualitative (case data). 'We had the belief that research without numbers is not scientific research, but the workshop and conference showed us the merit of non-survey data as the basis of grounded theory approaches' shared an attendee. As the experts in the conference provided pre and post-conference assistance to the participants in fully developing and publishing their research discussed in the conference – NURCE initiated something that in the coming days, could turn into a paradigm shift;*

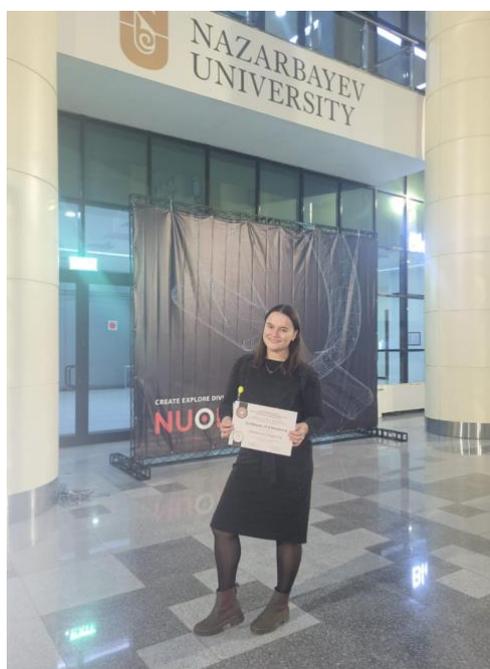
Conference as a catalyst for scaling up the development of local case studies: *Kazakhstan is a data mine for case research. It offers novel insights into the post-soviet emerging economy contexts and the multi-faceted business and entrepreneurial dynamics that Central Asia has been experiencing. However, funds supporting research projects have limits in covering cases beyond a small geography. NURCE conference has overcome the limit through its platform-centric approach that it (1) empowered local scholars with the knowledge of case methods and (2) takes their research cases to the global audience. As a result – in one go, the conference enacted the development of close to 50 cases from Kazakhstan and Kyrgyzstan. The publication of those cases would create a snowball effect steadily growing the number of case studies toward a deeper understanding of the social, cultural, business, and entrepreneurial dynamics of Central Asia.*

NURCE as enabler for bottom-up developments: *Many local scholars wanted to engage with NU as researchers but faced a narrow window (Ph.D., RA, Post Doc) of limited opportunities. The conference acted as a window of free exchange. "We can't believe we are*



discussing our research with NU Professors, that too on our campus” or “ OMG, the Vice-Rector of NU just joined me for lunch and thanked me for attending the conference” were examples of the excitement that the conference/ workshop has created.

In sum, I found that NURCE and Conference initiated a journey successfully toward multi-faceted regional development connecting the regional context and research to the mainstream global academic community of management and entrepreneurship. ”



“The conference was super positive and fruitful. I found out a lot about businesses in CIS countries and I found it super inspiring that MA students were doing their research on business tools that seem to have worked in different situations. Putting theory into practice is always a good idea. Interviewing entrepreneurs and then reporting on that is such a great experience for future experts. Networking after the conference was also warm and welcoming. I felt at ease despite the fact that I knew nobody. Thank you for organizing such an event.” Ekaterina Chegnova.



This conference also provided a unique sharing, learning, and networking opportunity for Research Assistants (RAs) at NURCE. Assel Abdrakhmanova, a Research Assistant (RA) at NURCE and one of the organizers of the conference, shared her experiences and reflections on the conference:



“ I should highlight that It was my first experience organizing an international conference, and without the professors' guides and our team, It wouldn't be that good. Thus, I am truly thankful for the professors, and the team. Personally, It was a great experience, where I could learn and evaluate myself as a research assistant. I have learned the process of forming the conference program. Especially how each section of the conference was grouped together, and how professors shared their experiences of writing papers with conference participants. I observed the ways of negotiations among NU institutions, and partner universities. Honestly, I was inspired and aimed to get my Ph.D. degree to become that mature professor as a NURCE co-founder professor. Surely, I am glad to recognize that my contribution to the conference organization was helpful too. As a result, I developed more as a professional, and I am very happy about that. Besides my learnings, I am confident that the conference was beneficial for participants too. All participants had a chance to gather feedback and thoughts from academic experts in terms of professors. Also, the conference highlighted the crucial topics for Kazakhstan that young researchers should pay attention to. For example, the potential of developing the creative industry, paying attention to disabled entrepreneurs and their problems, etc. Another valuable thing is about forming a research community, which is interested in entrepreneurship in Kazakhstan and the CIS region. I am confident that conference participants will save each other's contacts and will keep in touch. Therefore, the conference provided connections, feedback, and new topics to research for all participants.”



Nurlykhan Aljanova, a Senior Lecturer at the Department of Religious and Cultural Studies of the Faculty of Philosophy and Political Science of the Al-Farabi Kazakh National University of Kazakhstan as well as one of the participants of the conference, shared her experience of the conference by expressing how fruitful this conference was not only for herself but also for her students from Al-Farabi Kazakh National University.

Many times, we got into master classes which talked about research and all, but a hands-on experience that is very rare in Kazakhstan has been proven a game changer for our students. First, they understood the criticality of data collection and building theories out of it. Second, they realized the importance of scholarly debate and discussion through which good theories are shaped. Third, being in Almaty and Astana on international platforms where they were given complete freedom to present their research, which was more of scholarly discussion with colleagues rather than assessment. Finally, the conference's best papers would lead to a Scopus journal publication. Students found out that if they work hard, they could publish by themselves without any Agency support in top indexed journals. Overall, all four things together provided a novel and very encouraging direction to students for the global scholarship."

Nurlykhan Aljanova, a Senior Lecturer at the Department of Religious and Cultural Studies, Faculty of Philosophy and Political Science, Al-Farabi Kazakh National University of Kazakhstan



Zhasmin Amirbekova, an undergraduate sociology student at the School of Sciences and Humanities of Nazarbayev University, a Research Assistant (RA) at NURCE, one of the organizers of the conference and presenter of paper also reflected on the conference:

" I am very grateful to be given a chance to organize and present the paper at the first NURCE Conference. It was my first experience, which went very smoothly, and I received a vast range of skills. The crucial ones I found especially useful are the presentation of the scientific paper and broadening my network. I have a keen interest in business and entrepreneurship. My RA position implies communication with a broad range of women entrepreneurs, from small and medium-sized enterprises to big corporations and start-up owners. Participation in the conference has broadened my understanding of entrepreneurship and allowed me to make new contacts. "



ESTABLISHING STRATEGIC COLLABORATIVE PARTNERSHIP WITH UNIVERSITIES IN CENTRAL ASIA AND KAZAKHSTAN

This international conference not only benefited participants from Nazarbayev University but also other universities in Kazakhstan and other Central Asian countries too. For instance, 20 participants including undergraduate and postgraduate students as well as faculty members from the Al-Farabi Kazakh National University of Kazakhstan participated in the conference out of which 14 of them, especially undergraduate and postgraduate students, presented 14 different cases mainly related to charitable experience, public associations, creative industry, identity reconstruction, and new cultural experiences, and out of 14 presenters, 2 of them received "The Best Paper Award" along with certificates and prizes.



Students from the Al-Farabi Kazakh National University of Kazakhstan and the Radboud University of Netherlands also showed their gratitude for the opportunity to participate in this conference. Below are some of their reflections on the conference:

- **Guldana Adilzhan**, 1st-year Master's Student in Religious Studies, *"This academic conference gave me a lot of new knowledge, gave me a deeper exposure to the case study, and gained a lot of practical knowledge when I have a conversation with the professor, give me a chance to learn a new method."*
- **Zhansaya Bolat**, 1st year Ph.D. student in Social Work, *"Participation in the conference was a great experience for me. This event allowed me to conduct the first theoretical and practical research on the topic of dissertation research and present it to the public. One of the features of the conference allows you to learn how to present a report in a brief form in the form of a case. The organizers of the conference gave directions and expressed support to the participants at a high level."*
- **Zhansaya Janpeissova**, 1st year Ph.D. student in Social Work, *"I really appreciated the opportunity to attend the NURCE conference and highly value your contribution to the research development. It was a great success and very helpful, what I need for my Ph.D. study. I was provided with an opportunity to publish my full research paper in Scopus journals, which I've been dreaming of submitting for several years. The conference organizers did a fantastic job! Congratulations!"*
- **Karlygash Ashirbekova**, 1st year Ph.D. student in Social Work, *"Let me share my new experience and impressions gained during participation in this conference. Firstly, the presentation itself was for me in an unusual format that I had not done before, i.e. this is the first research work that I did in the case study format and got acquainted with the case writing. Secondly, for the first time, I made a presentation in English in front of a large audience and foreign professors, and it was a big step for me. Thirdly, the organizers of the conference did their work at a very high level, as evidenced by the fact that, despite our online participation in the conference, thanks to the technical capabilities, we felt as if we were speaking in front of a Large Hall. Fourth, during the conference, there was an exchange of experience with other speakers, which allowed*



me to get acquainted with case studies on interesting topics. I believe that all this distinguishes the conference *Entrepreneurship, Innovation, and Technology: Challenges, Opportunities, and Prospects in the CIS Region*, organized by Nazarbayev University from other conferences. We would also like to express our special gratitude to our professors, Mr. Anjan Ghosh and Nurlykhan Kozhabergenovna, who gave instructions and provided their assistance during the preparation of the presentation."

- **Gulzhanat Bektemirova**, 1st-year Master's Student in Pedagogy, "I participated in the international case study conference organized by Nazarbayev University. It was my first international conference of such a high level and in presenting in English. I got the coolest experience. Participation helped to overcome fear by giving a speech, and gaining experience in writing an abstract, and participation became an impetus in planning to write an article for an international journal. I recommend everyone to participate who wants to become a scientist and grow in science."
- **Altyn Zhexenbina**, 1st-year Master's Student in Pedagogy, "It was my first conference and it was very interesting to take part in it. In the beginning, it was difficult for me to get into the rhythm, but in the process and largely thanks to my experience as a volunteer at the Menin Armanym corporate foundation, I decided to devote maximum effort and attention to this issue. The conference was interesting and exciting; there were a lot of use cases and information. Everything is organized at a high level and in general, the whole event has left a deep positive mark in my memory for a long time."
- **Ainur Alibayeva**, 1st year Ph.D. student in Cultural Studies, "The First Nazarbayev University Research Centre for Entrepreneurship (NURCE) International Conference 2022 gave me a lot of experience in visiting the atmosphere of the conference, listening to presentations, interacting and communicating with international scholars, and learn about the achievements of other people/universities/scientists - it is powerful, interesting and useful. This is something that broadens the horizons, influences the worldview, and helps in personal development. This includes research, the search for new ideas, and the exchange of experience, I am glad that I had the opportunity to visit Nazarbayev University and participated in this conference. It also gave me an opportunity to experience public speaking in front of people who do not know me, understand the topic, support or do not support my point of view, ask different questions, and treat me differently. It is possible to pump up the skill of public speaking quite well."
- **Aizhan Kudaibergenova**, 1st year Ph.D. student in Psychology, "My participation in the conference 'Entrepreneurship, Innovation and Technology: Challenges, Opportunities, and Prospects in the CIS Region, which took place on November 11, 2022, at Nazarbayev University, gave me a new experience and new impressions. At the present time, due to the workload of professional and personal affairs of each of us, the shortage or complete lack of time for simple, ordinary communication, not everyone is able to allocate extra time on a day off for gratuitous assistance and consultation. And it was thanks to such help, support, and motivation, which was generously shared by Professor



Anjan Ghosh and Nurlykhan Kozhabergenovna, it was possible not only to be a participant but also to prepare case research."

- **Sharapat Sultanaliev**, 3rd year Ph.D. student in Psychology, *"The conference was well organized and it was convenient to participate in a hybrid format. I spoke on Zoom, with the opportunity to broadcast my presentation. I liked that questions were asked and it was possible to delve into the topic of my research even deeper."*
- **Aisha Shalkarova**, 1st-year Master's Student in Religious Studies, *"In this conference, I learned more about case research. Different types of cases and examples were in each presentation. I received more detailed information about the case writing."*
- **Bashir Aliyu Yakasai**, 1st year Ph.D. student in Political Science, *"I attended the conference, and it was great and informative. The idea sharing and global development trends were discussed. The conference was attended by lots of professionals, academicians, and scholars, giving me the chance to meet them and learn more scholarly."*



CLOSING CEREMONY

The international conference on *"Entrepreneurship, innovation, and technology: Challenges, opportunities, and prospects in the CIS region"* organized by the Nazarbayev University Research Centre for Entrepreneurship (NURCE), ended with the presentation of *"The Best Paper Awards"* with certificates and prizes (Nazarbayev University branded hoodies) to 8 winners from 8 tracks and with closing remarks by Professor Chester Jablonski, Vice Provost for Research at Nazarbayev University.





POST CONFERENCE DINNER

All the organizers and participants of the conference expressed their appreciation and gratitude towards each other, and in order to celebrate the success of the 1st international conference of the NURCE, a celebratory dinner was organized at a Central Asian restaurant, Navat. The one-day international conference finally ended with a wish to organizer it in upcoming years too.





School of Mining and Geosciences News

A NEW EXTRACTION METHOD FOR GOLD FROM ORGANIC MATTER

PREPARED BY MEDET JUNUSSOV

High gold content of organic matter up to the commercial grades was first discovered at the end of the 19th century in the Wyoming and Utah coal basins of the United States [1]. The organic matter-rich sediments contain tens, hundreds, or thousands of times greater gold concentrations to the Clark value [2]. The anomalously high concentrations of gold deposits in the coal basins may have economic potential for primary extraction or by-product recovery [2,3].

To understand the association of gold with organic matter and get a comprehensive model of gold transport and its accumulation in organic matter. In the study, 9 samples were obtained enhancing in organic matter from Bakyrchik gold deposit (Eastern Kazakhstan), and they were conducted by analytical investigations and laboratory experiments.

According to the analytical investigations, gold is found in the samples as an invisible form and organic matter in samples is a bituminous coal material veined within crystalized minerals (Figure 1A). Each samples were firstly demineralized by hydrochloric and hydrofluoric acids (Figure 1B) and secondly desulfurized by sink-float method with sodium polytungstate (SPT) (Figure 1C) after grinding it into powder. Then, all powder samples were thoroughly washed with distilled water and dried in an oven (Figure 1D). After all processes, we have at least pure organic matter for further gold extraction.

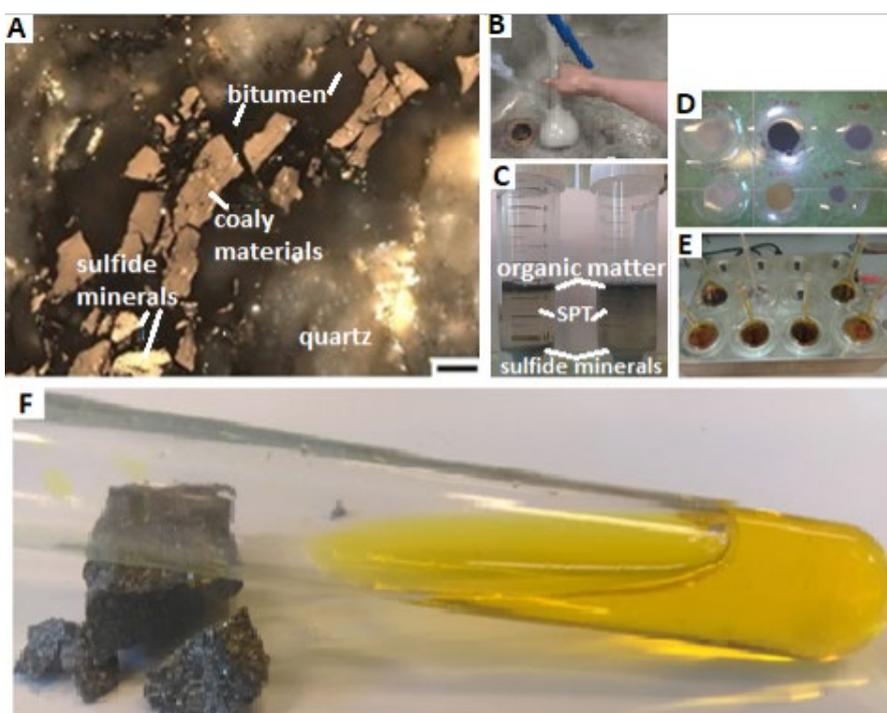


Figure 1 Analytical and experimental investigations showing organic matter with mineral inclusions, scale: 10 μm (A); processes of demineralization (B) and desulfurization-the upper layer is organic matter, middle sodium polytungstate (SPT) and sulphide minerals remain in the bottom (C); preparation for gold extraction of drying the powder samples (D) and removing gold with H_2O_2 in a hot water bath (E); and liquid extracts with gold inclusions (F).

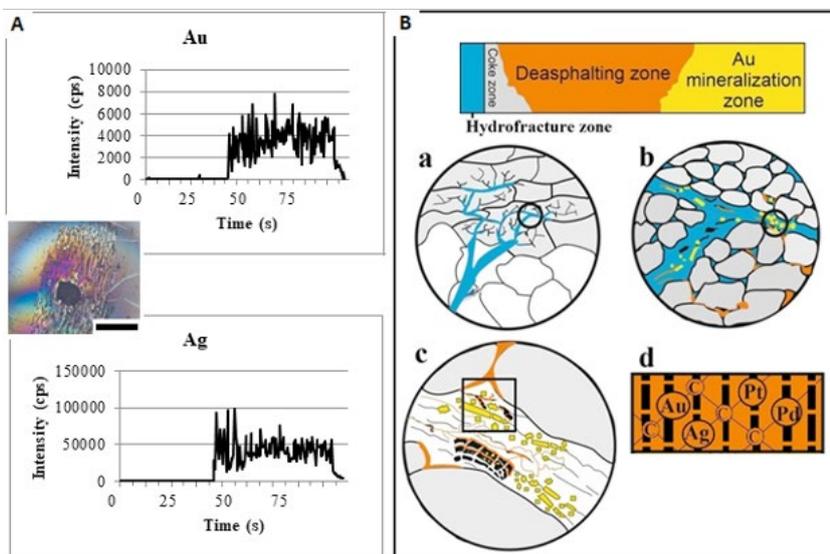
In the laboratory experiments, the powder samples of organic matter are weighted 2 grams and then mixed manually with 18 ml of 30-35% H₂O₂ (hydrogen peroxide) added into a glass beaker (100 ml). After the mixing process, the glass test tube was placed in a water bath at 85°C water for 1 hour (see Figure 1E). After this procedure, the sample was decanted and filtrated for liquid extracts. This procedure was repeated on other samples nine times, in general, to extract gold from the organic matter. All nine liquid extracts (Figure 1F) after the experiment were measured by ICP-OES for gold concentrations (Table 1).

