RESEARCH NEWSLETTER

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FAREWELL TO PROVOST ADESIDA

As 2024 draws to a close, we bid a heartfelt farewell to Provost Ilesanmi Adesida, who has announced his retirement after eight remarkable years of service at Nazarbayev University.

Arriving at NU in October 2016, Provost Adesida brought with him a wealth of experience from the University of Illinois at Urbana-Champaign, where he spent nearly three decades. His arrival marked the beginning of a transformative era for NU, one defined by rapid progress toward becoming an internationally recognized research-intensive university.

Under his leadership, NU achieved a number of milestones:

Advancing NU's Research Ecosystem: Provost Adesida spearheaded the establishment of a robust research infrastructure, equipping our labs with state-of-the-art facilities that are among the best in the region. He modernized NU's research strategy, focusing on research pillars and nationally relevant domains of expertise which have significantly contributed to NU's standing in global university rankings.

Strengthening Academic Excellence: Through his efforts, NU achieved international standards in research and teaching, introduced prestigious institutional accreditations, and elevated the university's doctoral degrees to global benchmarks.

Fostering Talent Development: Provost Adesida championed the recruitment of distinguished international faculty and the nurturing of Kazakh academic talent. Under his guidance, the proportion of Kazakh-origin faculty grew from 10% to 33%, a testament to his commitment to indigenizing academic excellence.

Enriching the Student Experience: Provost Adesida often spoke of his pride in NU's students and alumni, emphasizing that their quality and success are the truest metrics of the university's achievements. His legacy includes not only infrastructure and policies but also the lives of students whose potential was realized under his tenure.

Provost Adesida's quiet yet impactful leadership style has earned him the respect and admiration of colleagues and students alike. His global stature and network have greatly benefited NU, bringing esteemed scholars and enhancing the university's reputation worldwide.

As he retires to spend more time with his family, we thank Provost Adesida for his unparalleled contributions to Nazarbayev University and higher education in Kazakhstan. His vision, dedication, and humility have left an indelible mark on our institution.

While his presence will be missed, his legacy will continue to inspire NU's journey.

We wish Provost Adesida the very best in his retirement, and we hope he will visit us often to share his wisdom and stay connected with the NU community!

IN THIS ISSUE

NU HAS SECURED ITS POSITION IN THE TIMES HIGHER EDUCATION RANKING 2025

Nazarbayev University (NU) has secured a place among the top 24–29% of the world's leading research universities according to the 2025 Times Higher Education (THE) World University Ranking, released on October 9, 2024.

This year's rankings included 2,092 universities from 115 countries, an increase of 185 institutions compared to the previous year, reflecting the growing competition. Despite this, NU maintained its position in the 501–600 range, demonstrating resilience and adherence to high international standards.

NU remains the leading research university in Kazakhstan and Central Asia, significantly outperforming Kazakhstani universities such as Al-Farabi Kazakh National University (ranked 1201–1500), L.N. Gumilyov Eurasian National University, and Satbayev University (both ranked 1500+).

Within the CIS, NU is ranked 5th, alongside institutions such as the National Research Nuclear University MEPhI, Peter the Great St. Petersburg Polytechnic University, and Tomsk State University. The only universities ranked higher are the long-established Moscow State University and Bauman Moscow State Technical University.

In comparison with international universities, NU surpasses well-known European institutions such as Coventry University and De Montfort University (UK), the University of Lorraine (France), and Marche Polytechnic University (Italy), all ranked in the 601–800 range.

These results demonstrate the high level of research and education at Nazarbayev University. NU continues to strengthen its reputation on the international academic stage, confirming its status as one of the leading research universities in the Central Asian region.

NAZARBAYEV UNIVERSITY RANKS FIRST IN THE KAZAKH NATIONAL H-INDEX RANKING 2024

Nazarbayev University has retained its top position in the recently updated Kazakh National H-Index Ranking 2024.

The Kazakh National H-Index Ranking is an independent international ranking that assesses the scientific productivity and impact of individual researchers, research groups, and institutions across Kazakhstan. The ranking is based on the consolidated Hirsch index (H-index), which reflects the quality and influence of scientific contributions.

This ranking aggregates the cumulative H-index of research organizations in Kazakhstan, using data from leading scientometric platforms, including Scopus, Web of Science, and Google Scholar. The National H-Index Ranking (NHR) offers a comprehensive assessment of institutional research performance, providing valuable insights into the scientific productivity and impact of Kazakhstani institutions.

Nazarbayev University's leadership in this ranking highlights its commitment to advancing research excellence and fostering innovation, reaffirming its position as a top research institution in Kazakhstan and the region.

Organization	Position	National H-index(difference)	H-index (Scopus)	H-index (WoS)	H-index (Google Scholar)
SCIENTIFIC POTENTIAL LEADERS					
Nazarbayev University	1 (0)	119 (+8)	120	108	260
Al Farabi Kazakh National University	2 (0)	80 (+6)	88	84	137
L.N. Gumilyov Eurasian National University	3 (0)	76 (+4)	77	77	145
Satbayev University	4 (0)	53 (+3)	67	39	106
Kazakh National Medical University	5 (0)	50 (+6)	59	53	75
Al Farabi Kazakh National University, Center of Physical-Chemical Methods of Research and Analysis	6 (0)	41 (+3)	28	84	20
Institute of Nuclear Physics, National Nuclear Center of the Republic of Kazakhstan	7 (0)	38 (+2)	47	53	25
Kazakh-British Technical University	8 (0)	37 (+3)	46	42	46
KIMEP University	9 (0)	35 (+2)	43	35	53
Institute of Physics and Technology Kazakhstan	10 (0)	31 (0)	46	44	7

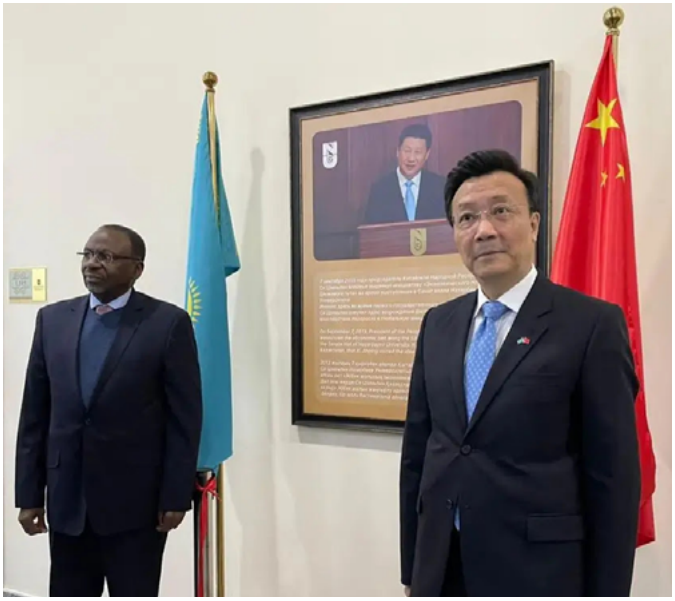
NU WILL LAUNCH THREE RESEARCH PROJECTS WITHIN KAZAKHSTAN-CHINA PARTNERSHIP EXCHANGE PROGRAM 2024

Researchers at Nazarbayev University are set to initiate three 2-year projects as part of the Kazakhstan-China Partnership Exchange Program 2024. This initiative builds on the outcomes of President Xi Jinping's visit to Kazakhstan in July 2024, with the goal of enhancing research collaboration and fostering stronger ties between the two nations.