Table 1. Concentrations of extracted noble metals of whole-rock samples
(Unit: ppm for Au and Ag; ppb for Pt and Pd).

Elements	Samples								
	1	2	3	4	5	6	7	8	9
Au	2.0	3.0	0.21	0.19	0.22	0.76	0.20	0.44	0.21
Ag	1.7	1.7	-	0.12	0.01	0.32	-	-	-
Pt	-	-	5	-	25	-	-	-	1
Pd	-	-	10	-	-	-	-	-	16

The analytical and experimental results show that gold content in the organic matter is up to 3 ppm including other noble metals Ag, Pt and Pd as well (shown below in Table 1).

Additional measurement of LA-ICP-MS spot analysis and its result confirms that the presence of Au and Ag elements in the organic matter (see Figure 2A) with results of ICP-OES.



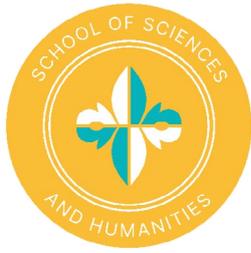
Formation of gold within organic matter shows in Figure 2B by the schematic model: where gold within organic matter in different active zones of the Bakyrchik gold deposit indicating a) penetration of the hot hydrothermal ore fluid (blue) into liquid bituminous materials (in coke zone, grey) through fissures and fractures in the host rock (white); b) migration of gold, bitumen (orange) and mineral components (yellow)

into hydrothermal fluid; c) entrapment of gold, bitumen and minerals undergoing thermal and chemical influences for gold precipitation in coaly organic matter (black) and bitumen (orange), and its thermochemical reduction for organic matter with increasing thermal maturation; d) gold inclusions in polycyclic aromatic hydrocarbons of bitumen (orange) and coal (black) as an organic compound of gold (and other Ag, Pt and Pd).

The results of the study were published in internationally recognized peer-review journal of Act Geochimica and can be found on the following [link](#).

References

1. Noddack, I. 1936: "Über die Allgegenwart der Chemischen Elemente," *Angew. Chemie* 49 (47), 809–816.
2. Seredin, V. V. 2007: Distribution and Formation Conditions of Noble Metal Mineralisation in Coal-Bearing Basins. 2007. ISSN 1075-7015, *Geology of Ore Deposits*, 2007, Vol. 49, No. 1, pp. 1–30.
3. Seredin, V.V. & Finkelman R.B. 2008: Metalliferous coals: A review of the main genetic and geochemical types. *Int. J. Coal Geol.* 76, 253–289



School of Sciences and Humanities News

HOW BOOLEAN FORMULAS CAN BE SPARSIFIED USING CLASSICAL DATABASE THEORY?

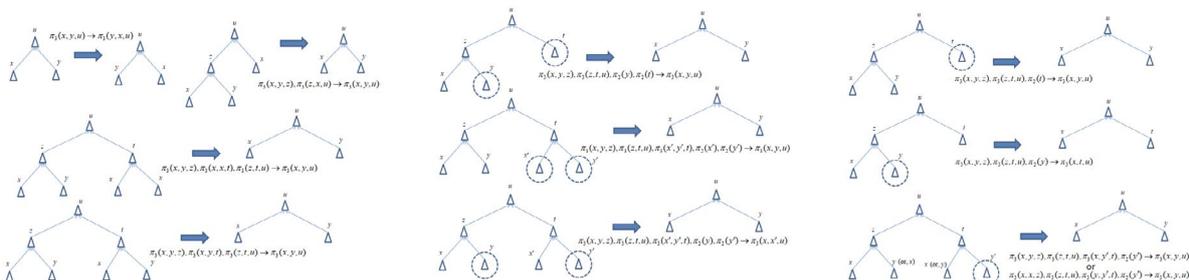
A paper entitled “The algebraic structure of the densification and the sparsification tasks for CSPs” by the assistant professor Rustem Takhanov of Mathematics Department (SSH) was accepted to the journal Constraints (rank 1 in the category of Discrete Mathematics and Combinatorics, according to Scopus). The link to the paper can be found [here](#).

The paper is dedicated to the densification and the sparsification of Constraint Satisfaction Problems (CSP). CSPs over a Boolean domain are known as Boolean formulas. It was shown that the densification operator, i.e. the closure operator that, given an instance of a CSP, outputs all constraints that are satisfied by all of its solutions, is related to a certain functional dependency Σ .

The functional dependency is an important notion from database theory, that was developed in a series of classical works of Edgar Codd, for which he was awarded the Turing award. The paper is specifically interested in those CSPs, for which there is a functional dependency Σ whose size is a polynomial in the number of variables n . It was shown that in the Boolean case, such functional dependencies exist if and only if a language of constraints is Horn, anti-Horn, or binary. For such languages, Σ can be computed in log-space or in a logarithmic time with a polynomial number of processors. Given an implicational system Σ , the densification task is equivalent to the computation of the closure of input constraints. The sparsification task is equivalent to the computation of the minimal key. Both these tasks are famous in classical database theory. Efficient algorithms for these tasks were designed in the 1970-80s by Beeri and Bernstein, Luchessi and Osborn. Thus, the densification and the sparsification of Constraint Satisfaction Problems was reduced to classical problems of database theory.

Developed mathematical methods can be applied in the following areas: logical and constraint programming, structured prediction, logical rule mining, and many other applications of machine learning and pattern recognition.

Below one can see basic rules by which a Boolean Horn formula over a vocabulary of relations $\{\pi_1, \pi_2, \pi_3\}$ can be densified where π_1 corresponds to a Boolean relation $\{\{0\}\}$, π_2 corresponds to a Boolean relation $\{\{1\}\}$, π_3 corresponds to a ternary Boolean relation $x\lambda y \rightarrow z$.



- (1) $\forall x, y, u \pi_3(x, y, u) \rightarrow \pi_3(y, x, u)$
- (2) $\forall x, y, z, u \pi_3(x, y, u) \wedge \pi_2(x) \rightarrow \pi_3(z, y, u)$
- (3) $\forall x, y, z, u \pi_3(x, y, u) \wedge \pi_2(x) \wedge \pi_2(y) \rightarrow \pi_2(u)$
- (4) $\forall x, y, z, u \pi_3(x, y, u) \wedge \pi_2(x) \wedge \pi_1(u) \rightarrow \pi_1(y)$
- (5) $\forall x, y \pi_3(x, x, y) \wedge \pi_1(y) \rightarrow \pi_1(x)$
- (6) $\forall x \pi_1(x) \wedge \pi_2(x) \rightarrow F$
- (7) $\forall x, y, z, u \pi_3(x, y, z) \wedge \pi_3(z, x, u) \rightarrow \pi_3(x, y, u)$
- (8) $\forall x, y, z, t, u \pi_3(x, y, z) \wedge \pi_3(x, x, t) \wedge \pi_3(z, t, u) \rightarrow \pi_3(x, y, u)$
- (9) $\forall x, y, z, t, u \pi_3(x, y, z) \wedge \pi_3(x, y, t) \wedge \pi_3(z, t, u) \rightarrow \pi_3(x, y, u)$
- (10) $\forall x, y, z, t, u \pi_3(x, y, z) \wedge \pi_3(z, t, u) \wedge \pi_2(t) \rightarrow \pi_3(x, t, u)$
- (11) $\forall x, y, z, t, u \pi_3(x, y, z) \wedge \pi_3(z, t, u) \wedge \pi_2(y) \rightarrow \pi_3(x, y, u)$
- (12) $\forall x, y, z, t, u \pi_3(x, y, z) \wedge \pi_3(z, t, u) \wedge \pi_3(x, y, t) \wedge \pi_2(y) \rightarrow \pi_3(x, y, u)$
- (13) $\forall x, y, z, t, u \pi_3(x, x, z) \wedge \pi_3(z, t, u) \wedge \pi_3(y, y, t) \wedge \pi_2(y) \rightarrow \pi_3(x, y, u)$
- (14) $\forall x, y, z, t, u \pi_3(x, y, z) \wedge \pi_3(z, t, u) \wedge \pi_2(y) \wedge \pi_2(t) \rightarrow \pi_3(x, y, u)$
- (15) $\forall x, y, z, t, u \pi_3(x, y, z) \wedge \pi_3(z, t, u) \wedge \pi_3(x, y, t) \wedge \pi_2(x) \wedge \pi_2(y) \rightarrow \pi_3(x, y, u)$
- (16) $\forall x, y, z, t, u \pi_3(x, y, z) \wedge \pi_3(z, t, u) \wedge \pi_3(x, y, t) \wedge \pi_2(y) \wedge \pi_2(y) \rightarrow \pi_3(x, x, u)$

HOW TO REDUCE THE NUMBER OF DIMENSIONS IN DATA?

A paper entitled “*Reducing the dimensionality of data using tempered distributions*” by the Assistant Professor Rustem Takhanov of Mathematics Department (SSH) was accepted to the prestigious journal **Digital Signal Processing**. The link to the paper can be found [here](#).

The paper’s main contribution is a development of a novel view of Linear dimension reduction problem (LDR). First, LDR is formulated as an optimization task whose argument is a tempered distribution (which is a generalization of a probabilistic distribution) that is concentrated on a k-dimensional linear subspace of R^n . Thus, an argument has a more complex structure, it includes not just a k-dimensional subspace, but also a distribution on that subspace. The justification of this optimization framework uses the theory of generalized functions, or tempered distributions, that was developed in classical works of Soboleff and Schwartz. An important generalized function that cannot be represented as an ordinary function is the Dirac delta function.

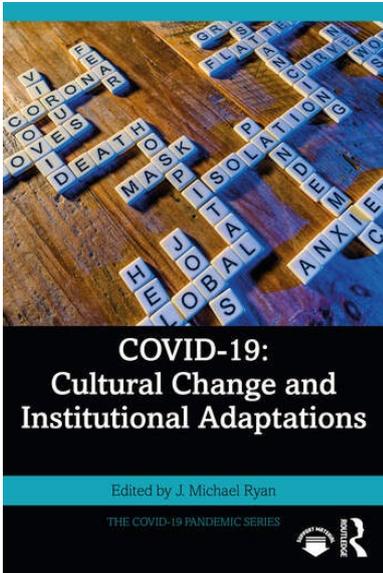
Developed mathematical methods can be applied to the following practical tasks: outlier detection, sufficient dimension reduction, the shadow/black removal, the background modeling, the matrix completion problem, and many other applications in statistics, computer vision and natural language processing.

Below one can see how an algorithm based on generalized functions computes a background from a series of images of a moving person.

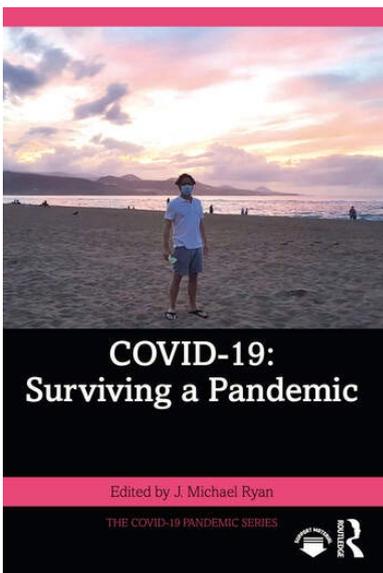


Original image, its projection, and their grayscale difference (Gauss).

DR. J. MICHAEL RYAN, ASSOCIATE PROFESSOR OF SOCIOLOGY, HAS PUBLISHED TWO NEW EDITED VOLUMES RELATED TO THE ONGOING COVID-19 PANDEMIC

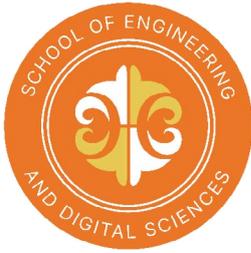


COVID-19: Cultural change and institutional adaptation
COVID-19: Cultural Change and Institutional Adaptations provides critical insights into the impact of the pandemic on the relationship between cultures and institutions. The scholarship presented in this volume examines such important issues as the impact on health-care workers, changes in the interaction order, linguistic access, social stigma, policing, new understandings of social class, and the role of misinformation. Brought together, these insights can help us better understand both the micro and macro changes that have been brought about by the ongoing COVID-19 pandemic. Drawing on the expertise of scholars from around the world, the work presented here represents a remarkable diversity and quality of impassioned scholarship on the impact of COVID-19 and is a timely and critical advance in knowledge related to the pandemic.



COVID-19: Surviving a pandemic
COVID-19: Surviving a Pandemic provides critical insights into survival strategies employed by communities and individuals around the world during the pandemic. A central question since this pandemic began has been how to survive it. That question has applied not just to staying alive, but also to staying healthy, both physically and mentally. Survival is certainly key, but surviving, and what that means, is also critical. The scholarship included in this volume will take a closer look at what it means to survive by addressing such issues as the importance of ethnicity in vaccine uptake, the gendered and racialized impacts of the pandemic, the impact on those with disabilities, questions of food security, and what it means to grieve.

Drawing on the expertise of scholars from around the world, the work presented here represents a remarkable diversity and quality of impassioned scholarship on the impact of COVID-19 and is a timely and critical advance in knowledge related to the pandemic.

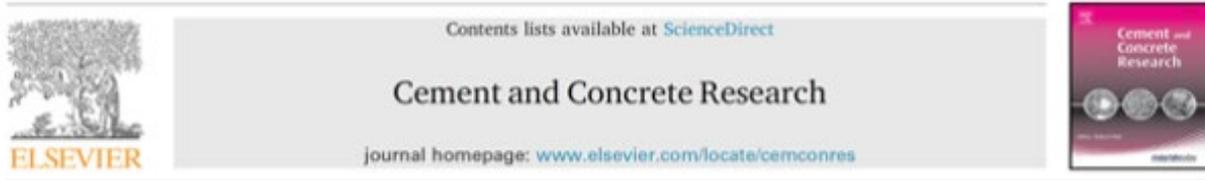


School of Engineering & Digital Sciences

ANALYTICAL PREDICTIONS OF CONCRETE PUMPING: CURRENT STATE OF THE ART

Together with three SEDS undergraduate (UG) students, Balnur Zhaidarbek, Aruzhan Tleubek, and Galymbek Berdibek, Dr. Yanwei Wang, Associate Professor of Chemical and Materials Engineering at SEDS, has developed analytical models for more accurate predictions of flow rate—pressure drop relations in the pumping of concrete. Their work advances current understandings of the interrelation between concrete rheology and flow behavior and provides state-of-the-art mathematical models and computational Apps with greater predictive power. The work [1] has been published in Cement and Concrete Research (CCR), which is a Q1 journal (both in Scopus and in JCR) with >99% percentile in construction and building technology and has an impact factor of 11.9. It is considered one of the best journals in the field. To our knowledge, this is the first research paper on CCR from Kazakhstan. Balnur and Aruzhan are currently 3rd-year UG students, and Galymbek is a 4th-year UG student. All students are from the Department of Chemical and Materials Engineering of SEDS.

Cement and Concrete Research 163 (2023) 107035



Analytical predictions of concrete pumping: Extending the Khatib–Khayat model to Herschel–Bulkley and modified Bingham fluids

Balnur Zhaidarbek ^a, Aruzhan Tleubek ^a, Galymbek Berdibek ^a, Yanwei Wang ^{a,b,*}

^a Department of Chemical and Materials Engineering, School of Engineering and Digital Sciences, Nazarbayev University, 53 Kabanbay Batyr Avenue, Astana, 010000, Kazakhstan

^b Laboratory of Computational Materials Science, Center for Energy and Advanced Materials Science, National Laboratory Astana, 53 Kabanbay Batyr Avenue, Astana, 010000, Kazakhstan

It has been widely reported that self-compacting concrete and other cement-based materials are shear-thickening materials. However, there is a lack of an analytical model on the prediction of flow rate—pressure drop relation in the pumping of concrete that takes into account both the presence of the lubrication layer and the shear-thickening behavior of fresh concrete. This work fills the knowledge/technology gap by extending analytical predictions of concrete pumping in the presence of a lubrication layer to nonlinear rheological models including the Herschel–Bulkley model and the modified Bingham model. In doing so, a new method is developed to obtain the flow rate—pressure drop relation for the steady Hagen–Poiseuille coaxial flow of two immiscible, incompressible fluids. Analytical expressions are presented for the flow rate—pressure drop relation, shear rate distribution, and velocity distribution based on the two-fluid Herschel–Bulkley model and separately based on the two-fluid modified Bingham model.

With those analytical expressions, volumetric flow rate vs. pressure loss curves can be readily constructed, given values for the other eight quantities: three for the rheological properties of the bulk concrete, three for the rheological properties of the fluid in the lubrication layer, pipe radius, and thickness of the lubrication layer.

[1] Zhaidarbek, B., Tleubek, A., Berdibek, G., & Wang, Y. (2023). Analytical predictions of concrete pumping: Extending the Khatib–Khayat model to Herschel–Bulkley and modified Bingham fluids. *Cement and Concrete Research*, 163, 107035. DOI: <https://doi.org/10.1016/j.cemconres.2022.107035>

INFRASTRUCTURE-LESS INSTANT MESSAGING SYSTEM

SHARED BY PROF. DIMITRIOS ZORBAS

Instant messaging applications such as the Whatsapp, the Telegram etc., require constant connection to the Internet via a WiFi or a cellular network. This means that these apps rely on a permanent back-end network infrastructure to connect to application servers and make chat communication and other functionalities possible.

The system we developed in the lab does not require any permanent infrastructure or a connection to the Internet. One or more users can communicate with each other in an ad-hoc manner once they are equipped with a long range communication device and a smartphone (or a laptop) as it is depicted in the following picture. The system uses a combination of technologies such as LoRa, BLE, WiFi, and Json.



Figure 1: The two hardware components of the system

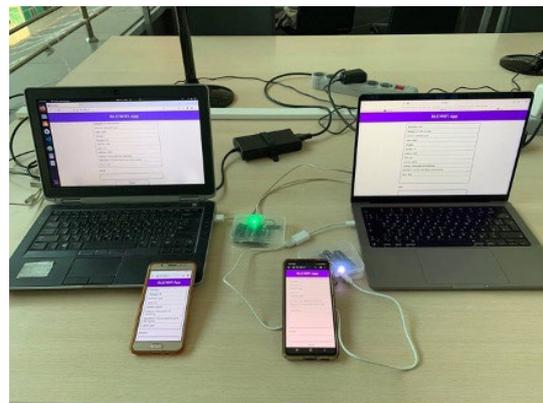


Figure 2: Two smartphones and two laptops communicating with each other

The users can connect their smartphone to the long range communication device via a local Bluetooth or WiFi connection and start chatting with each other like they do with a typical instance messaging application.

The system currently supports single-hop peer-to-peer connections (one or multiple users in the range of each other) but it can be extended to support multi-hop combinations as well. The communication range of the system is more than 5km with Line-of-Sight or a few hundred meters in dense urban areas.

Its applications are not limited to chatting but it can also be extended to support military applications or even intercommunication between satellites and ground users.

The following 3rd-year Computer Science students worked in this project which is funded by Nazarbayev University: Shynar Mars, Batyrkhan Baimukhanov, Shyngys Satkan, and Tamerlan Khussainov.



NAZARBAYEV
UNIVERSITY

NATIONAL
LABORATORY ASTANA

NU REPRESENTATIVES PARTICIPATED IN SIPS SUMMIT



The SIPS, a yearly event that is deeply science-focused and technology & engineering-oriented, organized since 2003, is dedicated to link between science, technology, and engineering domains in the pursuit of sustainable development. In 2022, SIPS summit «Sustainable through Science and Technology» was held in Honor of Nobel laureate Prof. Ferid Murad in Phuket, Thailand. Prof Murad is a pioneer in discovering the positive role of nitric oxide in human organism. Nitric oxide is an inorganic compound considered to be a very dangerous pollutant in the

atmosphere. However, Prof. Murad discovered and proved that nitric oxide inside the human organism has a very positive role in various directions. With his discovery, Prof. Murad became a symbol of a unified inorganic and organic world, and all related science and technology fields.



Plenary sessions of the summit were opened by the talks of 9 Nobel laureates and other renowned scientists. Overall, more than 600 scientists from around 80 countries shared ideas and showcased their work in their respective fields. The summit included 16 major symposia named after well-known scientists. One of the symposia was devoted to Prof. Rachid Yazami, one of the inventors of lithium-ion batteries as well as a recipient of the Draper Prize (considered the Nobel Prize in Engineering), a distinguished professor at Nazarbayev University.

Four representatives of Nazarbayev University (Laboratory of Advanced Materials and Systems for

Energy Storage of National Laboratory Astana and School of Engineering and Digital Science) led by Prof. Zhumabay Bakenov participated in the SIPS 2022.

Prof. Bakenov, Full Professor of SEDS NU, Acting Director of the Center for Energy and Advanced Materials Science at NLA, co-Chaired the Yazami International Symposium and delivered a plenary talk on of cutting-edge work on all-solid-state safe batteries as well as chaired one of the sessions at the Prof Yazami Symposium. Other representatives are Dr. Arailym Nupreissova, Acting Head and Lead Researcher of the above-mentioned laboratory, who shared the work on the preparation of battery-grade lithium composites from Kazakhstani spodumene, and Dr. Aliya Mukanova, Lead Researcher at NU, NLA and Institute of Batteries, alumni of SEDS NU, who presented the study about the development of red phosphorus-based anode for lithium-ion and sodium-ion batteries.

The second year PhD student of SEDS, Mr. Nurbolat Issatayev, also participated with the presentation of his PhD research dedicated to the synthesis of low-cost nitrogen-doped non-graphitic carbon from bio-waste and its application as an anode for a low-temperature lithium-ion battery.

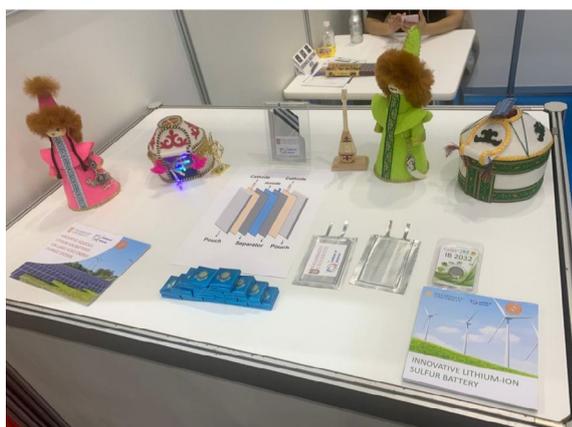
It was an honor to share the work done at Nazarbayev University in front of Nobel Laureates and well-known scientists around the world.

SHARED BY ALIYA MUKANOVA

WORLD SMART ENERGY WEEK - OSAKA 2022

PREPARED BY ARAILYM NURPEISSOVA

On November 16-18, 2022 the Exhibition “World Smart Energy Week OSAKA 2022” was held in Osaka, Japan. ISTC sponsored the participation of the Nazarbayev University, National Laboratory Astana and Institute of Batteries LLC, providing representatives with an opportunity to present their research results and products to a wide auditorium. World Smart Energy Week Osaka 2022 is the World’s leading exhibition covering the power generation, energy saving and energy storage with around 12 000 participants.



Professor of Nazarbayev University and Director of the Center of Energy and Advanced Materials Science of National Laboratory Astana Dr. Zhumabay Bakenov, and Head of Laboratory of Laboratory of Advanced Materials and Systems for Energy Storage, senior researcher of the Center of Energy and Advanced Materials Science of National Laboratory Astana and Institute of Batteries LLC Dr. Arailym Nurpeissova, demonstrated various energy storage devices developed by their team to various potential Partners and Collaborators. The pouch cell based on the aqueous electrolytes which is safe and cheap manufactured at the Nazarbayev University campus attracted immense attention of those interested in rechargeable batteries. This battery system is absolutely safe and do not use any ecologically hazardous materials, which along with its low cost makes it very attractive for stationary large-scale applications such as household energy backup and renewable energy storage. Another economically feasible pouch cell that fascinated the visitors was developed with Kazakhstani sulfur. This battery is suitable for portable and automobile applications due to its extremely high capacity and low cost – it uses cheap sulfur in its cathode instead of heavy, toxic and expensive transition metals such

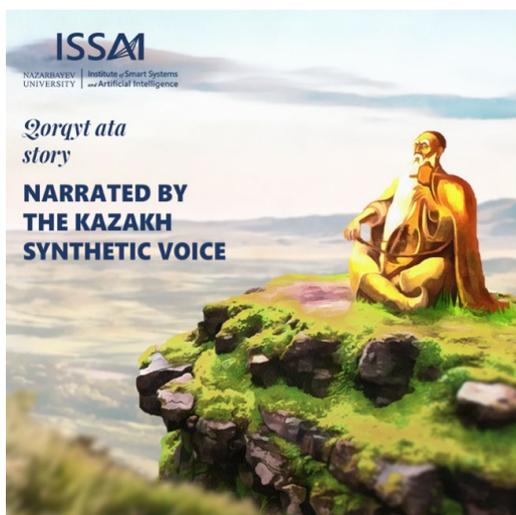
as cobalt and nickel. Along with products, research directions related to the development of low-temperature, flexible batteries, microbatteries were also presented in the form of posters.

The Institute of Batteries LLC is a startup company based on the campus of Nazarbayev University. The company was founded by Zhumabay Bakenov after receiving a grant from the Technology Commercialization Project of the World Bank and the Government of Kazakhstan. The company is currently conducting many commercialization and research projects which focus on the development of energy storage systems and advanced materials for them.

KAZAKH TEXT-TO-SPEECH 2

In order to stimulate research and innovation and encourage the use of Kazakh in the digital field, in 2021, ISSAI developed a Kazakh speech dataset called “KazakhTTS”.

KazakhTTS is a high-quality open-source speech dataset that contains over 90 hours of audio recorded by professional speakers (male and female voices). The dataset has attracted great interest and has been downloaded more than 500 times in less than a year by academia and industry representatives.



To carry on the success, we present a new version of the dataset called KazakhTTS2, which includes more data, speakers, and topics. Specifically, we have increased the data size from 90 hours to 271 hours. We have added three new professional speakers (two females and one male), with over 25 hours of transcribed data for each speaker. We have diversified the topic coverage with a book and Wikipedia articles.

KazakhTTS2 dataset can be used to develop Kazakh text-to-speech models for numerous applications, such as interactive smart assistant systems, navigation systems, announcement systems and assistive technologies for people with special needs. Like the first version, KazakhTTS2 dataset is freely

available to both academic researchers and industry practitioners from ISSAI website.

To demonstrate the utility of the KazakhTTS2 dataset, ISSAI has developed a demo program for Kazakh speech synthesis. The demo is available on [ISSAI's website](#) and allows users to convert Kazakh digital text to audio. The demo supports five different voices.

KAZAKH SPEECH CORPUS 2

Kazakh Speech Corpus 2 (KSC2) is the first industrial-scale open-source Kazakh speech corpus. KSC2 corpus subsumes the previously introduced two corpora: Kazakh speech corpus and Kazakh Text-To-Speech 2, and supplements additional data from other sources like tv programs, radio, senate, and podcasts. In total, KSC2 contains around 1.2k hours of high-quality transcribed data comprising over 600k utterances.

Importantly, KSC2 contains utterances with the Kazakh-Russian code-switching, a common conversation practice among Kazakh speakers.

The dataset can be used by professionals to develop various Kazakh speech and language processing applications, such as virtual assistants in the Kazakh language, robots speaking Kazakh, smart homes and cars, voice and text-enabled applications that can also assist people with special needs, and many more.

Like the first version, the KSC2 dataset is freely available to both academic researchers and industry practitioners from ISSAI website.

Demo of the automatic speech recognition system built using Kazakh Speech Corpus is available on [ISSAI's website](#).

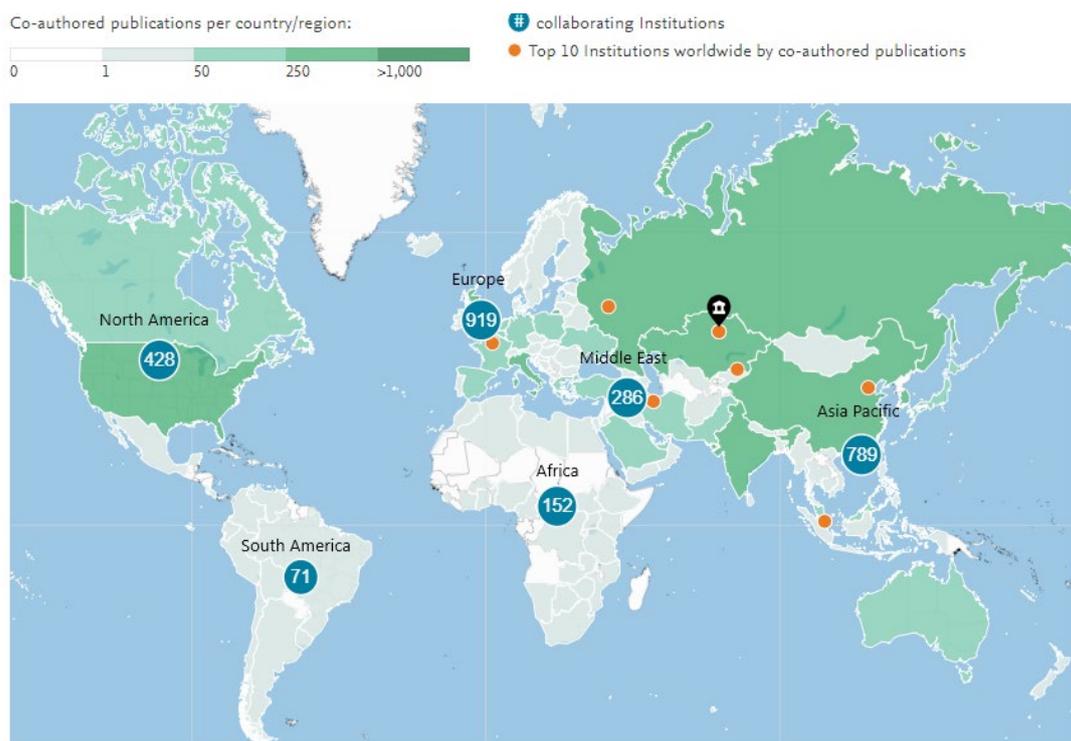


KAZAKH NAMED ENTITY RECOGNITION

KazNERD is the largest publicly available dataset for Kazakh named entity recognition. The dataset was built as there is a clear need for publicly available annotated corpora in Kazakh, as well as annotation guidelines containing straightforward—but rigorous—rules and examples. The dataset annotation, based on the IOB2 scheme, was carried out on television news text by two native Kazakh speakers under the supervision of the first author. The resulting dataset contains 112,702 sentences and 136,333 annotations for 25 entity classes. State-of-the-art machine learning models to automatise Kazakh named entity recognition were also built, with the best-performing model achieving an exact match F1-score of 97.22% on the test set.

Project's demo-version is available for free on [ISSAI's website](#).

RESEARCH PUBLICATIONS PERFORMANCE



In this issue, we are delighted to present you an overview of research activities conducted under the auspices of Nazarbayev University. Since its inception in 2011, Nazarbayev University faculty members and researchers have released 6,808 peer-reviewed publications indexed by Scopus, and have been cited 64,306 times for 2011-2022 period (SciVal, December 2022). The approximate number of citations per peer-reviewed publication is 9.5. The overall H-index of NU is 73, whereas H5- index is 53. The field-weighted citation impact is 1.30, meaning that our publications have been cited 30% more than would be expected based on the world average for similar publications. The map above demonstrates the collaboration between NU and other institutions across the

globe based on co-authored publications over the period from 2017 to 2022. There are 3,852 NU research papers published in collaboration with international institutions, which accounts for 67.7% of the total number of publications produced by our University with the overall Field-Weighted Citation Impact of 1.39. For getting more comprehensive information on the research performance at NU, please have a look at the following [presentation](#) prepared using SciVal research evaluation platform. If you have any questions regarding the provided information, please contact Saule Sadykova (ssadykova@nu.edu.kz)

FUNDING OPPORTUNITIES

#	Opportunity	Funder	Deadline	Source link
1	Nature Awards – Inclusive Health Research	Nature Awards	06.01.2023	URL
2	CALL FOR LETTERS OF INQUIRY FOR LARGE GRANTS	Critical Ecosystem Partnership Fund	10.01.2023	URL
3	Emerging Investigator grants for research within Industrial Biotechnology and Environmental Biotechnology 2023 – Nordic Region	Novo Nordisk Foundation (NNF)	11.01.2023	URL
4	2023 Winter Pilot Award (autism worldwide)	Simons Foundation	12.01.2023	URL
5	Global Health Discovery QuickFire Challenge: Flavivirus Infections	Johnson & Johnson	13.01.2023	URL
6	A Global Fellowship Program to Promote Research on Child and Youth Development	The Jacobs Foundation	15.01.2023	URL
7	MDA Research Grants (muscular dystrophy worldwide)	Muscular Dystrophy Association	20.01.2023	URL
8	UNESCO ICT in Education Prize	UNESCO	23.01.2023	URL
9	IADR Joseph Lister Award for New Investigators	International Association for Dental Research (IADR)	24.01.2023	URL
10	LEO Foundation Award 2023 (dermatology worldwide)	LEO foundation	25.01.2023	URL
11	AACR Gertrude B. Elion Cancer Research Award (worldwide)	American Association for Cancer Research (AACR)	26.01.2023	URL
12	AACR Gertrude B. Elion Cancer Research Award (worldwide)	American Association for Cancer Research (AACR)	26.01.2023	URL
13	Advanced olympic research grant programme	International Olympic Committee	30.01.2023	URL
14	Letten Prize (health and environment worldwide)	Letten Foundation	06.02.2023	URL
15	The Letten Prize 2023(for young researchers under 45)	The Letten Foundation	06.02.2023	URL
16	Carl Duisberg Fellowships for Medical Sciences	Bayer foundation	13.02.2023	URL
17	Jeff Schell Fellowships for Agricultural Science	Bayer foundation	13.02.2023	URL
18	Otto Bayer Fellowships in drug discovery	Bayer foundation	13.02.2023	URL
19	2023 Growth Hormone Research	Pfizer	13.02.2023	URL
20	Small Research Grant Program for the Next Generation of Researchers in Alzheimer's disease and Alzheimer's disease-related dementias (AD/ADRD) (worldwide)	NIH	16.02.2023	URL
21	Science for Peace and Security (SPS) Programme	NATO	17.02.2023	URL
22	Wellcome Early-Career Awards	Wellcome Trust	21.02.2023	URL

FUNDING OPPORTUNITIES

#	Opportunity	Funder	Deadline	Source link
23	Global Water Awards	Global Water Intelligence (GWI)	23.02.2023	URL
24	Development of Novel Nonsteroidal Contraceptive Methods Research Grant (worldwide)	National Institutes of Health (NIH) and Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD)	28.02.2023	URL
25	Development of Novel Nonsteroidal Contraceptive Methods Research Grant	NIH	28.02.2023	URL
26	Gen Foundation grant	Gen Foundation	28.02.2023	URL
27	Trusted environments for sensitive data management in EOSC: HORIZON-RIA HORIZON Research and Innovation Actions	European Commission	09.03.2023	URL
28	Next generation services for operational and sustainable EOSC Core Infrastructure: HORIZON-RIA HORIZON Research and Innovation Actions	European Commission	09.03.2023	URL
29	Early Career Awards (pediatrics worldwide)	Thrasher Research Fund	14.03.2023	URL
30	Efficiency and effectiveness of investment in high-quality education and training: HORIZON-RIA HORIZON Research and Innovation Actions	European Commission	14.03.2023	URL
31	Promoting cultural literacy through arts education to foster social inclusion: HORIZON-RIA HORIZON Research and Innovation Actions	European Commission	14.03.2023	URL
32	Democratic governance for times of disruptive changes to the social contract: HORIZON-RIA HORIZON Research and Innovation Actions	European Commission	14.03.2023	URL
33	Global Shortages and Skill Partnerships: HORIZON-RIA HORIZON Research and Innovation Actions	European Commission	14.03.2023	URL
34	Fostering socio-economic development and job creation in rural and remote areas through cultural tourism: HORIZON-RIA HORIZON Research and Innovation Actions	European Commission	14.03.2023	URL
35	Remote working arrangements and their economic, social and spatial effects: HORIZON-RIA HORIZON Research and Innovation Actions	European Commission	14.03.2023	URL
36	The emotional politics of democracies: HORIZON-RIA HORIZON Research and Innovation Actions	European Commission	14.03.2023	URL
37	Digitalisation in agriculture and forestry: markets for data, and digital technologies and infrastructure	European Commission	23.03.2023	URL