Out of 33 proposals submitted by NU faculty members, three projects were selected among the 10 approved for Kazakhstan. The successful proposals were submitted by the three professors from NU School of Engineering and Digital Sciences:

- «Exchange Project between Soochow University and Nazarbayev University in the Field of New Energy Development Technology» by Dr. Gulnur Kalimuldina.
- «SZTU-NU Information Technology Partner Exchange Program» by Dr. Zhanat Kappassov.
- «Beihang University–Nazarbayev University Joint Research Institute for New Energy Development Exchange Program» by Dr. Annie Ng.

The University extends its gratitude to Professor Dos Sarbassov from the School of Sciences and Humanities for his key role in securing approval from the National Academy of Sciences, which was vital to the success of these proposals.



These projects reflect NU's dedication to addressing critical challenges through innovative research and its commitment to fostering meaningful international partnerships.

As a reminder of the long-standing partnership between Kazakhstan and China, NU unveiled a commemorative plaque on September 9, 2024, outside the Senate Hall. The plaque marks the historic moment in 2013 when President Xi Jinping announced the Belt and Road Initiative during his visit to NU. At the unveiling ceremony, PRC Ambassador Zhang Xiao emphasized the importance of continued collaboration between the two countries.

School of Engineering and Digital Sciences News

NU ROBOTICS TEAM PUBLISHES IN A PRESTIGIOUS IEEE JOURNAL

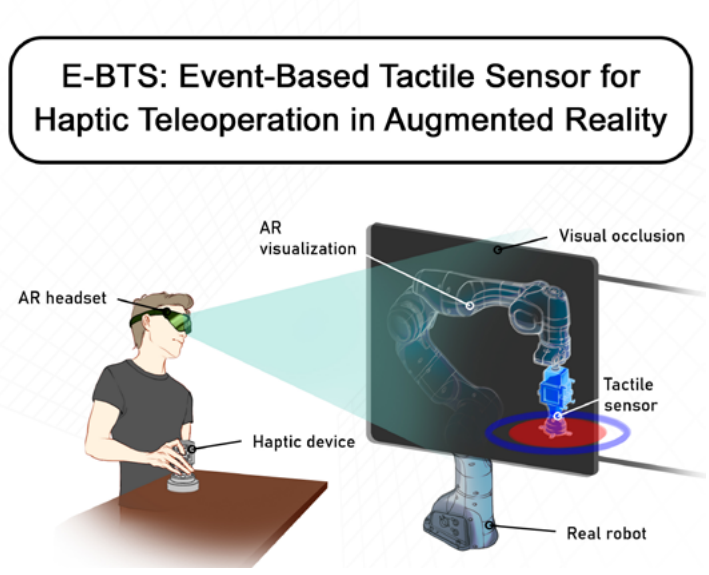
We are pleased to announce that researchers from the Tactile Robotics Lab in the School of Engineering and Digital Sciences (SEDS) at Nazarbayev University have published groundbreaking work in *IEEE Transactions on Robotics*, the most prestigious journal in the robotics field (Q1, top 5%, CiteScore: 14.9).

The research team, led by Associate Professor Zhanat Kappassov, developed an innovative event-based tactile sensor for haptic teleoperation in augmented reality. The work was conducted by a collaborative team including Dinmukhammed Mukashev, Saltanat Seitzhan, Jabrail Chumakov, Soibkhon Khajikhanov, Madina Yergibay, Nurlan Zhaniyar, Rustam Chibar, Ayan Mazhitov, and Professor Matteo Rubagotti.

This significant achievement represents a major advancement in robotic tactile sensing and teleoperation systems. The research demonstrates how event-based cameras can be used to create more responsive and accurate tactile feedback for remote robot operation, with applications ranging from minimally invasive surgery to hazardous environment exploration.

The project received funding from the Ministry of Science and Higher Education of Kazakhstan (Grant No. AP23485994) and Nazarbayev University under multiple research grants (FDCRGP no. 11022021FD2923, 201223FD2606, 11022021FD2901, and Collaborative Research Project Grant #11022021CRP1502).

Special acknowledgement goes to Professor Atakan Varol and Professor Almas Shintemirov, whose valuable guidance and support were instrumental in bringing this project to fruition. The team also extends their gratitude to Professor Vincent Hayward for his insightful discussions on neuromorphic tactile sensing and haptics, and to Danissa Sandykbaeva for her illustration contributions.



This publication represents a significant milestone for robotics research in Kazakhstan and reinforces Nazarbayev University's position as a leading institution in robotics and engineering research.

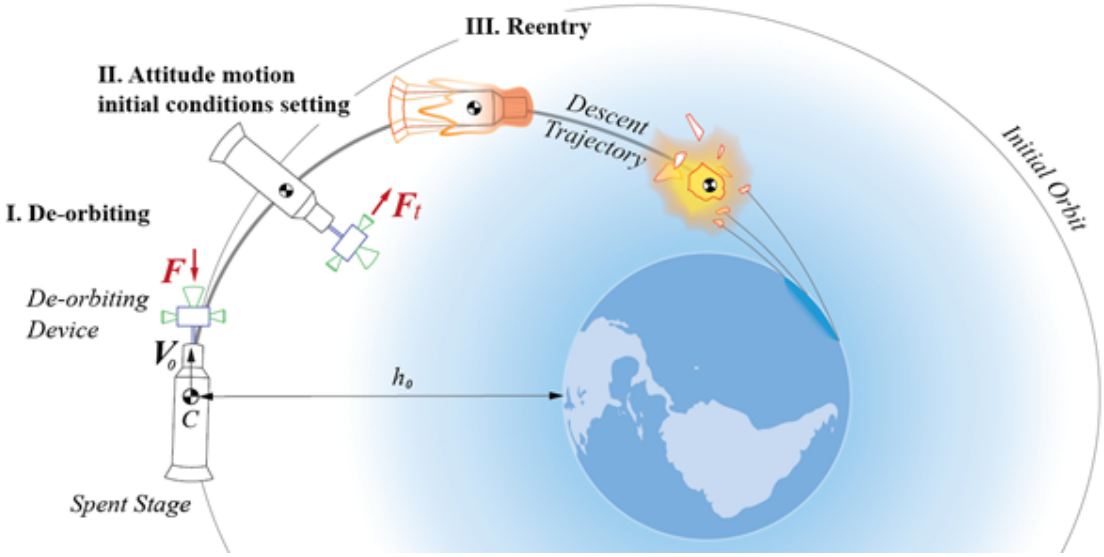
Links:

- ISSAI
- Tactile Robotics Lab
- Instagram: @tactilelab
- Link to the video on YouTube

SPACE DEBRIS REMOVAL PROBLEMS DISCUSSED IN THE EUROPEAN SPACE AGENCY

Dr. Dmitry Sizov, Instructor in the Department of Mechanical and Aerospace Engineering, participated in the AeroThermoDynamics and Design for Demise (ATD3) Workshop 2024, organized by the European Space Agency (ESA) and the French National Centre for Space Studies (CNES), which took place on June 6-7, 2024, at ESA's European Space Research and Technology Centre in Noordwijk, Netherlands. This event brought together researchers, engineers, and policymakers to discuss the pressing challenge of space debris mitigation through advancements in spacecraft re-entry technologies and demisability. The workshop showcased significant progress in the modeling and simulation of the aerothermal environment during atmospheric re-entry of active spacecraft and large space debris objects.