FUNDING OPPORTUNITIES

#	Opportunity	Funder	Deadline	Source link
38	Co-creation and trust-building measures for biotechnology and bio-based innovation systems: HORIZON-CSA HORIZON Coordination and Support Actions	European Commission	23.03.2023	URL
39	Multiple Principal Investigator Clinical Award (cystic fibrosis worldwide)	Cystic Fibrosis Foundation	23.03.2023	URL
40	Enhancing collaboration between Circular Cities and Regions Initiative's (CCRI) supporting organisations: HORIZON-CSA HORIZON Coordination and Support Actions	European Commission	28.03.2023	URL
41	Copernicus for Atmosphere and Climate Change, including CO2: HORIZON-RIA HORIZON Research and Innovation Actions	European Commission	28.03.2023	URL
42	Quantum Communication Technologies for space systems: HORIZON-RIA HORIZON Research and Innovation Actions	European Commission	28.03.2023	URL
43	Impact of light and noise pollution on biodiversity: HORIZON-RIA HORIZON Research and Innovation Actions	European Commission	28.03.2023	URL
44	National Geographic Society grant	National Geographic Society	12.04.2023	URL
45	General RFP	Environmental research and education fund	01.05.2023	URL
46	2023 Autism Hero Awards	Anna Kennedy Online Charity	02.06.2023	URL
47	ACS Women Chemists Committee Rising Star Award (worldwide)	American Chemical Society	15.06.2023	URL
48	Eppendorf & Science Prize for Neurobiology (worldwide)	The Eppendorf & Science	15.06.2023	URL
49	Neuroimaging and CSF Biomarker Program (Alzheimer's disease)	Alzheimer's Drug Discovery Foundation	04.07.2023	URL
50	ISESCO RESEARCH GRANTS	ISESCO RESEARCH GRANTS	31.07.2023	URL
51	Research Grants and Support	Nestlé Foundation	rolling basis	URL
52	Carl Zeiss Humboldt Research Award	the Humboldt Foundation	rolling basis	URL
53	Fraunhofer-Bessel Research Award	the Humboldt Foundation	rolling basis	URL
54	Friedrich Wilhelm Bessel Research Award	the Humboldt Foundation	rolling basis	URL
55	Clean Energy Accelerator	Amazon	rolling basis	URL
56	Project Grants	The Myrovlytis Trust	rolling basis	URL
57	Small/ Pilot Studies	The Myrovlytis Trust	rolling basis	URL
58	Energy Foundation's grants	Energy Foundation China	rolling basis	URL
59	Impact Collaboration Programme (ICP 2023)	The Geneva Science-Policy Interface	rolling basis	URL
60	Research Core Award: Non-rodent Large Animal Model for Inherited Retinal Disease (worldwide)	Foundation Fighting Blindness	rolling basis	URL

New research papers indexed by Scopus (count: 295 as of December 27)

- Abbas, A. H., Ajunwa, O. M., Mazhit, B., Martyushev, D. A., Bou-Hamdan, K. F., & Alsaheb, R. A. A. (2022). Evaluation of OKRA (*abelmoschus esculentus*) macromolecular solution for enhanced oil recovery in kazakhstan carbonate reservoir. *Energies*, 15(18) doi:10.3390/en15186827
- Abdildin, Y., Takisheva, A., & Viderman, D. (2022). Erector spinae plane block in hepatobiliary surgery: A meta-analysis. Paper presented at the SIST 2022 - 2022 International Conference on Smart Information Systems and Technologies, Proceedings, doi:10.1109/SIST54437.2022.9945810 Retrieved from www.scopus.com
- Abdisattar, A., Yeleuov, M., Daulbayev, C., Askaruly, K., Tolynbekov, A., Taurbekov, A., & Prikhodko, N. (2022). Recent advances and challenges of current collectors for supercapacitors. *Electrochemistry Communications*, 142 doi:10.1016/j.elecom.2022.107373
- Abdrakhmanov, R., Viderman, D., Wong, K. -, & Lee, M. (2022). Few-shot learning based on residual neural networks for X-ray image classification. Paper presented at the Conference Proceedings - IEEE International Conference on Systems, Man and Cybernetics, , 2022-October 1817-1821. doi:10.1109/SMC53654.2022.9945469 Retrieved from www.scopus.com
- Abedinia, O., Ghasemi-Marzbali, A., Nurmanova, V., & Bagheri, M. (2022). A new reconfigured electricity market bidding strategy in view of players' concerns. *IEEE Transactions on Industry Applications*, 58(6), 7034-7046. doi:10.1109/TIA.2022.3200348
- Abibullaev, B., Kunanbayev, K., & Zollanvari, A. (2022). Subject-independent classification of P300 event-related potentials using a small number of training subjects. *IEEE Transactions on Human-Machine Systems*, 52(5), 843-854. doi:10.1109/THMS.2022.3189576
- Abidi, S. H., Siddiqui, D., Mahmood, S. F., Siddiqui, A. R., Nathwani, A. A., Hotwani, A., . . . Mir, F. (2022). Unassigned complex unique recombinant forms related to CRF36_cpx in children identified in an HIV-1 outbreak in pakistan. *AIDS Research and Human Retroviruses*, 38(10), 806-811. doi:10.1089/aid.2021.0168
- Abu, A., Abdukarimov, Y., Tu, N. A., & Lee, M. -. (2022). Meta pseudo labels for chest X-ray image classification. Paper presented at the Conference Proceedings - IEEE International Conference on Systems, Man and Cybernetics, , 2022-October 2735-2739. doi:10.1109/SMC53654.2022.9945167 Retrieved from www.scopus.com
- Abutalip, M., Zhigerbayeva, G., Kanzhigitova, D., Askar, P., Yeszhan, Y., Pham, T. T., . . . Nuraje, N. (2022). Strategic synthesis of 2D and 3D conducting polymers and derived nanocomposites. *Advanced Materials*, doi:10.1002/adma.202208864
- Adeoye, A. O., Mukasheva, F., Smatov, S., Khumyrzakh, B., Kadyr, S., Shulgau, Z., & Eriskin, C. (2022). A biomimetic synthetic nanofiber-based model for anterior cruciate ligament regeneration. *Frontiers in Bioengineering and Biotechnology*, 10 doi:10.3389/fbioe.2022.969282
- Afraz, S., Stevic, I., Matino, D., Wen, J., Atkinson, H., Chan, A. K. C., & Hortelano, G. (2022). Co-administration of FVIII with IVIG reduces immune response to FVIII in hemophilia A mice. *Scientific Reports*, 12(1) doi:10.1038/s41598-022-19392-1
- Aghababaiyan, K., Kebriaei, H., Shah-Mansouri, V., Maham, B., & Niyato, D. (2022). Enhanced modulation for multiuser molecular communication in internet of nano things. *IEEE Internet of Things Journal*, 9(20), 19787-19802. doi:10.1109/JIOT.2022.3168658
- Agibayeva, A., Guney, M., Karaca, F., Kumisbek, A., Kim, J. R., & Avcu, E. (2022). Analytical methods for physicochemical characterization and toxicity assessment of atmospheric particulate matter: A review. *Sustainability (Switzerland)*, 14(20) doi:10.3390/su142013481
- Aidarkhanov, D., Daniyeva, N., & Ng, A. (2022). Application of ionic liquids for charge transport improvement in perovskite solar cells. *Materials Today: Proceedings*, doi:10.1016/j.matpr.2022.09.509
- Aimagambetova, G., & Azizan, A. (2022). Human papillomavirus vaccination: Past, present and future. *Vaccines*, 10(9) doi:10.3390/vaccines10091398
- Aimbetov, R., & Ogryzko, V. (2022). Proteomic profiling of the carbon-starved *escherichia coli* reveals upregulation of stress-inducible pathways implicated in biological adhesion and methylglyoxal metabolism. *Research in Microbiology*, 173(8) doi:10.1016/j.resmic.2022.103968
- Ainayev, Y., Zhanbyrbekuly, U., Gaipov, A., & Suleiman, M. (2022). AUTHOR REPLY. *Urology*, 170, 232-233. doi:10.1016/j.urology.2022.07.065
- Ainayev, Y., Zhanbyrbekuly, U., Gaipov, A., Suleiman, M., Kissamedenov, N., Zhaparov, U., . . . Khairli, G. (2022). Comparison of technical success and adverse events of plaque incision and grafting methods in patients with peyronie's disease: Tunica vaginalis versus buccal mucosa. *Urology*, doi:10.1016/j.urology.2022.07.063

New research papers indexed by Scopus (count: 295 as of December 27)

- Aitekenov, S., Sultangaziyev, A., Ilyas, A., Dyussupova, A., Boranova, A., Gaipov, A., & Bukasov, R. (2022). Surface-enhanced raman spectroscopy (SERS) for protein determination in human urine. *Sensing and Bio-Sensing Research*, 38 doi:10.1016/j.sbsr.2022.100535
- Akhmetov, T., & Varol, H. A. (2022). ORW1S34RfeSDcfkexd09rT0An augmented reality-based warning system for enhanced safety in industrial settings1RW1S34RfeSDcfkexd09rT0. *IEEE Transactions on Industrial Informatics*, , 1-12. doi:10.1109/TII.2022.3216009
- Akhmetova, A., Myrzakmetov, B., Wang, Y., Bakenov, Z., & Mentbayeva, A. (2022). Development of quaternized chitosan integrated with nanofibrous polyacrylonitrile mat as an anion-exchange membrane. *ACS Omega*, 7(49), 45371-45380. doi:10.1021/acsomega.2c05961
- Akimzhanova, Z., & Guney, M. (2022). Bioaccessibility of potentially toxic elements in toys and children's jewelry. *Current Opinion in Environmental Science and Health*, 30 doi:10.1016/j.coesh.2022.100397
- Al-Dossary, R. N., AlMahmoud, S., Banakhar, M. A., Alamri, M., Albaqawi, H., Al Hosis, K., . . . Almazan, J. U. (2022). The relationship between nurses' risk assessment and management, fear perception, and mental wellbeing during the COVID-19 pandemic in saudi arabia. *Frontiers in Public Health*, 10 doi:10.3389/fpubh.2022.992466
- Alenezi, A., Alquwez, N., Rivera, P. P., Catimbang, C. C., Alsolais, A., & Preposi Cruz, J. (2022). The influence of sleep quality on patient safety learning of nursing students. *Nursing Education Perspectives*, 43(6), E65-E67. doi:10.1097/01.NEP.0000000000000966
- Aliyev, A., Zivar, D., & Pourafshary, P. (2022). Investigation of replacing tracer flooding analysis by capacitance resistance model to estimate interwell connectivity. *Petroleum*, doi:10.1016/j.petlm.2022.10.005
- Amukarimi, S., Rezvani, Z., Eghtesadi, N., & Mozafari, M. (2022). Corrigendum to "Smart biomaterials: From 3D printing to 4D bioprinting" [methods 205 (2022) 191–199, (S1046202322001608), (10.1016/j.ymeth.2022.07.006)]. *Methods*, 208, 27. doi:10.1016/j.ymeth.2022.10.004
- Anas, A., Xingwang, L., Ramez, A., Khaled, R., & Galymzhan, N. (2022). Intelligent reflecting surface - aided UAV communications:A survey and research opportunities. Paper presented at the 2022 13th International Symposium on Communication Systems, Networks and Digital Signal Processing, CSNDSP 2022, 362-367. doi:10.1109/CSNDSP54353.2022.9908061 Retrieved from www.scopus.com
- Anderson, M. R., Basu, V., Martin, R. D., Reed, C. Z., Rowe, N. J., Shafiee, M., & Ye, T. (2022). Performance of a convolutional autoencoder designed to remove electronic noise from p-type point contact germanium detector signals. *European Physical Journal C*, 82(12) doi:10.1140/epjc/s10052-022-11000-w
- Arain, A. H., Ridha, S., Suppiah, R. R., Irawan, S., & Ilyas, S. U. (2022). Developing an efficient ester-based drilling fluid based on calophyllum inophyllum oil for eco-friendly drilling of unconventional shale formation. *Journal of Petroleum Science and Engineering*, 219 doi:10.1016/j.petrol.2022.111141
- Artiga-Sainz, L. M., Ibáñez-Navarro, A., Morante-Ruiz, M., Bilbao, J. S. -, Rodríguez de Lema-Tapetado, G., Sarria-Santamera, A., & Quintana-Díaz, M. (2022). Overview of coronavirus pandemic. Computational approaches for novel therapeutic and diagnostic designing to mitigate SARS-CoV2 infection: Revolutionary strategies to combat pandemics (pp. 1-22) doi:10.1016/B978-0-323-91172-6.00013-3 Retrieved from www.scopus.com
- Artiga-Sainz, L. M., Sarria-Santamera, A., Martínez-Alés, G., & Quintana-Díaz, M. (2022). New approach to managing the COVID-19 pandemic in a complex tertiary care medical center in madrid, spain. *Disaster Medicine and Public Health Preparedness*, 16(5), 2097-2102. doi:10.1017/dmp.2021.63
- Ashimova, A., Myngbay, A., Yegorov, S., Negmetzhanov, B., Kadyrova, I., Yershova, A., . . . Hortelano, G. (2022). Sustained delivery of a monoclonal antibody against SARS-CoV-2 by microencapsulated cells: A proof-of-concept study. *Pharmaceutics*, 14(10) doi:10.3390/pharmaceutics14102042
- Ashirbekov, A., Kabdenova, B., Kuljabekov, A., Monaco, E., Wang, L., & Rojas-Solórzano, L. (2022). Lattice boltzmann pseudopotential multiphase modeling of transcritical CO2 flow using a crossover formulation. *Advances in Geo-Energy Research*, 6(6), 539-540. doi:10.46690/ager.2022.06.12
- Ashirbekov, Y., Sabitov, Z., Aidarov, B., Abaildayev, A., Junissova, Z., Cherusheva, A., . . . Zhabagin, M. (2022). Genetic polymorphism of 27 Y-STR loci in the western kazakh tribes from kazakhstan and karakalpakstan, uzbekistan. *Genes*, 13(10) doi:10.3390/genes13101826

New research papers indexed by Scopus (count: 295 as of December 27)

- Asif, M., Wang, L., Wang, R., Wang, H., & Hazlett, R. D. (2022). Mechanisms in CO₂-enhanced coalbed methane recovery process. *Advances in Geo-Energy Research*, 6(6), 531-534. doi:10.46690/ager.2022.06.09
- Askapuli, A., Vilar, M., Garcia-Ortiz, H., Zhabagin, M., Sabitov, Z., Akilzhanova, A., . . . Saitou, N. (2022). Kazak mitochondrial genomes provide insights into the human population history of central eurasia. *PLoS ONE*, 17(11 November) doi:10.1371/journal.pone.0277771
- Askar, A., Lee, M. -, Huynh-The, T., & Tu, N. A. (2022). 2D skeleton-based action recognition using action-snippets and sequential deep learning. Paper presented at the Conference Proceedings - IEEE International Conference on Systems, Man and Cybernetics, , 2022-October 2372-2377. doi:10.1109/SMC53654.2022.9945402 Retrieved from www.scopus.com
- Assan, A., Moldaliyev, I., Kerimbayeva, Z., Gaipov, A., Utepova, D., Magzumova, R. Z., . . . Aljofan, M. (2022). A retrospective analysis of pharmacotherapy in kazakhstan: Assessment of the rational prescription and use of antibiotics in the nephrology department of a multidisciplinary hospital. *Electronic Journal of General Medicine*, 19(6) doi:10.29333/ejgm/12576
- Assubayeva, A., Xenarios, S., Li, A., & Fazli, S. (2022). Assessing water security in central asia through a delphi method and a clustering analysis. *Frontiers in Environmental Science*, 10 doi:10.3389/fenvs.2022.970633
- Atanova, S. (2022). Down with bridewealth, down with the veil! soviet campaign for the emancipation of women in central asia in graphics and textiles between the 1920s and 1930s. *Central Asian Affairs*, 9(2-4), 259-293. doi:10.30965/22142290-bja10031
- Badanova, N., Perveen, A., & Talamona, D. (2022). Concise review on pattern making process in rapid investment casting: Technology, materials & numerical modelling aspect. *Advances in Materials and Processing Technologies*, 8(sup2), 966-978. doi:10.1080/2374068X.2021.1959113
- Badanova, N., Perveen, A., & Talamona, D. (2022). Study of SLA printing parameters affecting the dimensional accuracy of the pattern and casting in rapid investment casting. *Journal of Manufacturing and Materials Processing*, 6(5) doi:10.3390/jmmp6050109
- Baeza_Romero, M. T., Dudzinska, M. R., Amouei Torkmahalleh, M., Barros, N., Coggins, A. M., Ruzgar, D. G., . . . Staszowska, A. (2022). A review of critical residential buildings parameters and activities when investigating indoor air quality and pollutants. *Indoor Air*, 32(11) doi:10.1111/ina.13144
- Bakbolat, B., Daulbayev, C., Sultanov, F., Taurbekov, A., Tolynbekov, A., Yeleuov, M., . . . Mansurov, Z. (2022). Effectiveness of bio-waste-derived carbon doping on de-icing performance of an electrically resistant concrete. *Coatings*, 12(11) doi:10.3390/coatings12111629
- Bapayeva, G., Terzic, S., Dotlic, J., Togyzbayeva, K., Bugibaeva, U., Mustafinova, M., . . . Laganà, A. S. (2022). The influence of advanced age and obesity on pregnancy course and outcome in patients with diabetes mellitus. *Przegląd Menopauzalny*, 21(3), 170-179. doi:10.5114/pm.2022.116351
- Bapayev, B., Tashenov, Y., Aliakbarova, A., Adilov, S., & Balanay, M. (2022). Ternary NiCuS electrocatalyst for iodide/triiodide reduction in dye-sensitized solar cells. *Materials Today: Proceedings*, doi:10.1016/j.matpr.2022.09.614
- Barakbayeva, T., & Demirci, F. M. (2022). Fully automatic CNN design with inception and ResNet blocks. *Neural Computing and Applications*, doi:10.1007/s00521-022-07700-9
- Barral, N., Maleki, M., Madani, N., Cánovas, M., Husillos, R., & Castillo, E. (2022). Spatio-temporal geostatistical modelling of sulphate concentration in the area of the reocín mine (spain) as an indicator of water quality. *Environmental Science and Pollution Research*, 29(57), 86077-86091. doi:10.1007/s11356-021-16475-w
- Bayramov, E., Buchroithner, M., Kada, M., & Zhuniskenov, Y. (2022). Remote surveillance practices of surface displacements for kazakhstan and azerbaijan oil and gas fields and pipelines using multi-temporal radar satellite interferometry. Paper presented at the Proceedings of SPIE - the International Society for Optical Engineering, , 12267 doi:10.1117/12.2638976 Retrieved from www.scopus.com
- Bazarbay, B. B., Kurbanova, B. A., Absadykov, B. N., Isametova, M. E., & Kawałek, A. M. (2022). INVESTIGATION OF THE EFFECT OF THERMAL POST-TREATMENT ON DENSITY AND HARDNESS OF A GREEN PART PRINTED WITH FFF TECHNOLOGY. *Journal of Chemical Technology and Metallurgy*, 57(6), 1258-1266. Retrieved from www.scopus.com
- Beisekenov, I., Suleiman, Z., Tokbergenova, A., Shaikholla, S., Dikhanbayeva, D., El-Thalji, I., . . . Turkiilmaz, A. (2022). Maturity assessment of industry 4.0 implementation in kazakhstani and norwegian oil and gas contexts. *Journal of Industrial Integration and Management*, 7(4), 455-477. doi:10.1142/S2424862222500191