Large space debris objects typically include non-operational satellites and spent upper stages (rocket bodies). Massive removal of old satellites can be challenging in the sense that many satellites are unique in terms of shape and dimensions. Conversely, rocket bodies are numerous and have more or less the same shape and mass-inertial characteristics, which makes them primary targets for future removal missions. These objects are some of the most hazardous classes of low Earth orbit (LEO) debris. As of 16 April 2023, the total number of rocket bodies in LEO was about 6400. They are massive and prone to spontaneous explosions, so they are a significant potential source of small, hard-to-track space debris posing a threat to operational spacecraft. On the other hand, uncontrolled re-entries of the rocket bodies may endanger ground objects as well, so the occurring re-entries need to be carefully analyzed to predict future events.



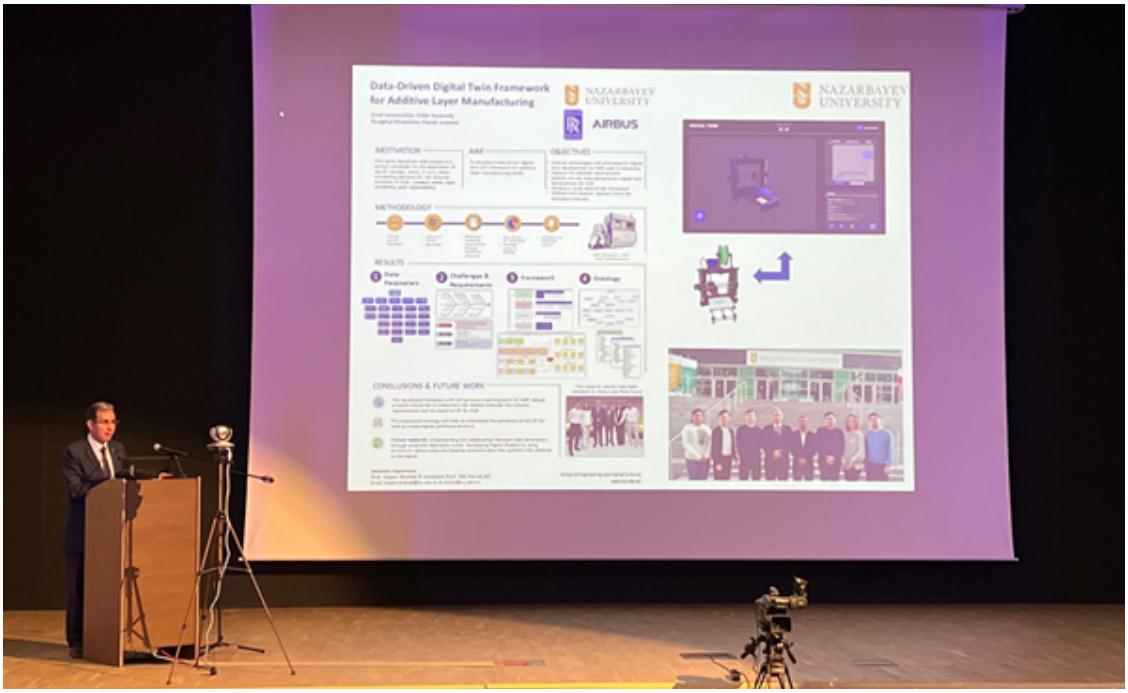
Dmitry Sizov's talk entitled «*Active and Passive Devices for Safe Deorbiting and Reentry of Spent Upper Stages*» was focused on the active removal of spent upper stages from the low Earth orbits using de-orbiting devices. A mathematical model of the re-entry process was presented, including spatial attitude motion of the stage, and numerical simulations were considered, demonstrating that the nature of attitude motion during the descent influences the load factors and, thus, the breakup altitude.

The key ideas presented in the talk were further detailed in a recently published research paper "*Large Debris Removal: Using Features of Attitude Motion for Load Factor Regulation during Re-Entry*" in Aerospace (CiteScore 3.8).

Links:

- Presentation
- Research paper

SEDS PROFESSOR DELIVERED SIX KEYNOTE PRESENTATIONS AT INTERNATIONAL CONFERENCES



Professor Essam Shehab, the Head of Mechanical and Aerospace Engineering Department at SEDS, was invited to deliver six plenary and keynote presentations in the last three years at international conferences. He presented a keynote titled "*Industrial Digitalization Applications in World-Class Aerospace Companies*" at the 4th International Conference on Mechanical, Aerospace and Automotive Engineering (CMAAE 2024), Beijing, China. The conference was organized by Beihang University and Nanjing University of Aeronautics and Astronautics. Professor Shehab was also invited to deliver a keynote to the International Conference of Mechanical Engineering on Aerospace (CoMEA 2024), China. The plenary presentation provided an overview of a number of research projects on digital manufacturing which were carried out within world-class aerospace companies including Airbus and Rolls-Royce. The research projects included digital mock-up, model-based definition and digital workflow in manufacturing. Digital Mock-Up (DMU) project focused on integrating design and manufacturing teams during different phases of aircraft design to reduce concession time. Model-Based Definition (MBD) is based upon the shift to 3D CAD models as a single source of product definition encompassing all the product information and thus eliminating the need for 2D representation. It is a digital-product model that defines the requirements and

specifications of the product. A Model-Based Enterprise (MBE) uses MBD to define the product requirements and specifications instead of paper-based documents as the data source for all engineering activities throughout the product lifecycle. The presentation provided an outline on digital workflow of complex aerospace manufacturing engineering processes.

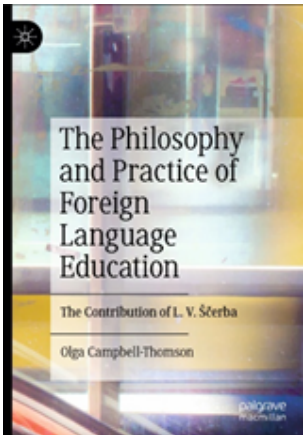
Professor Shehab delivered a plenary presentation on “Recent Advances in Digital Manufacturing in Aerospace Industry” alongside other plenary speakers from NASA, European Space Agency (ESA) and other leading universities at the 4th International Conference on Aerospace and Unmanned Aerial Systems (Aerospace-2022). He was Invited to serve as a plenary speaker on “Industrial Digitalization Projects for World-Class Aerospace Companies” at two consecutive IEEE International Conferences ((2022 and 2023) on Smart Information Systems and Technologies (IEEE SIST), Astana IT University, Astana, Kazakhstan.

Professor Shehab was invited as a plenary speaker on “Industry-Academia Collaboration: Examples from World-Class Aerospace Companies” at the 1st International Conference in Technological University Education, 2022, Cairo Egypt.

School of Sciences and Humanities News

THE PHILOSOPHY AND PRACTICE OF FOREIGN LANGUAGE EDUCATION: THE CONTRIBUTION OF L. V. ŠČERBA

Dr Olga Campbell-Thomson joined NU faculty in Spring 2024. Prior to her move to Astana, she lectured at the University of Glasgow, UK, and overall, she has more than thirty years of experience of research and teaching in the multilingual and multicultural environments of the USA, Cyprus, Qatar, and the UK. She has an enduring interest in language education and her current research is focused on the history of modern foreign language teaching.