New research papers indexed by Scopus (count: 295 as of December 27)

- Bekbossynova, M., Akhmaltdinova, L., Dossybayeva, K., Tauekelova, A., Smagulova, Z., Tsechoeva, T., . . . Poddighe, D. (2022). Central and effector memory T cells in peripheral blood of patients with interstitial pneumonia: Preliminary clues from a COVID-19 study. *Respiratory Research*, 23(1) doi:10.1186/s12931-022-02190-8
- Bekzhanova, Z., & Makoelle, T. M. (2022). Latinization of the kazakh alphabet: Implications for education, inclusion, and social cohesion in kazakhstan. *SAGE Open*, 12(4) doi:10.1177/21582440221138820
- Bila, J., Dotlic, J., Radjenovic, S. S., Vidakovic, S., Tulic, L., Micic, J., . . . Terzic, M. (2022). Predictive value of basal serum progesterone for successful IVF in endometriosis patients: The need for a personalized approach. *Journal of Personalized Medicine*, 12(10) doi:10.3390/jpm12101639
- Bolla, S. R., & Al Saffar, R. A. (2022). Anatomy teaching in saudi medical colleges: the necessity of the national core syllabus of anatomy. *Anatomy and Cell Biology*, 55(3), 367-372. doi:10.5115/acb.22.041
- Broomandi, P., Jahanbakhshi, A., Fathian, A., Darynova, Z., Janatian, N., Nikfal, A., . . . Karaca, F. (2022). Impacts of ambient air pollution on UNESCO world cultural heritage sites in eastern asia: Dose-response calculations for material corrosions. *Urban Climate*, 46 doi:10.1016/j.uclim.2022.101275
- Broomandi, P., Kim, J. R., & Rodríguez-Seijo, A. (2022). An assessment of chemical warfare agents in soils: Detection, distribution, and ecotoxicology. Sensing of deadly toxic chemical warfare agents, nerve agent simulants, and their toxicological aspects (pp. 381-406) doi:10.1016/B978-0-323-90553-4.00023-8 Retrieved from www.scopus.com
- Brou, G. A., Gbassi, G. K., Shulov, I., Seralin, A., Klymchenko, A. S., Vandamme, T. F., & Anton, N. (2022). Study of surfactant cross-linking by click chemistry on a model water/oil interface. *Physical Chemistry Chemical Physics*, doi:10.1039/d2cp02146c
- Burska, A. N., Ilyassova, B., Dildabek, A., Khamijan, M., Begimbetova, D., Molnár, F., & Sarbassov, D. D. (2022). Enhancing an oxidative “Trojan horse” action of vitamin C with arsenic trioxide for effective suppression of KRAS-mutant cancers: A promising path at the bedside. *Cells*, 11(21) doi:10.3390/cells11213454
- Cerone, A. (2022). Preface Retrieved from www.scopus.com
- Cerone, A. (2022). Ten years of DataMod: The synergy of Data-driven and Model-based approaches doi:10.1007/978-3-031-16011-0_2 Retrieved from www.scopus.com
- Cerone, A., Mengdigali, A., Nabiyeva, N., & Nurbay, T. (2022). A web-based tool for Collaborative modelling and Analysis in Human-computer interaction and Cognitive science doi:10.1007/978-3-031-16011-0_12 Retrieved from www.scopus.com
- Cerone, A., Murzagaliyeva, D., Nabiyeva, N., Tyler, B., & Pluck, G. (2022). In silico simulations and Analysis of Human phonological working memory maintenance and Learning mechanisms with Behavior and Reasoning description language (BRDL) doi:10.1007/978-3-031-12429-7_3 Retrieved from www.scopus.com
- Collins, N., & O'Brien, D. (2022). Neo-mercantilism in action: China and small states. *International Politics*, doi:10.1057/s41311-022-00419-3
- Cui, D., Li, X., Huang, G., Rabie, K., Naurzybayev, G., & El Halawany, B. M. (2022). Outage probability of ABCOM NOMA systems for 6G with IQI and RHIs. Paper presented at the 2022 13th International Symposium on Communication Systems, Networks and Digital Signal Processing, CSNDSP 2022, 384-389. doi:10.1109/CSNDSP54353.2022.9908030 Retrieved from www.scopus.com
- Czuba, K. (2022). Political mobilization of layered ethnic identities. *Ethnic and Racial Studies*, doi:10.1080/01419870.2022.2154614
- Dautov, K., Abdugapbar, K., Hashmi, M. S., & Naurzybayev, G. (2022). Robust wide-angle metamaterial-based absorber design for powering IoT devices. Paper presented at the International Conference on ICT Convergence, , 2022-October 7-9. doi:10.1109/ICTC55196.2022.9953016 Retrieved from www.scopus.com
- Dautov, K., Hashmi, M., & Naurzybayev, G. (2022). Novel approach improving quality factor of miniature slotted resonators in near-field WPTs. Paper presented at the 2022 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, AP-S/URSI 2022 - Proceedings, 1742-1743. doi:10.1109/AP-S/USNC-URSI47032.2022.9886557 Retrieved from www.scopus.com

New research papers indexed by Scopus (count: 295 as of December 27)

- Dautov, K., Naurzybayev, G., & Hashmi, M. (2022). Wireless information and power transfer systems in biomedicine: A new perspective on high-speed applications. Paper presented at the 2022 IEEE International Symposium on Antennas and Propagation and USNC-URSI Radio Science Meeting, AP-S/URSI 2022 - Proceedings, 1334-1335. doi:10.1109/AP-S/USNC-URSI47032.2022.9886986 Retrieved from www.scopus.com
- Davletiyarov, B., Akmurzina, K., Seralin, A., Bizhanova, G., Bapstayev, B., Balanay, M., & Ng, A. (2022). Investigation of synthesis and deposition methods for cesium-based perovskite quantum dots for solar cell applications. *Eurasian Chemico-Technological Journal*, 24(3), 241-249. doi:10.18321/ectj1437
- de Nivelles, H., & Muktubayeva, D. (2022). Generating tokenizers with flat automata. Paper presented at the Electronic Proceedings in Theoretical Computer Science, EPTCS, , 370 66-80. doi:10.4204/EPTCS.370.5 Retrieved from www.scopus.com
- Denissenya, M., Bag, S., Kim, A. G., Linder, E. V., & Shafieloo, A. (2022). Out of one, many: Distinguishing time delays from lensed supernovae. *Monthly Notices of the Royal Astronomical Society*, 511(1), 1210-1217. doi:10.1093/mnras/stac143
- Denissenya, M., & Linder, E. V. (2022). Constraining scale dependent growth with redshift surveys. *Journal of Cosmology and Astroparticle Physics*, 2022(11) doi:10.1088/1475-7516/2022/11/029
- Domán, A., Battalgazy, B., Dobos, G., Kiss, G., Tauanov, Z., László, K., . . . Inglezakis, V. J. (2022). Iodide removal by resorcinol-formaldehyde carbon aerogels. *Materials*, 15(19) doi:10.3390/ma15196885
- Dubuisson, E. -. (2022). Whose world? discourses of protection for land, environment, and natural resources in kazakhstan. *Problems of Post-Communism*, 69(4-5), 410-422. doi:10.1080/10758216.2020.1788398
- Dufhues, T., Buchenrieder, G., Runschke, D., Schmeidl, S., Herzfeld, T., & Sagyndykova, G. (2022). Migrant agency in an institutional context: The Akmola–Astana migration system. *Europe - Asia Studies*, doi:10.1080/09668136.2022.2134305
- Ellwanger, J. H., Secchi, M., Aliberti, J., & Vangelista, L. (2022). Editorial: CCR5: A receptor at the center stage in infection. *Frontiers in Immunology*, 13 doi:10.3389/fimmu.2022.1054430
- Endo, M., & Kato, G. (2022). Social values and maskwearing behaviour during the COVID-19 pandemic in japan. *Public behavioural responses to policy making during the pandemic: Comparative perspectives on mask-wearing policies* (pp. 174-185) doi:10.4324/9781003244127-13 Retrieved from www.scopus.com
- Esbolat, A., Panin, E., Arbuz, A., Kuis, D., Lezhnev, S., Krupenkin, I., & Erpalov, M. (2022). CONCEPTS ANALYSIS OF ASYMMETRY FACTOR IMPLEMENTATION DURING ROLLING IN RELIEF ROLLS. *Journal of Chemical Technology and Metallurgy*, 57(6), 1243-1250. Retrieved from www.scopus.com
- Fan, H., Sun, Q., Dukenbayev, K., Benassi, E., Manarbek, L., Nurkesh, A. A., . . . Xie, Y. (2022). Carbon nanoparticles induce DNA repair and PARP inhibitor resistance associated with nanozyme activity in cancer cells. *Cancer Nanotechnology*, 13(1) doi:10.1186/s12645-022-00144-9
- Farooqui, N., Mir, F., Siddiqui, D., Hotwani, A., Nathwani, A. A., Mahmood, S. F., . . . Abidi, S. H. (2022). Phylogenetic and drug- and vaccine-resistance profiles of hepatitis B virus among children with HIV co-infection in pakistan. *Infection, Genetics and Evolution*, 105 doi:10.1016/j.meegid.2022.105371
- Fernández-Silvestre, D., Good, M. R. R., & Linder, E. V. (2022). Upon the horizon's verge: Thermal particle creation between and approaching horizons. *Classical and Quantum Gravity*, 39(23) doi:10.1088/1361-6382/ac9d1b
- Gaipov, A., Makhammajanov, Z., Dauey, Z., Markhametova, Z., Mussina, K., Nogaibayeva, A., . . . Kanbay, M. (2022). Urinary protein profiling for potential biomarkers of chronic kidney disease: A pilot study. *Diagnostics*, 12(11) doi:10.3390/diagnostics12112583
- Galán-Madruga, D., Cárdenas-Escudero, J., Broomandi, P., Oleniacz, R., & Cáceres, J. O. (2022). Performance assessment of air quality monitoring networks. A specific case study and methodological approach. *Air Quality, Atmosphere and Health*, doi:10.1007/s11869-022-01254-4
- Galiyeva, D., Gusmanov, A., Sakko, Y., Issanov, A., Atageldiyeva, K., Kadyrzhanuly, K., . . . Gaipov, A. (2022). Epidemiology of type 1 and type 2 diabetes mellitus in kazakhstan: Data from unified national electronic health system 2014–2019. *BMC Endocrine Disorders*, 22(1) doi:10.1186/s12902-022-01200-6
- Garipova, R. (2022). From kolkHoz to pulpit: Rashida abistay and female religious authority in soviet and post-soviet russia. *Journal of Islamic Studies*, 33(1), 35-71. doi:10.1093/jis/etab064

New research papers indexed by Scopus (count: 295 as of December 27)

- Gasmi, A., Bjørklund, G., Mujawdiya, P. K., Semenova, Y., Piscopo, S., & Peana, M. (2022). Coenzyme Q10 in aging and disease. *Critical Reviews in Food Science and Nutrition*, doi:10.1080/10408398.2022.2137724
- Ghasemi, M., Tatar, A., Shafiei, A., & Ivakhnenko, O. P. (2022). Prediction of asphaltene adsorption capacity of clay minerals using machine learning. *Canadian Journal of Chemical Engineering*, doi:10.1002/cjce.24675
- Gheytaizadeh, M., Baghban, A., Habibzadeh, S., Jabbour, K., Esmaili, A., Mashhadzadeh, A. H., & Mohaddespour, A. (2022). Intelligent route to design efficient CO₂ reduction electrocatalysts using ANFIS optimized by GA and PSO. *Scientific Reports*, 12(1) doi:10.1038/s41598-022-25512-8
- Gok, K., Babalola, M. T., Sumanth, J. J., Lakshman, C., Vo, L. C., Decoster, S., . . . Coşkun, A. (2022). Enhancing employees' duty orientation and moral potency: Dual mechanisms linking ethical psychological climate to ethically focused proactive behaviors. *Journal of Organizational Behavior*, doi:10.1002/job.2667
- Good, M. R. R., Singha, C., & Zarikas, V. (2022). Extreme electron acceleration with fixed radiation energy. *Entropy*, 24(11) doi:10.3390/e24111570
- Goryunov, M., Kokovin, S., & Tabuchi, T. (2022). Continuous spatial monopolistic competition: Matching goods with consumers. *Economic Theory*, 74(3), 793-832. doi:10.1007/s00199-021-01380-7
- Goryunov, M., & Rigos, A. (2022). Discontinuous and continuous stochastic choice and coordination in the lab. *Journal of Economic Theory*, 206 doi:10.1016/j.jet.2022.105557
- Goyal, T., Hussain, S., Martinez-Marroquin, E., Brown, N. A. T., & Jamwal, P. K. (2022). Stiffness-observer-based adaptive control of an intrinsically compliant parallel wrist rehabilitation robot. *IEEE Transactions on Human-Machine Systems*, , 1-10. doi:10.1109/THMS.2022.3211164
- Gulumbe, B. H., Haruna, U. A., Almazan, J., Ibrahim, I. H., Faggo, A. A., & Bazata, A. Y. (2022). Combating the menace of antimicrobial resistance in africa: A review on stewardship, surveillance and diagnostic strategies. *Biological Procedures Online*, 24(1) doi:10.1186/s12575-022-00182-y
- Hajjej, A., Abdrakhmanova, S., Turganbekova, A., & Almawi, W. Y. (2022). HLA allele and haplotype frequencies in kazakhstani russians and their relationship with other populations. *HLA*, doi:10.1111/tan.14937
- Haruna, U. A., Musa, S. S., Manirambona, E., Lucero-Prisno, D. E., & Sarría-Santamera, A. (2022). Monkeypox: Is the world ready for another pandemic? *Frontiers in Public Health*, 10 doi:10.3389/fpubh.2022.1001155
- Huang, C., Guo, X., Cao, J., & Kashkynbayev, A. (2022). BISTABLE DYNAMICS ON A TICK POPULATION EQUATION INCORPORATING ALLEE EFFECT AND TWO DIFFERENT TIME-VARYING DELAYS. *Discrete and Continuous Dynamical Systems - Series S*, 15(11), 3173-3188. doi:10.3934/dcdss.2022122
- Husain, S., Hashmi, M., & Ghannouchi, F. M. (2022). Comprehensive investigation and comparative analysis of machine learning based small-signal modelling techniques for GaN HEMTs. *IEEE Journal of the Electron Devices Society*, , 1-1. doi:10.1109/JEDS.2022.3224433
- Hwami, M. (2022). The zimbabwean university under authoritarian neoliberalism. *Interchange*, 53(3-4), 529-549. doi:10.1007/s10780-022-09470-8
- Ibadulla, N., Belgibayeva, A., Nurpeissova, A., Bakenov, Z., & Kalimuldina, G. (2022). Preparation of a Ni₃Sn₂ alloy-type anode embedded in carbon nanofibers by electrospinning for lithium-ion batteries. *RSC Advances*, 12(43), 27899-27906. doi:10.1039/d2ra05734d
- Ibrayev, T., Li, M., Bakbergenov, N., Narbayev, M., & Batyrbayeva, A. (2022). CURRENT ISSUES OF WATER MANAGEMENT IN KAZAKHSTAN. *News of the National Academy of Sciences of the Republic of Kazakhstan, Series of Geology and Technical Sciences*, 2022(5), 79-92. doi:10.32014/2518-170X_2022_5_455_79-92
- Ibrayeva, L., Helmer, J., & CohenMiller, A. (2022). "Thinking outside the yurt": Kazakhstani upper secondary school teachers' beliefs about the nature of creativity and creative students. *Thinking Skills and Creativity*, 46 doi:10.1016/j.tsc.2022.101176
- Ijaz, M. K., Shomenov, K., Otegen, D., Shehab, E., & Ali, M. H. (2022). Design and development of a 3D printed water driven spinal posture corrector. *International Journal of Advanced Manufacturing Technology*, doi:10.1007/s00170-022-10611-7
- Ishuov, T., & Otarbay, Z. (2022). A concept of unbiased stochastically deterministic policy gradient for better convergence in bipedal walker. Paper presented at the SIST 2022 - 2022 International Conference on Smart Information Systems and Technologies, Proceedings, doi:10.1109/SIST54437.2022.9945780 Retrieved from www.scopus.com

New research papers indexed by Scopus (count: 295 as of December 27)

- Ishuov, T., Otarbay, Z., & Folgheraiter, M. (2022). A concept of unbiased deep deterministic policy gradient for better convergence in bipedal walker. Paper presented at the SIST 2022 - 2022 International Conference on Smart Information Systems and Technologies, Proceedings, doi:10.1109/SIST54437.2022.9945743 Retrieved from www.scopus.com
- Ivanov, G. S., Tribulovich, V. G., Pestov, N. B., David, T. I., Amoah, A. -, Korneenko, T. V., & Barlev, N. A. (2022). Artificial genetic polymers against human pathologies. *Biology Direct*, 17(1) doi:10.1186/s13062-022-00353-7
- Jabbarkhanov, K., Restrepo, J. E., & Suragan, D. (2022). A REACTION-DIFFUSION EQUATION ON STRATIFIED GROUPS. *Journal of Mathematical Sciences (United States)*, doi:10.1007/s10958-022-05965-y
- Jamialahmadi, S., Sahebi, I., Sabermahani, M. M., Shariatpanahi, S. P., Dadlani, A., & Maham, B. (2022). Rumor stance classification in online social networks: The state-of-the-art, prospects, and future challenges. *IEEE Access*, 10, 113131-113148. doi:10.1109/ACCESS.2022.3216835
- Jonbekova, D., Kuchumova, G., Goodman, B., Sparks, J., & Kerimkulova, S. (2022). Employment of master's degree graduates in kazakhstan: Navigating an uncertain labour market. *Central Asian Survey*, doi:10.1080/02634937.2022.2141690
- Junussova, T., Nadeem, A., Kim, J. R., Azhar, S., Khalfan, M., & Kashyap, M. (2022). Sustainable construction through resource planning systems incorporation into building information modelling. *Buildings*, 12(10) doi:10.3390/buildings12101761
- Kabyl, A., Yang, M., Shah, D., & Ahmad, A. (2022). Bibliometric analysis of accidental oil spills in ice-infested waters. *International Journal of Environmental Research and Public Health*, 19(22) doi:10.3390/ijerph192215190
- Kaiyrlykyzy, A., Umbayev, B., Masoud, A. -, Baibulatova, A., Tsoy, A., Olzhayev, F., . . . Askarova, S. (2022). Circulating adiponectin levels, expression of adiponectin receptors, and methylation of adiponectin gene promoter in relation to Alzheimer's disease. *BMC Medical Genomics*, 15(1) doi:10.1186/s12920-022-01420-8
- Kalendar, R., Ghamkhar, K., Franceschi, P., & Egea-Cortines, M. (2022). Editorial: Spectroscopy for crop and product phenotyping. *Frontiers in Plant Science*, 13 doi:10.3389/fpls.2022.1058333
- Kalendar, R., Hunter, C., & Orbovic, V. (2022). Editorial: Innovative applications of sequencing technologies in plant science. *Frontiers in Plant Science*, 13 doi:10.3389/fpls.2022.1058347
- Kalendar, R., Orbovic, V., Egea-Cortines, M., & Song, G. -. (2022). Editorial: Recent advances in plant genetic engineering and innovative applications. *Frontiers in Plant Science*, 13 doi:10.3389/fpls.2022.1045417
- Kalimzhanov, T., Khamseh'i, A. H. A., Dadlani, A., Kumar, M. S., & Khonsari, A. (2022). Co-evolution of viral processes and structural stability in signed social networks. *IEEE Transactions on Knowledge and Data Engineering*, , 1-6. doi:10.1109/TKDE.2022.3207123
- Kamal, A., Makhatova, A., Yergali, B., Baidullayeva, A., Satayeva, A., Kim, J., . . . Arkhangelsky, E. (2022). Biological treatment, advanced oxidation and membrane separation for landfill leachate treatment: A review. *Sustainability (Switzerland)*, 14(21) doi:10.3390/su142114427
- Kambatyrova, A., Assylbekova, B., & Goodman, B. (2022). Primary school english language education in kazakhstan: Policy, preparation, and practice. *English for young learners in asia: Challenges and directions for teacher education* (pp. 48-64) doi:10.4324/9781003016977-4 Retrieved from www.scopus.com
- Kanabekova, P., Martin, A., Kemelbekova, A., & Kulsharova, G. (2022). Applications of nanofiber membranes in microphysiological systems. [Наноталшықты мембраналарды микрофизиологиялық жүйелерде қолдану] *Bulletin of the Karaganda University Chemistry Series*, 107(3), 56-66. doi:10.31489/2022Ch3/3-22-12
- Kanafin, Y. N., Abdirova, P., Baltabek, A., Arkhangelsky, E., & Pouloupoulos, S. G. (2022). Study of the effects of the sulfate-radical sources for wastewater treatment using response surface methodology. *Chemical Engineering Transactions*, 96, 235-240. doi:10.3303/CET2296040
- Karim, A., Shaikhyzada, K., Suleimenova, A., Ibraimov, B., Nurgaliev, D., & Poddighe, D. (2022). Case report: Atypical teratoid/rhabdoid tumor of the lateral ventricle in a male adolescent (case-based review and diagnostic challenges in developing countries). *Frontiers in Oncology*, 12 doi:10.3389/fonc.2022.985862
- Kassabek, S. A., Kharin, S. N., & Suragan, D. (2022). EXACT AND APPROXIMATE SOLUTIONS TO THE STEFAN PROBLEM IN ELLIPSOIDAL COORDINATES. *Eurasian Mathematical Journal*, 13(3), 51-66.

New research papers indexed by Scopus (count: 295 as of December 27)

- Katrenova, Z., Alisherov, S., Abdol, T., Yergibay, M., Kappassov, Z., Tosi, D., & Molardi, C. (2022). Investigation of high-resolution distributed fiber sensing system embedded in flexible silicone carpet for 2D pressure mapping. *Sensors*, 22(22) doi:10.3390/s222228800
- Kazhymurat, T., Shehab, E., & Ali, M. H. (2022). IoT-based real-time 3D printing monitoring system. Paper presented at the SIST 2022 - 2022 International Conference on Smart Information Systems and Technologies, Proceedings, doi:10.1109/SIST54437.2022.9945778 Retrieved from www.scopus.com
- Kenebayeva, A., Nam, A., Tabaeva, A., Altinay, F., & Altinay, Z. (2022). COVID-19 and kazakhstani women teachers: An empirical study of factors affecting mental health. *European Education*, doi:10.1080/10564934.2022.2127370
- Khoramian, R., Kharrat, R., Pourafshary, P., Golshokoh, S., & Hashemi, F. (2022). Spontaneous imbibition oil recovery by natural Surfactant/Nanofluid: An experimental and theoretical study. *Nanomaterials*, 12(20) doi:10.3390/nano12203563
- Khrustalev, D., Yedrissov, A., Khrustaleva, A., Mustafin, M., & Bekisheva, K. (2022). Synthesis of anti-tuberculosis drugs in a microwave flow reactor. *Materials Today: Proceedings*, doi:10.1016/j.matpr.2022.11.174
- Kirysheva, I., & Nora, V. (2022). Inefficient screening in online rental markets*. *Journal of Industrial Economics*, 70(3), 752-774. doi:10.1111/joie.12299
- Konings, J., Lecocq, C., & Merlevede, B. (2022). Does a tax deduction scheme matter for jobs and investment by multinational and domestic enterprises? *Canadian Journal of Economics*, 55(4), 1966-1989. doi:10.1111/caje.12624
- Koyanbayev, M., Wang, L., Wang, Y., & Hashmet, M. R. (2022). Advances in sour gas injection for enhanced oil recovery-an economical and environmental way for handling excessively produced H₂S. *Energy Reports*, 8, 15296-15310. doi:10.1016/j.egyr.2022.11.121
- Kozhirkbayev, Z., Islamgozhayev, T., Yessenbayev, Z., & Sharipbay, A. (2022). Preliminary tasks of unsupervised speech recognition based on unaligned audio and text data. Paper presented at the Proceedings - 2022 International Conference on Engineering and MIS, ICEMIS 2022, doi:10.1109/ICEMIS56295.2022.9914249 Retrieved from www.scopus.com
- Kriger, D., Novitskaya, K., Vasileva, G., Lomert, E., Aksenov, N. D., Barlev, N. A., & Tentler, D. (2022). Alpha-actinin-4 (ACTN4) selectively affects the DNA double-strand breaks repair in non-small lung carcinoma cells. *Biology Direct*, 17(1) doi:10.1186/s13062-022-00354-6
- Kruchinin, R., Nurmakanov, Y., Nauryzbayev, G., Adair, D., Bakenov, Z., & Kalimuldina, G. (2022). Flexible carbon cloth-based single-electrode triboelectric nanogenerators with incorporated TiO₂ nanoparticles. *Energy Reports*, 8, 15048-15056. doi:10.1016/j.egyr.2022.11.049
- Kudaibergen, G., Zhunussova, M., Mun, E. A., Ramankulov, Y., & Ogay, V. (2022). Macroporous cell-laden Gelatin/Hyaluronic Acid/Chondroitin sulfate cryogels for engineered tissue constructs. *Gels*, 8(9) doi:10.3390/gels8090590
- Kudaibergenova, M., Yazici, A., Lee, S. -, & Lee, M. -. (2022). Denoising autoencoder and weight initialization of CNN model for ERP classification. Paper presented at the Conference Proceedings - IEEE International Conference on Systems, Man and Cybernetics, , 2022-October 2299-2304. doi:10.1109/SMC53654.2022.9945157 Retrieved from www.scopus.com
- Kulimbet, M., Glushkova, N., Snitz, B., Tsoy, R., Adambekov, S., Talbott, E., . . . Davletov, K. (2022). Neuropsychological assessment of community-dwelling older adults in almaty, kazakhstan. *International Journal of Environmental Research and Public Health*, 19(23) doi:10.3390/ijerph192316189
- Kurbanova, A., Myrzakhmetova, N., Akimbayeva, N., Kishibayev, K., Nurbekova, M., Kanagat, Y., . . . Toktarbaiuly, O. (2022). Superhydrophobic SiO₂/Trimethylchlorosilane coating for self-cleaning application of construction materials. *Coatings*, 12(10) doi:10.3390/coatings12101422
- Kurmangali, A., Dukenbayev, K., & Kanayeva, D. (2022). Sensitive detection of SARS-CoV-2 variants using an electrochemical impedance spectroscopy based aptasensor. *International Journal of Molecular Sciences*, 23(21) doi:10.3390/ijms232113138
- Kurmanov, B., & Knox, C. (2022). Open government and citizen empowerment in authoritarian states. *Journal of Eurasian Studies*, 13(2), 156-171. doi:10.1177/18793665221104118
- Kuzhabekova, A. (2022). Gender differences in international faculty experiences during COVID-19 in kazakhstan. *European Education*, doi:10.1080/10564934.2022.2138767

New research papers indexed by Scopus (count: 295 as of December 27)

- Lanjwani, H. B., Anwar, M. I., Wahab, A., Shehzad, S. A., & Arshad, M. (2022). Analysis of triple solutions in mixed convection flow and heat transfer characteristics of ag-water based nanofluid over porous shrinking/stretching sheet. *Materials Science and Engineering B: Solid-State Materials for Advanced Technology*, 286 doi:10.1016/j.mseb.2022.116076
- Len, P., Iskakova, G., Sautbayeva, Z., Kussanova, A., Taukelova, A. T., Sugralimova, M. M., . . . Barteneva, N. S. (2022). Meta-analysis and systematic review of coagulation disbalances in COVID-19: 41 studies and 17,601 patients. *Frontiers in Cardiovascular Medicine*, 9 doi:10.3389/fcvm.2022.794092
- Li, S., Mirzaev, T., Abdujabbarov, A. A., Malafarina, D., Ahmedov, B., & Han, W. -. (2022). Constraining the deformation of a rotating black hole mimicker from its shadow. *Physical Review D*, 106(8) doi:10.1103/PhysRevD.106.084041
- Ling, L., Wu, C., Xing, F., Memon, S. A., & Sun, H. (2022). Recycling nanoarchitectonics of graphene oxide from carbon fiber reinforced polymer by the electrochemical method. *Nanomaterials*, 12(20) doi:10.3390/nano12203657
- Liu, C., Bolognani, A., Song, L., Van Meervelt, L., Peshkov, V. A., & Van Der Eycken, E. V. (2022). Gold(I)-catalyzed intramolecular bicyclization: Divergent construction of quinazolinone and ampakine analogues. *Organic Letters*, 24(46), 8536-8541. doi:10.1021/acs.orglett.2c03547
- Madani, N., Maleki, M., & Soltani-Mohammadi, S. (2022). Geostatistical modeling of heterogeneous geo-clusters in a copper deposit integrated with multinomial logistic regression: An exercise on resource estimation. *Ore Geology Reviews*, 150 doi:10.1016/j.oregeorev.2022.105132
- Maham, B. (2022). Performance analysis of large intelligent surfaces in dense millimeter-wave deployment. Paper presented at the European Signal Processing Conference, , 2022-August 1661-1665. Retrieved from www.scopus.com
- Makin, M., Arzykulov, S., Rabie, K. M., & Naurzybayev, G. (2022). Performance enhancement via partitioning large intelligent surfaces in downlink NOMA networks. Paper presented at the 2022 13th International Symposium on Communication Systems, Networks and Digital Signal Processing, CSNDSP 2022, 379-383. doi:10.1109/CSNDSP54353.2022.9907962 Retrieved from www.scopus.com
- Makin, M., Dautov, K., Hashmi, M. S., Tsiftsis, T. A., & Naurzybayev, G. (2022). Outage analysis and realization challenges of RIS-enabled underlay CR networks over nakagami-m fading. Paper presented at the International Conference on ICT Convergence, , 2022-October 193-198. doi:10.1109/ICTC55196.2022.9952384 Retrieved from www.scopus.com
- Maksotova, K. S., Kalikh, D. T., Omirzakova, A. T., Bakirova, B. S., & Akbayeva, D. N. (2022). Polymer-metal complex based on copper(II) acetate and polyvinyl alcohol: Thermodynamic and catalytic properties. *Chimica Techno Acta*, 9(3) doi:10.15826/chimtech.2022.9.3.04
- Mashekova, A., Baltash, Y., Yegamkulov, M., Trussov, I., Bakenov, Z., & Mukanova, A. (2022). Polycationic doping of the LATP ceramic electrolyte for li-ion batteries. *RSC Advances*, 12(46), 29595-29601. doi:10.1039/d2ra05782d
- Mashhadzadeh, A. H., Farzadian, O., Dehaghani, M. Z., Molaei, F., Spitas, C., & Nouranian, S. (2022). Intrinsic thermal conductivities of BC3-C3N superlattice nanoribbons: A molecular dynamics study. *Materials Today Communications*, 33 doi:10.1016/j.mtcomm.2022.104526
- Mastoor, S., Nazim, F., Rizwan-ul-Hasan, S., Ahmed, K., Khan, S., Ali, S. N., & Abidi, S. H. (2022). Analysis of the antimicrobial and anti-biofilm activity of natural compounds and their analogues against staphylococcus aureus isolates. *Molecules*, 27(20) doi:10.3390/molecules27206874
- McGuire, G. V. (2022). Trickster, comrade, citizen: The adventures of aldar köse in kazakh folktales and mass culture. *Journal of American Folklore*, 135(537), 281-304. doi:10.5406/15351882.135.537.02
- Mehrzad, A., Sedae, B., & Pourafshary, P. (2022). Effect of produced carbon dioxide on multiphase fluid flow modeling of carbonate acidizing. *Journal of Petroleum Exploration and Production Technology*, doi:10.1007/s13202-022-01581-3
- Melnikov, A., Malcolm, A. E., & Poduska, K. M. (2022). Analysis of landau-lifshitz and neo-hookean models for static and dynamic acoustoelastic testing. *Physica Scripta*, 97(12) doi:10.1088/1402-4896/ac9be1
- Memon, S. A., Bekzhanova, Z., & Murzakarimova, A. (2022). A review of improvement of interfacial transition zone and adherent mortar in recycled concrete aggregate. *Buildings*, 12(10) doi:10.3390/buildings12101600

New research papers indexed by Scopus (count: 295 as of December 27)

- Memon, S. A., Javed, U., Shah, M. I., & Hanif, A. (2022). Use of processed sugarcane bagasse ash in concrete as partial replacement of cement: Mechanical and durability properties. *Buildings*, 12(10) doi:10.3390/buildings12101769
- Meng, Q., Song, X., Han, S., Abbassi, F., Zhou, Z., Wu, B., . . . Araby, S. (2022). Mechanical and functional properties of polyamide/graphene nanocomposite prepared by chemicals free-approach and selective laser sintering. *Composites Communications*, 36 doi:10.1016/j.coco.2022.101396
- Mergenbayeva, S., Zakharova, A., Tynysbek, A., Koole, L. H., Atabaev, T. S., & Pouloupoulos, S. G. (2022). Polymer immobilized TiO₂ microparticles for photocatalytic degradation of caffeine. *Materials Today: Proceedings*, doi:10.1016/j.matpr.2022.10.237
- Moazzam, M., Shehzad, A., Sultanova, D., Mukasheva, F., Trifonov, A., Berillo, D., & Akilbekova, D. (2022). Macroporous 3D printed structures for regenerative medicine applications. *Bioprinting*, 28 doi:10.1016/j.bprint.2022.e00254
- Mortazavi, A., & Kuzembayev, N. (2022). Development of a weighting procedure for geomechanical risk assessment. *Energies*, 15(18) doi:10.3390/en15186517
- Mukanov, Z., & Takhanov, R. (2022). Learning the pattern-based CRF for prediction of a protein local structure. *Informatica (Slovenia)*, 46(6), 135-141. doi:10.31449/inf.v46i6.3787
- Mukanova, S., Borissenko, A., Kim, A., Bolatbek, A., Abdrakhmanova, A., Vangelista, L., . . . Riethmacher, D. (2022). Role of periostin in inflammatory bowel disease development and synergistic effects mediated by the CCL5–CCR5 axis. *Frontiers in Immunology*, 13 doi:10.3389/fimmu.2022.956691
- Mukhamedyarova, Z., Suorineni, F., Aldubay, T., & Sapinov, G. (2022). Impact of voids and backfill on seismic wave velocity-preliminary results. *Journal of Sustainable Mining*, 21(4), 319-333. doi:10.46873/2300-3960.1370
- Mukhametkaliyev, T., Ali, M. H., Kutugin, V., Savinova, O., & Vereschagin, V. (2022). Influence of mixing order on the synthesis of geopolymer concrete. *Polymers*, 14(21) doi:10.3390/polym14214777
- Mukhatayeva, A., Mustafa, A., Dzissyuk, N., Issanov, A., Mukhatayev, Z., Bayserkin, B., . . . Ali, S. (2022). Antiretroviral therapy resistance mutations among HIV infected people in kazakhstan. *Scientific Reports*, 12(1) doi:10.1038/s41598-022-22163-7
- Mukhtarova, K., Zholdybayeva, E., Kairov, U., Akhmetollayev, I., Nurimanov, C., Kulmirzayev, M., . . . Ramankulov, Y. (2022). Whole-exome sequencing reveals pathogenic SIRT1 variant in brain arteriovenous malformation: A case report. *Genes*, 13(10) doi:10.3390/genes13101689
- Mukhtarova, K., Zholdybayeva, E., Utupov, T., & Ramankulov, Y. (2022). Associations of reported genetic risk loci with sporadic brain arteriovenous malformations: Meta-analysis. *Journal of Molecular Neuroscience*, 72(11), 2207-2217. doi:10.1007/s12031-022-02073-z
- Mumtaz, A., Rehman, E., Rahaman, M. A., & Rehman, S. (2022). Inflammatory biomarkers and cardiac injury in COVID-19 patients. *Frontiers in Public Health*, 10 doi:10.3389/fpubh.2022.1024535
- Murphy, C. G. (2022). Involuntary orientalis: Polish exiles and adventurers as observers of the kazakh steppe and the caucasus. *The world beyond the west: Perspectives from eastern europe* (pp. 44-68) Retrieved from www.scopus.com
- Mussakhoyayeva, S., Khassanov, Y., & Varol, H. A. (2022). KSC2: An industrial-scale open-source kazakh speech corpus. Paper presented at the Proceedings of the Annual Conference of the International Speech Communication Association, INTERSPEECH, , 2022-September 1367-1371. doi:10.21437/Interspeech.2022-421 Retrieved from www.scopus.com
- Nadirov, N., Vissarionov, S., Filippova, A., Kokushin, D., & Sazonov, V. (2022). The results of surgical treatment of preschool and primary school age children with congenital deformation of the spine in isolated hemivertebra: Comparative analysis. *Frontiers in Pediatrics*, 10 doi:10.3389/fped.2022.960209
- Nasiri, S., Shomenov, T., Bubin, S., & Adamowicz, L. (2022). Dissociation energy and the lowest vibrational transition in LiH without assuming the non-Born–Oppenheimer approximation. *Molecular Physics*, doi:10.1080/00268976.2022.2147105
- Nikopoulos, J. (2022). “A kind of joy”: Laughing and grinning through “Sonny’s blues”. *James Baldwin Review*, 8(1), 51-65. doi:10.7227/JBR.8.3
- Niu, Q., Kim, H., & Mukatay, Z. (2022). DPRK and the CTBT: What could come next after the moratorium? *Journal for Peace and Nuclear Disarmament*, doi:10.1080/25751654.2022.2133335