This new publication by Palgrave Macmillan is a contribution to Olga's historical research on the scholarship of Russian linguist Lev Vladimirovič Ščerba (1880-1944). Olga has published several translations of Ščerba's essays in prestigious international journals (among them Historiographia Linguistica), and her critical review of Ščerba's writing published in The Curriculum Journal in 2017 received the editors' choice award for innovation, academic rigor, clarity of writing, and contribution to knowledge. The current monograph presents Ščerba's work on educational methodology for modern foreign languages. The publication makes an important contribution to the field of applied linguistics by providing insights into the emerging tradition of foreign language education at a crucial juncture within the wider European process of the professionalisation of modern language teaching and parallel developments in the national and historical context of Russia in the first half of the twentieth century. The volume includes English-language translations of Ščerba's writing. The present translation is the first rendering into English of the selected texts. A key aim of providing English-language readers with access to the original historical sources collected in this volume is to broaden perspectives on the development of modern foreign language education as an academic field beyond Western Europe and the United States. The proposed volume of original sources also responds to the need of deeper historical understanding and a major rethinking of its underlying theoretical foundations by demonstrating the productive relationship between linguistic theory and practice. Above all, these essays by one of leading but overlooked European linguists highlight the fact that modern language education is—or should be—an applied branch of general linguistics. Overall, the disciplinary, cultural, and historical knowledge condensed in the book chapters broadens our understanding of the interconnectedness of disciplinary developments in various historical and local contexts. As such, it makes an important contribution to the historiography of language education as an academic field and informs current and future developments in this discipline.

CAN DEEP LEARNING SUCCESSFULLY ATTACK LWE?

A paper entitled "*Almost Pairwise Independence and Resilience to Deep Learning Attacks*" by Assistant Professor Rustem Takhanov has been published in the IACR Communications in Cryptology, a diamond open-access journal focused on rapid dissemination of original research papers on topics relevant to the cryptology community.

Cryptography has become an indispensable tool for securing digital communication, authenticating payments, enabling modern cryptocurrencies, and safeguarding sensitive information. The field has drawn significant attention from both computer scientists and mathematicians. Since the 1970s, the cornerstone of cryptographic systems has been public-key (or asymmetric) cryptography, which allows secure communication between parties (commonly referred to as Alice and Bob) under the assumption that potential eavesdroppers (Oscar) lack the computational resources to solve specific mathematical problems. The security of these systems traditionally hinges on the computational intractability of problems such as integer factorization and the discrete logarithm problem [1].

However, the landscape of cryptography changed dramatically with Peter Shor's revolutionary algorithms developed in the mid-1990s [2]. These algorithms demonstrated that quantum computers could efficiently solve problems underpinning most public-key cryptosystems, including RSA and elliptic curve cryptography. The prospect of scalable quantum computers has since spurred significant research into developing cryptographic schemes that remain secure in a post-quantum era.

Post-Quantum Cryptography (PQC) is a burgeoning field that aims to construct cryptographic systems resilient to quantum attacks. One of the most prominent computational problems underpinning PQC is the Learning with Errors (LWE) problem. Conceptually, LWE resembles linear regression, a classical statistical problem, but incorporates a critical modification: all values are confined to the field of integers modulo a prime q, denoted Zq, with operations understood modulo q. This subtle adjustment transforms the problem into a computational challenge that is believed to be intractable, even for quantum computers [3].

The significance of LWE was underscored by the recent competition hosted by the U.S. National Institute of Standards and Technology (NIST), which culminated in the standardization of four PQC algorithms, two of which are based on variants of LWE [4]. Consequently, LWE has become a focal point for cryptographic research, particularly in analyzing its resistance to various attack vectors.

The remarkable success of gradient-based learning in solving complex optimization problems has led to its application in cryptographic contexts, including attacks on LWE. Recent research has explored hybrid approaches that combine traditional lattice reduction techniques with modern gradient-based optimizers, such as Adam and RMSProp. While these methods have made progress, they remain insufficient to compromise real-world LWE instances at full scale. Notably, some attacks have demonstrated success against simplified LWE configurations with sparse binary secrets [5].

The paper by Takhanov addresses the theoretical underpinnings of these gradient-based attacks on LWE. The study focuses on the sensitivity of the gradient, a critical component driving the learning process, to the secret key—a fundamental parameter of LWE. The analysis reveals that, for real-world parameter sizes, the gradient's variance is negligibly small, indicating that PQC systems relying on LWE are robust against such attacks under typical conditions.

However, the research uncovers a potential vulnerability. If an attacker can preprocess the LWE input to reduce its collision entropy—a measure related to Renyi entropy widely used in cryptography—the gradient becomes informative. In such cases, deep learning-based attacks can succeed. This finding explains the partial success of existing hybrid attacks, which rely on heavy computational preprocessing to generate low-entropy inputs.

While the study underscores the resilience of modern PQC algorithms, it leaves open the question of whether deep learning can fundamentally break LWE. The research suggests that any future successful attack would require preprocessing strategies that systematically lower the variation in LWE inputs, offering a roadmap for cryptographic defenses.

This paper represents a significant contribution to the theoretical analysis of PQC security, providing both reassurance about the safety of current protocols and a framework for understanding potential vulnerabilities. As quantum computing advances, such studies will play a pivotal role in shaping the cryptographic landscape of the future.

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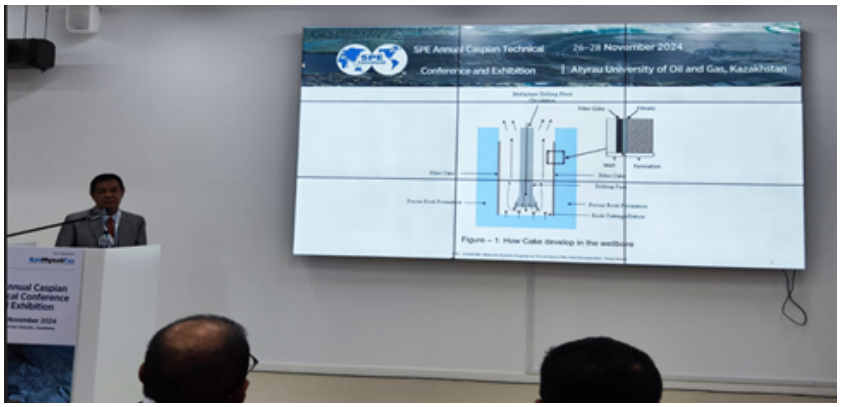
School of Mining and Geosciences News

SMG SCIENTISTS PRESENT THEIR RESULTS AT SPE ANNUAL CASPIAN TECHNICAL CONFERENCE 2024

Two Associate Professors from the School of Mining and Geosciences (SMG), Dr. Emil Bayramov and Dr. Sonny Irawan, presented their research at the SPE Annual Caspian Technical Conference and Exhibition held on November 26–28, 2024, at Atyrau Oil and Gas University, Kazakhstan.