New research papers indexed by Scopus (count: 295 as of December 27)

- Nurbayeva, A., Shintemirov, A., & Rubagotti, M. (2022). Deep imitation learning of nonlinear model predictive control laws for safe physical human-robot interaction. *IEEE Transactions on Industrial Informatics*, , 1-12. doi:10.1109/TII.2022.3217833
- Ogunfowora, B., Nguyen, V. Q., Lee, C. S., Babalola, M. T., & Ren, S. (2022). Do moral disengagers experience guilt following workplace misconduct? consequences for emotional exhaustion and task performance. *Journal of Organizational Behavior*, doi:10.1002/job.2668
- Onggaruly, A., Coil, R., Pugh, C., Tashmanbetova, Z., Kairmagambetov, A., Davlatova, T., & Makulbekova, M. (2022). Preliminary archaeological findings from recent excavations of a sarmatian (iron age) kurgan site at karaoba, kostanay region, kazakhstan. *Archaeological Research in Asia*, 32 doi:10.1016/j.ara.2022.100416
- Onyejegbu, E., Zhumabay, Z., Marzuki, A., & Ukaegbu, I. A. (2022). A variable bandwidth memristor-based legendre optimum low pass filter for radio frequency applications. *Engineering Reports*, 4(11) doi:10.1002/eng2.12513
- Oralbayeva, N., Shakerimov, A., Sarmonov, S., Kantoreyeva, K., Dadebayeva, F., Serkali, N., & Sandygulova, A. (2022). K-qbot: Language learning chatbot based on reinforcement learning. Paper presented at the ACM/IEEE International Conference on Human-Robot Interaction, , 2022-March 963-967. doi:10.1109/HRI53351.2022.9889428 Retrieved from www.scopus.com
- Ospanova, A., & Maham, B. (2022). Delay-outage probability of capacity achieving-based task offloading for mobile edge computing. Paper presented at the Proceedings - IEEE Congress on Cybermatics: 2022 IEEE International Conferences on Internet of Things, iThings 2022, IEEE Green Computing and Communications, GreenCom 2022, IEEE Cyber, Physical and Social Computing, CPSCoM 2022 and IEEE Smart Data, SmartData 2022, 236-242. doi:10.1109/iThings-GreenCom-CPSCoM-SmartData-Cybermatics55523.2022.00068 Retrieved from www.scopus.com
- Ospanova, A., & Maham, B. (2022). Edge computing with relaying for task offloading under nakagami-m fading channels. Paper presented at the Proceedings - IEEE Congress on Cybermatics: 2022 IEEE International Conferences on Internet of Things, iThings 2022, IEEE Green Computing and Communications, GreenCom 2022, IEEE Cyber, Physical and Social Computing, CPSCoM 2022 and IEEE Smart Data, SmartData 2022, 258-263. doi:10.1109/iThings-GreenCom-CPSCoM-SmartData-Cybermatics55523.2022.00071 Retrieved from www.scopus.com
- Paltusheva, Z. U., Ashikbayeva, Z., Tosi, D., & Gritsenko, L. V. (2022). Highly sensitive zinc oxide fiber-optic biosensor for the detection of CD44 protein. *Biosensors*, 12(11) doi:10.3390/bios12111015
- Park, J. -, Nazir, Z., Kalmakhanbet, B., & Sabyrov, S. (2022). A CNN inference micro-benchmark for performance analysis and optimization on GPUs. Paper presented at the Conference Proceedings - IEEE International Conference on Systems, Man and Cybernetics, , 2022-October 486-491. doi:10.1109/SMC53654.2022.9945449 Retrieved from www.scopus.com
- Peng, H., Tian, Z., Li, X., Wang, W., Nauryzbayev, G., Rabie, K., & Gadekallu, T. R. (2022). Covert communication for cooperative NOMA with two phases detection. *Alexandria Engineering Journal*, doi:10.1016/j.aej.2022.10.031
- Peshkova, S., & Thibault, H. (2022). Introduction. *Central Asian Affairs*, 9(2-4), 149-175. doi:10.30965/22142290-12340019
- Poddighe, D., Dossybayeva, K., Abdukhakimova, D., Akhmaltdinova, L., & Ibrayeva, A. (2022). Celiac disease and gallbladder: Pathophysiological aspects and clinical issues. *Nutrients*, 14(20) doi:10.3390/nu14204379
- Poddighe, D., Ziaee, V., & Kasapcopur, O. (2022). Editorial: COVID-19 and hyper inflammation syndrome: Different presentation and management. *Frontiers in Pediatrics*, 10 doi:10.3389/fped.2022.1022701
- Pozo, A., Broadhurst, T., Emami, R., & Smoot, G. (2022). Understanding the 'feeble giant' crater II with tidally stretched wave dark matter. *Monthly Notices of the Royal Astronomical Society*, 515(2), 2624-2632. doi:10.1093/mnras/stac1862
- Prandini, E., Dialektopoulos, K., & Strišković, J. (2022). Gamma rays: Propagation and detection. Paper presented at the Proceedings of Science, , 406 Retrieved from www.scopus.com
- Pu, J. H., Pandey, M., Li, J., Satyanaga, A., Kundu, S., & Hanmaiahgari, P. R. (2022). Editorial: The urban fluvial and hydro-environment system. *Frontiers in Environmental Science*, 10 doi:10.3389/fenvs.2022.1075282

New research papers indexed by Scopus (count: 295 as of December 27)

- Raimond, L., Halbus, A. F., Athab, Z. H., & Paunov, V. N. (2022). Antimould action of ziram and IPBC loaded in functionalised nanogels against aspergillus niger and penicillium chrysogenum. *Materials Advances*, 3(22), 8178-8192. doi:10.1039/d2ma00271j
- Rakhymbay, L., Namazbay, A., Karlykanv, M., Abilkairova, M., Konarov, A., & Bakenov, Z. (2022). Preparation of fe-doped Na₂Mn₃O₇ and its application as a cathode material for sodium-ion batteries. *International Journal of Electrochemical Science*, 17 doi:10.20964/2022.12.28
- Rakhymbayeva, N., Balgabekova, Z., Nurmukhamed, M., Burunchina, K., Johal, W., & Sandygulova, A. (2022). To transfer or not to transfer: Engagement recognition within robot-assisted autism therapy. Paper presented at the ACM/IEEE International Conference on Human-Robot Interaction, , 2022-March 1002-1006. doi:10.1109/HRI53351.2022.9889577 Retrieved from www.scopus.com
- Ramakrishnan, M., Satish, L., Kalendar, R., Narayanan, M., Kandasamy, S., Sharma, A., . . . Zhou, M. (2022). Correction:The dynamism of transposon methylation for plant development and stress adaptation(int. J. mol. sci., (2021), 22, (11387), 10.3390/ijms222111387). *International Journal of Molecular Sciences*, 23(22) doi:10.3390/ijms232214107
- Raziyeva, K., Kim, Y., Zharkinbekov, Z., Temirkhanova, K., & Saparov, A. (2022). Novel therapies for the treatment of cardiac fibrosis following myocardial infarction. *Biomedicines*, 10(9) doi:10.3390/biomedicines10092178
- Rehman, E., & Rehman, S. (2022). Particulate air pollution and metabolic risk factors: Which are more prone to cardiac mortality. *Frontiers in Public Health*, 10 doi:10.3389/fpubh.2022.995987
- Rehman, E., Rehman, S., Mumtaz, A., Jianglin, Z., & Shahiman, M. A. (2022). The influencing factors of CO₂ emissions and the adoption of eco-innovation across G-7 economies: A novel hybrid mathematical and statistical approach. *Frontiers in Environmental Science*, 10 doi:10.3389/fenvs.2022.988921
- Rehman, S., Rehman, E., & Jianglin, Z. (2022). Uptake of COVID-19 booster shot among healthcare workers: A mediation analysis approach. *Frontiers in Public Health*, 10 doi:10.3389/fpubh.2022.1033473
- Reihanian, S., & Zollanvari, A. (2022). Optimal bayesian regression for serially dependent training observations. Paper presented at the European Signal Processing Conference, , 2022-August 1522-1525. Retrieved from www.scopus.com
- Reshodko, A., Kabimoldina, I., Khozhamuratova, M., Khamit, K., Yermek, M., & Shehab, E. (2022). A system engineering investigation for product-service system realization of heat pumps in kazakhstan. Paper presented at the SIST 2022 - 2022 International Conference on Smart Information Systems and Technologies, Proceedings, doi:10.1109/SIST54437.2022.9945760 Retrieved from www.scopus.com
- Ryan, J. M. (2022). CODA: Global consciousness of COVID-19: Where can we go from here? Creative resilience and COVID-19: Figuring the everyday in a pandemic (pp. 195-200) Retrieved from www.scopus.com
- Ryan, J. M. (2022). Foreword. COVID- 19 and Childhood Inequality, , xvii-xviii. Retrieved from www.scopus.com
- Ryapolova, N., Galea, J. T., & Greene, K. Y. (2022). Perceptions towards integrated care through the narrative of practicing social workers and psychologists in PHC: A cross-case analysis. *Journal of Integrated Care*, doi:10.1108/JICA-08-2022-0042
- Sabitova, A., Hickling, L. M., Toleubayev, M., Jovanović, N., & Priebe, S. (2022). Job morale of physicians and dentists in kazakhstan: A qualitative study. *BMC Health Services Research*, 22(1) doi:10.1186/s12913-022-08919-x
- Sailike, B., Omarova, Z., Jenis, J., Adilbayev, A., Akbay, B., Askarova, S., . . . Tokay, T. (2022). Neuroprotective and anti-epileptic potentials of genus artemisia L. *Frontiers in Pharmacology*, 13 doi:10.3389/fphar.2022.1021501
- Sakko, Y., Aimagambetova, G., Terzic, M., Ukybassova, T., Bapayeva, G., Gusmanov, A., . . . Gaipov, A. (2022). The prevalence, indications, outcomes of the most common major gynecological surgeries in kazakhstan and recommendations for potential improvements into public health and clinical practice: Analysis of the national electronic healthcare system (2014–2019). *International Journal of Environmental Research and Public Health*, 19(22) doi:10.3390/ijerph192214679
- Samaei, M., Massalow, T., Abdolhosseinzadeh, A., Yagiz, S., & Sabri, M. M. S. (2022). Application of soft computing techniques for predicting thermal conductivity of rocks. *Applied Sciences (Switzerland)*, 12(18) doi:10.3390/app12189187

New research papers indexed by Scopus (count: 295 as of December 27)

- Samat, K., Nurislam, M., Zhanel, P., Dmitriy, B., Dinar, T., Indira, U., . . . Almagul, K. (2022). Effects of low lactose mare's milk yogurt consumption on gut microbiota function. *Functional Foods in Health and Disease*, 12(8), 455-464. doi:10.31989/ffhd.v12i8.981
- Sandygulova, A., Amirova, A., Telisheva, Z., Zhanatkyzy, A., & Rakhymbayeva, N. (2022). Individual differences of children with autism in robot-assisted autism therapy. Paper presented at the ACM/IEEE International Conference on Human-Robot Interaction, , 2022-March 43-52. doi:10.1109/HRI53351.2022.9889537 Retrieved from www.scopus.com
- Saniyazova, A., & CohenMiller, A. (2022). Gender equity in higher education during COVID-19 in central asia. *European Education*, doi:10.1080/10564934.2022.2134030
- Saniyazova, A., CohenMiller, A., Kadylova, A., & Rakisheva, A. (2022). Gendered aspects of undergraduate student experience in the time of COVID-19: A case study of nazarbayev university. *European Education*, doi:10.1080/10564934.2022.2134029
- Sarsembayev, B., Heidari Yazdi, S. S., Kapanov, A., & Bagheri, M. (2022). LiPo battery modeling for dynamic wireless power transfer in UAV application. Paper presented at the 11th IEEE International Conference on Renewable Energy Research and Applications, ICRERA 2022, 346-351. doi:10.1109/ICRERA55966.2022.9922909 Retrieved from www.scopus.com
- Sarsenova, M., Kim, Y., Raziyeva, K., Kazybay, B., Ogay, V., & Saparov, A. (2022). Recent advances to enhance the immunomodulatory potential of mesenchymal stem cells. *Frontiers in Immunology*, 13 doi:10.3389/fimmu.2022.1010399
- Sarsenova, M., Mukhambetova, A., Saginov, B., Raimagambetov, Y., & Ogay, V. (2022). Synovium-derived mesenchymal stem cells in combination with low molecular weight hyaluronic acid for cartilage repair. *International Journal of Biomedicine*, 12(4), 548-553. doi:10.21103/Article12(4)_OA4
- Sauki, A., Khamaruddin, P. N. F. M., Irawan, S., Kinif, I., & Ridha, S. (2022). Application of multiple regression technique for predicting drilling rate in loss zone. Paper presented at the AIP Conference Proceedings, , 2644 doi:10.1063/5.0122008 Retrieved from www.scopus.com
- Sboeva, Y., Chertov, N., Nechaeva, Y., Valeeva, A., Boronnikova, S., & Kalendar, R. (2022). Genetic diversity, structure, and differentiation of pinus sylvestris L. populations in the east european plain and the middle urals. *Forests*, 13(11) doi:10.3390/f13111798
- Secchi, M., & Vangelista, L. (2022). Rational engineering of a sub-picomolar HIV-1 blocker. *Viruses*, 14(11) doi:10.3390/v14112415
- Sekerbayev, K., Taurbayev, Y., Mussabek, G., Baktygerey, S., Pokryshkin, N. S., Yakunin, V. G., . . . Timoshenko, V. Y. (2022). Size-dependent phonon-assisted anti-stokes photoluminescence in nanocrystals of organometal perovskites. *Nanomaterials*, 12(18) doi:10.3390/nano12183184
- Seralin, A., Sugurbekova, G., Kurbanova, A., Nuraje, N., & Toktarbaiuly, O. (2022). Designing water-repellent concrete composites using cheap organic materials. *Eurasian Chemico-Technological Journal*, 24(3), 251-258. doi:10.18321/ectj1438
- Shafiei, A., Tatar, A., Rayhani, M., Kairat, M., & Askarova, I. (2022). Artificial neural network, support vector machine, decision tree, random forest, and committee machine intelligent system help to improve performance prediction of low salinity water injection in carbonate oil reservoirs. *Journal of Petroleum Science and Engineering*, 219 doi:10.1016/j.petrol.2022.111046
- Shaimerdenova, M., Ayupova, T., Bekmurzayeva, A., Sypabekova, M., Ashikbayeva, Z., & Tosi, D. (2022). Spatial-division multiplexing approach for simultaneous detection of fiber-optic ball resonator sensors: Applications for refractometers and biosensors. *Biosensors*, 12(11) doi:10.3390/bios12111007
- Shakarim, S., Tosi, D., & Kulsharova, G. (2022). Integration of fiber optic sensors in organ-on-a-chip devices towards label-free cell viability assays. Paper presented at the 2022 IEEE Sensors Applications Symposium, SAS 2022 - Proceedings, doi:10.1109/SAS54819.2022.9881355 Retrieved from www.scopus.com
- Shola David, M., & Kanayeva, D. (2022). Enzyme linked oligonucleotide assay for the sensitive detection of SARS-CoV-2 variants. *Frontiers in Cellular and Infection Microbiology*, 12 doi:10.3389/fcimb.2022.1017542
- Shomanov, A., Kuchenchirekova, D., Kurenkov, A., & Lee, M. (2022). CT image classification based on stacked ensemble of convolutional neural networks. Paper presented at the Conference Proceedings - IEEE International Conference on Systems, Man and Cybernetics, , 2022-October 1021-1025. doi:10.1109/SMC53654.2022.9945565 Retrieved from www.scopus.com

New research papers indexed by Scopus (count: 295 as of December 27)