Dr. Emil Bayramov presented the first paper, titled «*Deformation Monitoring of Northern Caspian Sea Kashagan Oilfield Using Radar Satellite Remote Sensing*,» on November 26, 2024. Co-authored by G. Tessari, M. Kada, S. Aliyeva, M. Buchroithner, J. Neafie, and A. Duisenbiev, this research focuses on monitoring deformation in the Kashagan oil field in the Northern Caspian Sea. High-resolution COSMO-SkyMed (CSK) and medium-resolution Sentinel-1 (SNT1) satellite images acquired from 2018 to 2022 were used for persistent scatterer interferometric synthetic aperture radar (PS-InSAR) processing.



On November 27, 2024, Dr. Sonny Irawan presented the second paper, titled «*Molecular Dynamic Prognosis for Ti-$C_{10}H_{16}N_2O_8$ Filter Cake Decomposition*,» co-authored by D. D. K. Wayo, E. Bayramov, M. T. Fathaddin, and L. Goliatt. This research examines the molecular mechanisms underlying filter cake degradation and introduces Titanium-enhanced ethylenediaminetetraacetic acid (Ti-EDTA) as a novel chemical breaker for decomposing filter cakes in high-pressure, high-temperature (HPHT) wellbore environments. Using ab initio molecular dynamics (AIMD) simulations within the Quantum Espresso framework version 7.2, the researchers examine the molecular interactions, atomic displacements, and thermodynamic behavior of Ti-EDTA in contact with synthetic-based mud (SBM) residues.

ADDRESSING GROUNDWATER POLLUTION: NU RESEARCHERS PARTICIPATE IN A SCIENTIFIC AND TECHNOLOGICAL SESSION

On December 5-6, NU scientists—Dr. Sonny Irawan from the School of Mining and Geoscience (SMG) and Research Assistant Bakytkul Serikbek from the School of Engineering and Digital Sciences (SEDS)—participated in a scientific and technological session at Aktobe Regional University named after K. Zhubanov (ARU). The event was organized by the Ministry of Science and Higher Education of Kazakhstan, JSC «Fund of Science,» and the Center for Scientific and Technological Initiatives «Samgau».

The session brought together scientists, industry experts, and representatives from key ministries, including the Ministry of Ecology and Natural Resources, and the Ministry of Energy, and the Science Foundation. Vice Minister of Science and Higher Education, Darkhan Ahmed-Zaki, opened the event, emphasizing the importance of these sessions in fostering collaboration between science and business. He noted that such efforts contribute to the commercialization of innovative projects, helping Kazakhstan develop competitive, export-oriented products.

On the first day, discussions focused on pollution of the Kokjide field's underground waters due to oil production activities. This issue has raised significant ecological concerns, with public and scientific communities urging measures to protect the water resources of the region.

«*This is another attempt to find common ground with subsoil users and initiate joint work to ensure the safety of water resources*,» said Associate Professor and Candidate of Biological Sciences Akylzhan Teleuov from ARU's Department of Ecology. He mentioned that at their university they conduct comprehensive biosystem studies to assess the ecosystem and develop effective water management strategies.

Dr Sonny Irawan and Research Assistant from SEDS – Bakytkul Serikbek participate in a scientific and technological session organized by the Ministry of Science and Higher Education of the Republic of Kazakhstan, JSC «Fund of Science» and the Center for Scientific and Technological Initiatives «Samgau»

The second day of the session focused on finding and developing technological solutions to address groundwater pollution in Kokjide. Participants exchanged best practices and explored innovative ideas to ensure sustainable use and protection of the region's water resources.

Dr. Sonny Irawan proposed a solution "*A New Formulation Cementing System and Machine Learning Application for Monitoring Cement Leaks*," which aims to enhance the monitoring and management of subsurface activities. Interim results of geoecological and hydrogeological studies conducted by KazNiTU named after Satpayev and KazEnergy were also presented. Representatives from leading international companies, including Schlumberger, Halliburton, and Baker Hughes, shared their expertise, enriching the discussions with global perspectives

The event was an important step in the development of scientific and technical cooperation, the search for effective solutions to the environmental pollution problems, and improvement of water resources state.

School of Medicine News

FOCUS ON OBSTETRICS AND GYNECOLOGY

Uterine Fibroid Management in Kazakhstan

Uterine fibroids, or leiomyomas, are the most common benign tumors in women of reproductive age, with a global prevalence estimated between 20-40%. These tumors represent a significant public health concern, leading to menstrual irregularities, chronic pelvic pain, and infertility. In Kazakhstan, the burden of uterine fibroids is considerable, adversely affecting the quality of life and reproductive health of many women. Addressing these challenges, faculty at Nazarbayev University School of Medicine (NUSOM) and CAD of Women's Health of UMC have been instrumental in promoting innovative and minimally invasive treatment strategies. The incidence of uterine fibroids in Kazakhstan aligns with global trends, though comprehensive national epidemiological data remain sparse. Access to specialized gynecological care, especially in rural areas, remains limited, further complicating timely diagnosis and treatment. While hysterectomy is still a prevalent treatment option, its invasive nature and prolonged recovery period pose challenges, particularly for women seeking fertility preservation. Consequently, there is a growing demand for less invasive and fertility-preserving therapies to meet the needs of women across the country.

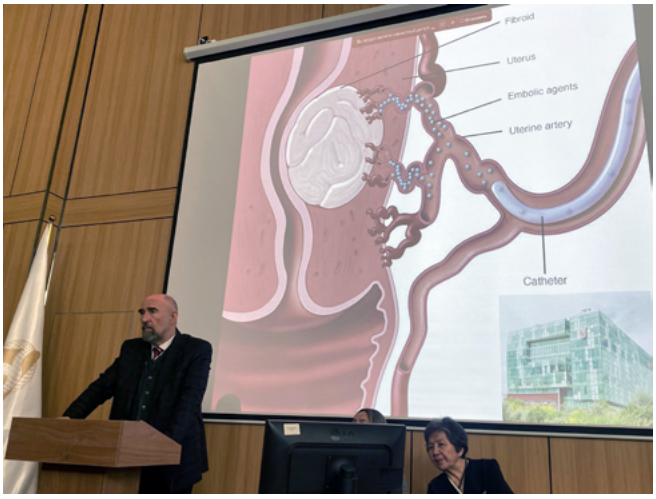
Professor Dr Milan Terzic, affiliated with Nazarbayev University School of Medicine and the University Medical Center in Astana, has made substantial contributions to advancing fibroid management. His work emphasizes evidence-based, patient-centered approaches, focusing on interventional techniques that minimize invasiveness. A key area of Terzic's research is uterine artery embolization (UAE)—a non-surgical procedure that reduces fibroid size by restricting their blood supply, thereby alleviating symptoms and preserving fertility.

The upcoming research by NUSOM faculty aims to further assess UAE's clinical outcomes by evaluating its impact on menorrhagia (excessive menstrual bleeding) scores and quality of life improvements. Moreover, this research will delve into the molecular mechanisms involved in fibroid regression, particularly the role of growth factors such as VEGF (vascular endothelial growth factor) and TGF-β (transforming growth factor-beta). These insights will help develop personalized treatment strategies, enhancing patient outcomes by tailoring therapies to individual health profiles.