- Sia, V., Satyanaga, A., & Kim, Y. (2022). Effects of heavy rainfall on shallow foundations in bukit timah granite in singapore. *Applied Sciences (Switzerland)*, 12(19) doi:10.3390/app12199516
- Singh, P. B., & Zhakupova, A. (2022). Age reprogramming: Cell rejuvenation by partial reprogramming. *Development (Cambridge)*, 149(22) doi:10.1242/dev.200755
- Slyamova, G., Gusmanov, A., Batpenov, A., Kaliev, N., & Viderman, D. (2022). Risk factors for postoperative osteomyelitis among patients after bone fracture: A matched Case–Control study. *Journal of Clinical Medicine*, 11(20) doi:10.3390/jcm11206072
- Smith, B. (2022). Between the galley and plantation: The rhetorical construction of english servants in the seventeenth century. *Seventeenth Century*, doi:10.1080/0268117X.2022.2127864
- Smith, B. (2022). Hannah arendt on anti-black racism, the public realm, and higher education. *Educational Philosophy and Theory*, 54(12), 2054-2071. doi:10.1080/00131857.2021.1978071
- Solovan, M. M., Mostovyi, A. I., Parkhomenko, H. P., Kaikanov, M., Schopp, N., Asare, E. A., . . . Brus, V. V. (2022). A high-detectivity, fast-response, and radiation-resistant TiN/CdZnTe heterojunction photodiode. *Advanced Optical Materials*, doi:10.1002/adom.202202028
- Soltabayeva, A., Dauletova, N., Serik, S., Sandybek, M., Omondi, J. O., Kurmanbayeva, A., & Srivastava, S. (2022). Receptor-like kinases (LRR-RLKs) in response of plants to biotic and abiotic stresses. *Plants*, 11(19) doi:10.3390/plants11192660
- Sow, A. U., Haruna, U. A., Amos, O. A., Olajide, E. O., Amene, T., Odususi, O. D., . . . Musa, S. M. (2022). Tackling cholera outbreak amidst COVID-19 pandemic in nigeria: Challenges and recommendations. *Public Health Reviews*, 43 doi:10.3389/phrs.2022.1604776
- Stayoussef, M., Zidi, S., Kanabekova, P., Mouellhi, L., Almawi, W. Y., & Yaacoubi-Loueslati, B. (2022). Relation of CRP gene variants to altered risk of helicobacter pylori - associated chronic gastritis: A case-control study in tunisia. *Molecular and Cellular Probes*, 66 doi:10.1016/j.mcp.2022.101864
- Suleimenov, K., & Do, T. D. (2022). A practical disturbance rejection control scheme for permanent magnet synchronous motors. *Symmetry*, 14(9) doi:10.3390/sym14091873
- Suleimenov, M., Bekbayev, S., Ten, M., Suleimenova, N., Tlegenova, M., Nurmagambetova, A., . . . Vorobjev, I. (2022). Bcl-xL activity influences outcome of the mitotic arrest. *Frontiers in Pharmacology*, 13 doi:10.3389/fphar.2022.933112
- Suleimenova, M., Lokshin, V., Glushkova, N., Karibayeva, S., & Terzic, M. (2022). Quality-of-life assessment of women undergoing in vitro fertilization in kazakhstan. *International Journal of Environmental Research and Public Health*, 19(20) doi:10.3390/ijerph192013568
- Sullivan, C. J. (2022). Afghanistan in anarchy: America’s withdrawal, taliban rule and regional implications for central asia. *Journal of Asian Security and International Affairs*, 9(3), 513-530. doi:10.1177/23477970221129908
- Sultangaziyev, A., Ilyas, A., Dyussupova, A., & Bukasov, R. (2022). Trends in application of SERS substrates beyond ag and au, and their role in bioanalysis. *Biosensors*, 12(11) doi:10.3390/bios12110967
- Syrlybayev, D., Seisekulova, A., Talamona, D., & Perveen, A. (2022). The post-processing of additive manufactured polymeric and metallic parts. *Journal of Manufacturing and Materials Processing*, 6(5) doi:10.3390/jmmp6050116
- Tajik, M. A., Abdul Manan, S., Arvatu, A. -, & Shegebayev, M. (2022). Growing pains: Graduate students grappling with english medium instruction in kazakhstan. *Asian Englishes*, doi:10.1080/13488678.2022.2119970
- Takhanov, R. (2022). The algebraic structure of the densification and the sparsification tasks for CSPs. *Constraints*, doi:10.1007/s10601-022-09340-1
- Tang, L., Zhou, Q., Wang, S., Yao, W., Zhang, B., Xiang, K., . . . Tao, J. (2022). Evaluation of the ground settlement in an urban area resulting from a small curvature tunneling construction. *Sustainability (Switzerland)*, 14(23) doi:10.3390/su142316230
- Tariq, H., Galym, Z., Amrin, A., & Spitas, C. (2022). Assessment of contact forces and stresses, torque ripple and efficiency of a cycloidal gear drive and its involute kinematical equivalent. *Mechanics Based Design of Structures and Machines*, doi:10.1080/15397734.2022.2144885
- Tariq, U., Nazziwa, J., Sasinovich, S., Shah, S. A., Naeem, S., Abidi, S. H., & Esbjörnsson, J. (2022). Phylogenetic characterization of HIV-1 sub-subtype A1 in karachi, pakistan. *Viruses*, 14(10) doi:10.3390/v14102307

New research papers indexed by Scopus (count: 295 as of December 27)

- Telisheva, Z., Amirova, A., Rakhymbayeva, N., Zhanatkyzy, A., & Sandygulova, A. (2022). The quantitative case-by-case analyses of the socio-emotional outcomes of children with ASD in robot-assisted autism therapy. *Multimodal Technologies and Interaction*, 6(6) doi:10.3390/mti6060046
- Temireyeva, A., Zhunussova, K., Aidabulov, M., Venetis, C., Sarbassov, Y., & Shah, D. (2022). Greenhouse gas emissions-based development and characterization of optimal scenarios for municipal solid and sewage sludge waste management in astana city. *Sustainability (Switzerland)*, 14(23) doi:10.3390/su142315850
- Temirkhan, M., Tariq, H. B., Kaloudis, K., Kalligeros, C., Spitas, V., & Spitas, C. (2022). Parametric quasi-static study of the effect of misalignments on the path of contact, transmission error, and contact pressure of crowned spur and helical gear teeth using a novel rapidly convergent method. *Applied Sciences (Switzerland)*, 12(19) doi:10.3390/app121910067
- Terzic, M., & Aimagambetova, G. (2022). Prothrombotic gene polymorphisms and adverse reproductive outcomes in assisted reproductive technology. *Management of infertility: A practical approach* (pp. 55-63) doi:10.1016/B978-0-323-89907-9.00017-X Retrieved from www.scopus.com
- Tesfahun, A. (2022). Long-time existence for a whitam-boussinesq system in two dimensions. *Communications in Contemporary Mathematics*, doi:10.1142/S0219199722500651
- Thibault, H. (2022). Online male sex work in kazakhstan: A distinct market? *Central Asian Affairs*, 9(2-4), 378-402. doi:10.30965/22142290-bja10035
- Thibault, H. (2022). Preface. *Researching in the Former Soviet Union: Stories from the Field*, , ix-xiii. Retrieved from www.scopus.com
- Tippairote, T., Bjørklund, G., Gasmi, A., Semenova, Y., Peana, M., Chirumbolo, S., & Hangan, T. (2022). Combined supplementation of coenzyme Q10 and other nutrients in specific medical conditions. *Nutrients*, 14(20) doi:10.3390/nu14204383
- Tleukenov, Y. -, Kalimuldina, G., Arinova, A., Issatayev, N., Bakenov, Z., & Nurpeissova, A. (2022). Polyacrylonitrile-polyvinyl alcohol-based composite gel-polymer electrolyte for all-solid-state lithium-ion batteries. *Polymers*, 14(23) doi:10.3390/polym14235327
- Tokazhanov, G., Tokbolat, S., Tleuken, A., & Karaca, F. (2022). The pandemic readiness assessment of building design and engineering service-related legislation in kazakhstan and the EU. *Engineering, Construction and Architectural Management*, doi:10.1108/ECAM-07-2022-0661
- Toktarov, T., Saginov, B., Raimagambetov, Y., Balbossynov, B., Korganbekova, G., Urazayev, M., . . . Ogay, V. (2022). Heparin-conjugated fibrin hydrogel with chondroinductive growth factors and human synovium-derived mesenchymal stem cells for the treatment of articular cartilage defects: Evaluation of clinical safety. *International Journal of Biomedicine*, 12(4), 539-547. doi:10.21103/Article12(4)_OA3
- Tolesh, F. (2022). International human capital in the local labour market: Experiences of the foreign-educated kazakhstani graduates. *Journal of Education and Work*, 35(6-7), 700-718. doi:10.1080/13639080.2022.2126970
- Tolganbek, N., Sarsembina, M., Nurpeissova, A., Kanamura, K., Bakenov, Z., & Mentbayeva, A. (2022). Effect of a layer-by-layer assembled ultra-thin film on the solid electrolyte and li interface. *Nanoscale Advances*, 4(21), 4606-4616. doi:10.1039/d2na00521b
- Tsai, P. -, Lai, Y. -, Manne, R. K., Tsai, Y. -, Sarbassov, D., & Lin, H. -. (2022). Akt: A key transducer in cancer. *Journal of Biomedical Science*, 29(1) doi:10.1186/s12929-022-00860-9
- Turganov, D. (2022). Liberalization and political stability in central asia. *Central Asian Affairs*, 13(1) doi:10.30965/22142290-bja10041
- Tusseyeva, I., Oleinikov, A., Sandygulova, A., & Rubagotti, M. (2022). Perceived safety in human-cobot interaction for fixed-path and real-time motion planning algorithms. *Scientific Reports*, 12(1) doi:10.1038/s41598-022-24622-7
- Tussupbekova, G., Malone, K. L., Helmer, J., Namysova, G., Abdrakhmanova, M., Polat, F., & Kataeva, Z. (2022). Graduate students' experiences in a blended learning program in kazakhstan: A mixed-method study employing interaction equivalency theorem. *Contemporary Educational Technology*, 14(4) doi:10.30935/cedtech/12398
- Uğurlu, K., & Brzeczek, T. (2022). Distorted probability operator for dynamic portfolio optimization in times of socio-economic crisis. *Central European Journal of Operations Research*, doi:10.1007/s10100-022-00834-0
- Ulasbek, K., Hashmet, M. R., Pourafshary, P., & Muneer, R. (2022). Laboratory investigation of nanofluid-assisted polymer flooding in carbonate reservoirs. *Nanomaterials*, 12(23) doi:10.3390/nano12234258

New research papers indexed by Scopus (count: 295 as of December 27)

- Usman, M., Rofcanin, Y., Ali, M., Ogbonnaya, C., & Babalola, M. T. (2022). Toward a more sustainable environment: Understanding why and when green training promotes employees' eco-friendly behaviors outside of work. *Human Resource Management*, doi:10.1002/hrm.22148
- Valagiannopoulos, C. (2022). Electromagnetic analog to magic angles in twisted bilayers of two-dimensional media. *Physical Review Applied*, 18(4) doi:10.1103/PhysRevApplied.18.044011
- Viderman, D., Dossov, M., Seitenov, S., & Lee, M. -. (2022). Artificial intelligence in ultrasound-guided regional anesthesia: A scoping review. *Frontiers in Medicine*, 9 doi:10.3389/fmed.2022.994805
- Vorobjev, I. (2022). Editorial: Cytoskeleton in the focus of anti-cancer therapy: In a search of novel biomarkers and combinatorial therapy approaches. *Frontiers in Pharmacology*, 13 doi:10.3389/fphar.2022.1069821
- Vu, T. G., Makhanov, N., Tu, N. A., & Wong, K. -. (2022). On the trade-off between privacy protection and data utility for chest X-ray images. Paper presented at the International Conference on Advanced Technologies for Communications, , 2022-October 274-279. doi:10.1109/ATC55345.2022.9942970 Retrieved from www.scopus.com
- Wahab, A., Khan, S., Naseem, I., & Ye, J. C. (2022). Performance analysis of fractional learning algorithms. *IEEE Transactions on Signal Processing*, 70, 5164-5177. doi:10.1109/TSP.2022.3215735
- Walumbwa, F. O., Christensen-Salem, A., Babalola, M. T., Kasimu, P., Garba, O. A., & Guo, L. (2022). A closer look at how and when family-supportive supervision influence work interference with family: The roles of family-role overload and task crafting. *International Journal of Human Resource Management*, 33(19), 3850-3878. doi:10.1080/09585192.2021.1939761
- Wang, S., Cong, F., Araby, S., Kaytbay, S., Cai, R., Cui, X., & Meng, Q. (2022). Effect of graphene on the mechanical and electrochemical properties of GLARE. *Journal of Adhesion Science and Technology*, 36(20), 2159-2175. doi:10.1080/01694243.2021.2003159
- Wang, Y. (2022). Steady isothermal flow of a Carreau–Yasuda model fluid in a straight circular tube. *Journal of Non-Newtonian Fluid Mechanics*, 310 doi:10.1016/j.jnnfm.2022.104937
- Wang, Y., Qiu, Q., Yedilbayeva, A., Kairula, D., & Dai, L. (2022). Phase behavior of ion-containing polymers in polar solvents: Predictions from a liquid-state theory with local short-range interactions. *Polymers*, 14(20) doi:10.3390/polym14204421
- Wayo, D. D. K., Irawan, S., Bin Mohamad Noor, M. Z., Badrouchi, F., Khan, J. A., & Duru, U. I. (2022). A CFD validation effect of YP/PV from laboratory-formulated SBMDIF for productive transport load to the surface. *Symmetry*, 14(11) doi:10.3390/sym14112300
- Xinyu, Z., Tao, F., Hongwei, Y., Ming, G., & Nurxat.Nuraje. (2022). Preparation of chitosan-like magnetic composite microspheres and their adsorption properties for cu (II). *Materials Today: Proceedings*, doi:10.1016/j.matpr.2022.09.616
- Xu, J., Yang, W., Pan, Y., Xu, H., He, L., Zheng, B., . . . Wu, X. (2022). Lucidenic acid A inhibits the binding of hACE2 receptor with spike protein to prevent SARS-CoV-2 invasion. *Food and Chemical Toxicology*, 169 doi:10.1016/j.fct.2022.113438
- Yang, X., Cai, R., Chen, C., Araby, S., Li, Y., Wang, W., & Meng, Q. (2022). High-performance aluminum alloy with fully equiaxed grain microstructure fabricated by laser metal deposition. *Journal of Materials Research*, 37(21), 3658-3667. doi:10.1557/s43578-022-00738-4
- Yazdi, S. S. H., Shokri-Kalandaragh, Y., & Bagheri, M. (2022). Power system stability improvement considering drive train oscillations of virtual synchronous generator-regulated type-4 wind turbines. *IET Renewable Power Generation*, doi:10.1049/rpg2.12616
- Yerkinbekova, Y., Kalybekkyzy, S., Tolganbek, N., Kahraman, M. V., Bakenov, Z., & Mentbayeva, A. (2022). Photo-crosslinked lignin/PAN electrospun separator for safe lithium-ion batteries. *Scientific Reports*, 12(1) doi:10.1038/s41598-022-23038-7
- Yerlanuly, Y., Zhumadilov, R. Y., Danko, I. V., Janseitov, D. M., Nemkayeva, R. R., Kireyev, A. V., . . . Brus, V. V. (2022). Effect of electron and proton irradiation on structural and electronic properties of carbon nanowalls. *ACS Omega*, doi:10.1021/acsomega.2c06735
- Yunussova, N., Sypabekova, M., Zhumabekova, Z., Matkarimov, B., & Kanayeva, D. (2022). A novel ssDNA aptamer targeting carcinoembryonic antigen: Selection and characterization. *Biology*, 11(10) doi:10.3390/biology11101540
- Zarrintaj, P., Ganjali, M. R., Salmankhani, A., Mashhadzadeh, A. H., Munir, M. T., Salehnia, F., . . . Saeb, M. R. (2022). Carboxymethylated polysaccharides in drug delivery. Tailor-made polysaccharides in drug delivery (pp. 63-81) doi:10.1016/B978-0-12-821286-8.00012-4 Retrieved from www.scopus.com

New research papers indexed by Scopus (count: 295 as of December 27)

- Zhabagin, M., Wei, L. -, Sabitov, Z., Ma, P. -, Sun, J., Dyussenova, Z., . . . Ramankulov, Y. (2022). Ancient components and recent expansion in the eurasian heartland: Insights into the revised phylogeny of Y-chromosomes from central asia. *Genes*, 13(10) doi:10.3390/genes13101776
- Zhakhina, G., Zhalmagambetov, B., Gusmanov, A., Sakko, Y., Yerdessov, S., Matmusaeva, E., . . . Gaipov, A. (2022). Incidence and mortality rates of strokes in kazakhstan in 2014–2019. *Scientific Reports*, 12(1) doi:10.1038/s41598-022-20302-8
- Zhakipov, Z., & Nauryzbayev, G. (2022). Channel modeling and outage performance of cascaded RIS-empowered wireless networks. Paper presented at the International Conference on ICT Convergence, , 2022-October 187-192. doi:10.1109/ICTC55196.2022.9952786 Retrieved from www.scopus.com
- Zhanabayeva, A., Abdialim, S., Satyanaga, A., Kim, J., & Moon, S. -. (2022). Comparative analysis of international codes of practice for pile foundation design considering negative skin friction effect. *International Journal of Geo-Engineering*, 13(1) doi:10.1186/s40703-022-00176-5
- Zhang, M., Han, S., Niu, X., Li, H., Zhang, D., Fan, H., . . . Wang, K. (2022). A PPy/MoS₂ core-shell heterojunction modified by carbon dots exhibits high photocatalytic antibacterial performance. *New Journal of Chemistry*, 10 doi:10.1039/d2nj04388b
- Zhang, M., Han, S., Niu, X., Li, H., Zhang, D., Fan, H., . . . Wang, K. (2022). PPy and CQDs-doped novel CuO nanocomposites for enhanced antibacterial activity against drug-resistant bacteria.**. *ChemistrySelect*, 7(44) doi:10.1002/slct.202203636
- Zhang, Y., He, W., Li, X., Peng, H., Rabie, K., Nauryzbayev, G., . . . Zhu, M. (2022). Covert communication in downlink NOMA systems with channel uncertainty. *IEEE Sensors Journal*, 22(19), 19101-19112. doi:10.1109/JSEN.2022.3201319
- Zhangel'dinov, O. (2022). Learning from Mistakes in an Open source software course doi:10.1007/978-3-031-12429-7_22 Retrieved from www.scopus.com
- Zhubanova, G., & Filchakova, O. (2022). RC-4BC cells express nicotinic and muscarinic acetylcholine receptors. *PLoS ONE*, 17(12 December) doi:10.1371/journal.pone.0279284
- Zhumazhanov, B., Zhetpishbayeva, A., Zhetpishbayev, K., Yerishova, M., Tolegenova, A., Serikov, T., . . . Kussainova, K. (2022). Modeling the method for determining the stimulated brillouin scattering threshold in a single-mode optical fiber. *Eastern-European Journal of Enterprise Technologies*, 1(5-115), 6-13. doi:10.15587/1729-4061.2022.253390