Evolution of Minimally Invasive Treatments

Recent developments in the management of uterine fibroids reflect a shift away from radical surgeries, such as hysterectomy, toward fertility-sparing, minimally invasive treatments. UAE and other image-guided procedures represent significant advancements in Kazakhstan's healthcare system, as these techniques offer reduced recovery times, lower complication risks, and improved patient satisfaction. Professor Terzic's team underscores the importance of individualized care, aligning treatment strategies with patients' reproductive goals, age,

and overall health conditions to optimize outcomes. Despite these advancements, challenges persist, particularly in ensuring equitable access to advanced therapies across Kazakhstan. NUSOM faculty have taken proactive steps to address these challenges through capacity-building initiatives and collaborative networks. However, further efforts are required to ensure that advanced treatment options become universally available. Additionally, public awareness campaigns promoting early detection and treatment of uterine fibroids could play a crucial role in reducing the disease burden.



Prof. Terzic at Astana Medical University 14.10.2024

On October 14th Prof. Terzic attended a meeting at Astana Medical University celebrating their 60-year anniversary. The management of uterine fibroids in Kazakhstan has evolved significantly, with a clear shift from radical and invasive surgeries toward minimally invasive, fertility-preserving treatments. The contributions of NUSOM faculty and UMC physicians led by Professor Dr Milan Terzic, have been instrumental in driving this transformation. Their work not only enhances the understanding of fibroid pathophysiology but also promotes the integration of innovative, patient-centered treatments. As the field continues to evolve, these efforts will shape a healthcare system where women with fibroids receive effective, minimally invasive care tailored to their individual needs.

COMMUNICATED BY DR. MILAN TERZIC AND DR. DIETER RIETHMACHER

MULTIDISCIPLINARY APPROACH IN MANAGEMENT OF PATIENTS WITH UTERINE MYOMAS

Multidisciplinary Approach to Management of Uterine Fibroids: A Comprehensive Perspective

Uterine fibroids, or leiomyomas, are the most common benign tumors in women of reproductive age, with a significant global health impact. While the prevalence ranges between 20-40% worldwide, certain populations, particularly women of African descent, face an incidence as high as 80% by age 50. These tumors contribute to major gynecological challenges, including heavy menstrual bleeding, chronic pelvic pain, and infertility. In Kazakhstan, uterine fibroids are a pressing public health concern, complicated by delayed diagnoses, limited access to specialized care, and a lack of fertility-preserving treatment options. As a professor of Obstetrics and Gynecology at Nazarbayev University (NU), Vice Director of the Clinical Academic Department of Women's Health (CAD), and a leader in the integration of teaching, research, and clinical practice within the University Medical Center (UMC), **Professor Dr. Milan Terzic** has been at the forefront of addressing these challenges. His multidisciplinary approach emphasizes collaboration across specialties, innovative treatments, and evidence-based practices tailored to the specific needs of women in Kazakhstan.

Understanding the Epidemiology of Uterine Fibroids

Globally, uterine fibroids are influenced by genetic, hormonal, and environmental factors. Obesity, diet, and lifestyle behaviors are recognized contributors, while disparities in healthcare access often exacerbate their burden in under-resourced settings. Despite significant advancements in diagnostics and treatment options, many women continue to face invasive surgeries, such as hysterectomy, due to late-stage diagnoses or lack of access to minimally invasive alternatives. In Kazakhstan, the true burden of uterine fibroids is not fully quantified due to limited national data. However, available reports suggest rising prevalence rates, aligned with global trends. Factors such as delayed healthcare access, particularly in rural areas, and cultural stigmas around reproductive health contribute to underdiagnosis. Furthermore, the reliance on hysterectomy as a predominant treatment option underscores the urgent need for more fertility-preserving, patient-centered approaches. Through his role at NU and UMC, Professor Terzic has prioritized addressing these epidemiological gaps. This includes fostering collaborations to improve data collection and analysis, advocating for community-level awareness, particularly presenting innovative approach on conferences and congresses, and implementing evidence-based diagnostic and treatment management.

Innovative Clinical and Research Contributions

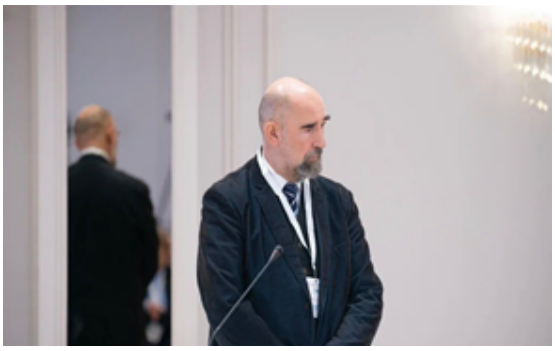
Clinical efforts of Professor Terzic are focused on integrating minimally invasive treatments, such as uterine artery embolization (UAE), into the standard care for uterine fibroids in Kazakhstan. UAE is a non-surgical technique that restricts blood flow to fibroids, resulting in symptom relief and preservation of fertility. As Vice Director of CAD of Women's Health in NU Medicine, he has worked to equip clinicians with the skills and technology needed to deliver these advanced interventions, ensuring high-quality, as well as patient-centered care.

In parallel with clinical advancements, research of Professor Terzic is focused on molecular mechanisms underlying uterine fibroid development and regression. Planned investigation of growth factors, particularly vascular endothelial growth factor (VEGF) and transforming growth factor-beta (TGF-β), will unveil very important peculiarities in fibroid growth. These findings will enable development of personalized treatment strategies that align with patients' reproductive goals and health conditions. Through collaborative efforts with NU researchers, he has also led studies assessing the outcomes of UAE, including improvements in menorrhagia severity, symptom relief, and quality of life metrics. This evidence has been instrumental in shaping national guidelines and expanding access to minimally invasive therapies across Kazakhstan.

Integration of Education, Clinical Practice, and Public Health

As a professor at NU, Dr Terzic has emphasized the integration of epidemiological data, research findings, and clinical innovations into medical education. By designing curricula that prioritize evidence-based practices and minimally invasive techniques, he aims to prepare future healthcare professionals to address the complex needs of patients with uterine fibroids. In addition, his leadership roles at UMC have enabled him to oversee training programs for residents and subspecialists, fostering a multidisciplinary culture that encourages collaboration among OBGYNs, interventional radiologists, family physicians, ultrasound scan experts, endocrinologists and primary care providers. These initiatives have expanded the reach of advanced and personalized treatments.

Public Awareness and Health Promotion



Prof. Terzic at the IVs International Conference „Multidisciplinary Approach to providing Obstetric and Gynecological Care on 23.10.2024 in the Radisson Hotel

Recognizing the importance of early detection, Professor Terzic has spearheaded public health awareness aimed at educating women about the symptoms, risk factors, and treatment options for uterine fibroids. These efforts have included comprehensive lectures/presentations on different conferences and scientific events, workshops, community outreach programs, and partnerships with local health organizations to promote timely healthcare access. Recently he held a lecture at IV INTERNATIONAL CONFERENCE: «MULTI-DISCIPLINARY APPROACH TO PROVIDING OBSTETRIC AND GYNECOLOGICAL CARE» organized by AMU on November 22-23, 2024 in the Radisson hotel in Astana. His presentation was titled “Multidisciplinary Approaches in the Management of patients Uterine Myomas,” highlighted these strategies further, showcasing the integration of teaching, research, and clinical practice to improve outcomes for women with fibroids.

Bridging Gaps in Access and Equity, Advancing Research and Personalized Medicine

Despite advancements in treatment, significant barriers to equitable access persist in Kazakhstan. His work aims to bridge these gaps by advocating for policies that prioritize women’s health, expanding healthcare infrastructure, and training more specialists in minimally invasive techniques as well as highlighting the need for multidisciplinary management of patients coming with complaints linked to uterine fibroids. Future research efforts will continue to explore novel biomarkers for early detection and therapies tailored to individual patient profiles. Collaborations with international experts will further enhance Kazakhstan’s capacity to provide cutting-edge care. Through a multidisciplinary framework, physicians belonging to NU Medicine aim to transform uterine fibroid management in Kazakhstan. Roles at NU and UMC have enabled Professor Dr Milan Terzic to lead efforts in teaching, research, and clinical practice that emphasize innovation, collaboration, and patient-centered care. These initiatives not only address the immediate needs of women with fibroids but also build a sustainable model for advancing reproductive health in Kazakhstan and beyond.

COMMUNICATED BY DR. MILAN TERZIC

Graduate School of Public Policy

SUBJECTIVE WELLBEING IN KAZAKHSTAN: EVIDENCE FROM THE SUBNATIONAL LEVEL

Gulnur Makulbayeva, Associate Professor at Academy of Public Administration

Dr. Dina Sharipova and Dr. Gulnur Makulbayeva published a chapter titled "*Subjective Wellbeing in Kazakhstan: Evidence from the Subnational Level*" in the book "Happiness Across Cultures: Views of Happiness and Quality of Life in Non-Western Cultures" by Helaine Selin, and Gareth Davey published by Springer, December, 2024.

Dina Sharipova, Associate Professor at Graduate School of Public Policy

In this chapter, scholars analyze subjective well-being at the subnational level in Kazakhstan between 2011 and 2018, focusing on the impact of age on life satisfaction. Using data from the World Values Survey, the findings indicate a sharp decline in life satisfaction in the northeastern and western regions of Kazakhstan, which is attributed to the demographic composition of the population, poverty, and inequality. Furthermore, the research shows that life satisfaction decreases across all age groups, with a particularly noticeable drop among young people. This decline is explained by high unemployment rates, limited opportunities for political participation, and the government's inadequate response to the needs of the youth.

The second edition of Happiness Across Cultures includes eight new chapters on previously unexplored topics, such as COVID-19, refugees, and violence. The book explores how different cultures experience happiness in distinct ways. Traditionally, Western cultures are considered more materialistic, with happiness often linked to achievement and acquisition. In contrast, Eastern cultures are viewed as more people-oriented, where happiness is derived from deep personal relationships. As a result, poorer individuals in the East may be happier than those in the West because they focus less on possessions and more on social connections. This new edition expands its focus to examine happiness and quality of life in non-Western countries and cultures, offering a more diverse perspective that highlights the unique views of happiness shaped by rich cultural traditions and histories.

To read the full article proceed with the following link.

ISSAI
NAZARBAYEV UNIVERSITY | Institute of Smart Systems and Artificial Intelligence

ISSAI KAZ-LLM MODEL WAS PRESENTED TO THE PRESIDENT OF KAZAKHSTAN

On December 11, 2024, the Institute of Smart Systems and Artificial Intelligence (ISSAI) participated in the AI Demo Day, organized by the Ministry of Digital Development, Innovations and Aerospace Industry of the Republic of Kazakhstan, and presented ISSAI KAZ-LLM model - a Kazakh Large Language Model to the President of the Republic of Kazakhstan, Kassym-Jomart Tokayev.

ISSAI Founding Director Prof. Atakan Varol and ISSAI Executive Director Yerbol Absalyamov had the honor of demonstrating the model to the President.

Tailored to the country's unique multilingual and multicultural context, ISSAI KAZ-LLM supports Kazakh, Russian, and English, with additional capabilities in Turkish. This makes it a bridge across linguistic divides and a key tool for advancing generative AI in low-resource languages.

The ISSAI team collected, processed, synthesized, and translated more than 150 billion tokens of information (words) ensuring robust language performance. The model's training has achieved competitive results in Kazakh, Russian, and English, rivaling global AI leaders. The work on the project started in April 2024, and training of the model required five months. Training data were sourced exclusively from publicly available resources, such as Kazakh websites, news articles, and

online libraries, supplemented by data contributions from various organizations.

ISSAI KAZ-LLM provided a unique hands-on experience to local IT talent, strengthening national AI capabilities. Kazakh researchers participated in all stages of the process, from data preparation to model deployment, creating the foundation for sustainable innovation in artificial intelligence. The project contributed not only to the creation of an advanced AI tool but also to the growth of Kazakhstani AI specialists.

Moreover, during the Demo Day ISSAI also presented to the Head of State its first commercial product Soyle App. This product recognizes speech, synthesizes voice, and instantly translates into Kazakh, Russian, English, and Turkish, serving as a universal communication tool in the country's rapidly evolving digital landscape.

President Tokayev expressed his strong support for the ISSAI projects and initiatives. He emphasized that the ISSAI Kaz-LLM model is one of the main components of AI development in Kazakhstan. He thanked the Institute's team for their dedication and professionalism.

NAZARBAYEV UNIVERSITY WILL BE ONE OF THE CORE PARTNERS IN DAAD-FUNDED SDG NEXUS NETWORK PROJECT

As one of the project's core partners in this project, SDSN Kazakhstan will receive direct funding from JLU university to lead research initiatives. The research project entitled «*The SDG Nexus Network (SDGNN)*», established 2020 during the first phase of the exceed program, is dedicated to investigating the complex interactions between the Sustainable Development Goals (SDGs) and their implications for sustainable development pathways. Its research is based on the mutual interaction – the nexus – between SDGs.

The SDG Nexus Network is a global community of universities, research centers, and stakeholders committed to promoting the Agenda 2030 for sustainable development. The SDG Nexus Network is a part of the DAAD "Higher Education Excellence in Development Cooperation – exceed" program and, as such, it aims to strengthen higher education for enabling effective and innovative contributions to the Sustainable Development Goals (SDGs) of the United Nations.

Research framework: Based on the research conducted and the experience gained in the first phase, the SDGNN will concentrate its research efforts on two key nexus topics – Land use and Water – fostering to build an even stronger expertise and more in-depth collaboration within each domain. Climate change and biodiversity as well as governance and gender are seen as cross-cutting themes, linking these two areas of research. To realize this research concept, eight thematic SDG Nexus Network Research Groups lead will be set up, each focusing on one of the key nexus topics.

SDSN KAZAKHSTAN PRESENTS SDG BAROMETER PROJECT AT PARLIAMENTARY COMMISSION

On December 13, 2024, the Senate of the Republic of Kazakhstan hosted an *Expanded Meeting of the Parliamentary Commission for Monitoring the Implementation of National Goals and Objectives on Sustainable Development*.

The meeting focused on the role of Parliaments and local representative bodies in promoting sustainable development across the Central Asian region. Participants, including members of the parliamentary commission, experts, and invited stakeholders, reviewed Kazakhstan's progress toward achieving the SDGs over the past 10 years. They also identified key challenges impeding regional sustainable development.

«Today, the contribution of national Parliaments to achieving the SDGs is noticeably increasing, particularly in areas such as ecosystem preservation, water, and energy security. We must intensify joint efforts in inter-parliamentary cooperation to ensure harmonious, inclusive, and balanced regional development. Local authorities also play a critical role. Success in advancing the sustainable development agenda at the local level depends on their active participation. It is important to involve local representative bodies in our dialogue and develop unified approaches to addressing local population challenges through the lens of the SDGs,» noted Maulen Ashimbayev, Chairman of the Senate.

During the meeting, Dr. Serik Orazgaliyev, Co-Chair of SDSN Kazakhstan and a member of the Experts Club under the Senate, presented the SDG Barometer project, implemented with the support of a grant from the Ministry of Science and Higher Education.

The SDG Barometer Kazakhstan 2024 is an initiative of the Sustainable Development Solutions Network Kazakhstan, designed to gather comprehensive and inclusive data on public opinions, expectations, and priorities regarding the UN Sustainable Development Goals (SDGs). The survey engaged over 3,000 respondents across 17 regions and 3 major cities of Kazakhstan, addressing national, subnational, and individual perspectives on the most pressing issues. Its methodology strictly adhered to the «leaving no one behind» principle, ensuring the collection of granular data to reflect the voices of diverse population segments.

The project presentation was met with great interest, and the Chairman of the Senate, Maulen Ashimbayev, emphasized that the study's results would serve as a valuable resource for the Parliament to further evaluate key indicators and trends related to Kazakhstan's sustainable development efforts.

INTERNATIONAL RESEARCH COOPERATION UNDER HORIZON EUROPE

Horizon Europe Events in Central Asia, November, 2024

SDSN Kazakhstan participated in two key events in Central Asia: the workshop "Unlocking European Union – Central Asia Research Cooperation under Horizon Europe" in Tashkent, and the International Conference "Opportunities for Turkmenistan's Participation in Horizon Europe" in Ashgabat.

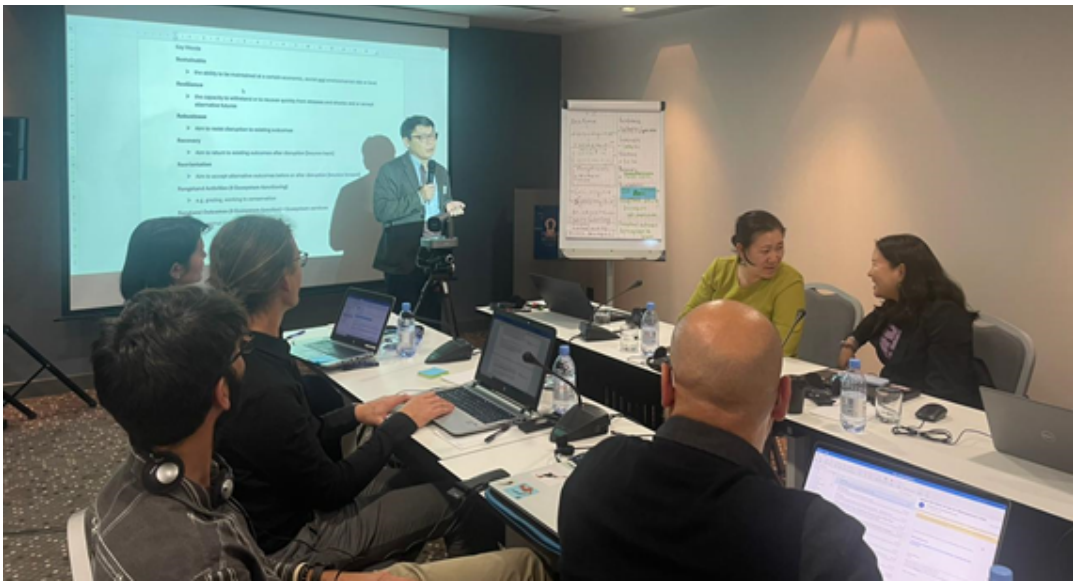
These events were organized by the European Union-funded project "Sustainable Energy Connectivity in Central Asia (SECCA)" to raise awareness among government bodies, universities, research institutions, and innovation agencies about the Horizon Europe programme, with a specific focus on Cluster 5: Climate, Energy, and Mobility. The events highlighted funding opportunities, participation rules and conditions, and showcased projects and initiatives supported by Horizon Europe in the Central Asian region.

Activities under Cluster 5 support research and innovation efforts aligned with the Paris Agreement and the United Nations Sustainable Development Goals (SDGs), facilitating the green transition, reducing greenhouse gas emissions, and fostering clean energy systems. These activities also promote efficient, sustainable, and inclusive energy access.

At the events, Malika Tazhmuratova, Manager of SDSN Kazakhstan and a National Contact Point for Cluster 5, shared practical insights from Kazakhstan's participation in Horizon Europe. She also highlighted national-level networking and promotional activities aimed at increasing engagement in the programme.

Horizon Europe is the European Union's flagship research and innovation programme, running from 2021 to 2027, with a budget of EUR 95.5 billion. As one of the largest funding programmes globally, it supports research initiatives in EU Member States and third countries, including the Central Asian Republics. To date, 33 projects and 47 organizations from Central Asia have benefited from Horizon Europe and its predecessor, Horizon 2020.

KICK-STARTING THE SNAPP WORKING GROUP ON RESILIENT RANGELANDS: A COLLABORATIVE STEP TOWARD SUSTAINABLE SOLUTIONS



On November 5-6, 2024, the inaugural meeting of the "Resilient Rangelands: Balancing Rural Economies and Ecosystem Integrity" project took place in Almaty, Kazakhstan. This project, funded by the Science for Nature and People Partnership (SNAPP), aims to develop models that will shape the next phase of nature conservation and sustainable development.

The working group includes 12 key partners: SDSN Kazakhstan, conservation NGOs, international agencies, herder associations, and university research centers. Together, they will focus on identifying the key features of resilient rangelands that support both livelihoods and biodiversity through sustainable land and water management practices.

By employing participatory approaches, the group will develop scenarios for two case-study landscapes: one in western Kazakhstan and another in eastern Mongolia. These scenarios will explore synergies and trade-offs, helping to create spatial plans and management options that can guide future projects and inform national policy frameworks. With active involvement from regional and national stakeholders, the group will ensure the insights gained are practical, relevant, and aligned with the needs of both conservation and agriculture.

The meeting served as a crucial step in laying a strong foundation for the working group, fostering a shared understanding of the project's scope, key challenges, and the trade-offs inherent in rangeland systems. Participants explored how resilience and trade-offs are interlinked, and how these dynamics influence rangeland management. This clarity will help define the group's direction and objectives moving forward.

The session also introduced participants to the foresight scenario development framework, a vital tool for resilience planning in rangeland ecosystems. Through hands-on exercises, participants refined methodologies for linking qualitative scenarios to quantitative outcomes, equipping them with the tools needed to forecast and plan for future challenges.

This meeting marked the beginning of a collaborative journey that will continue over the next two years, with the goal of fostering sustainable rangeland management that balances ecological integrity with the livelihoods of local communities.

SDSN KAZAKHSTAN TAKES PART IN THE CONVERGENCE INITIATIVE BY UN FAO

On October 23-24, a National Inception Workshop for the Convergence Initiative took place in Astana, Kazakhstan, marking a significant step in aligning food systems transformation with climate action.

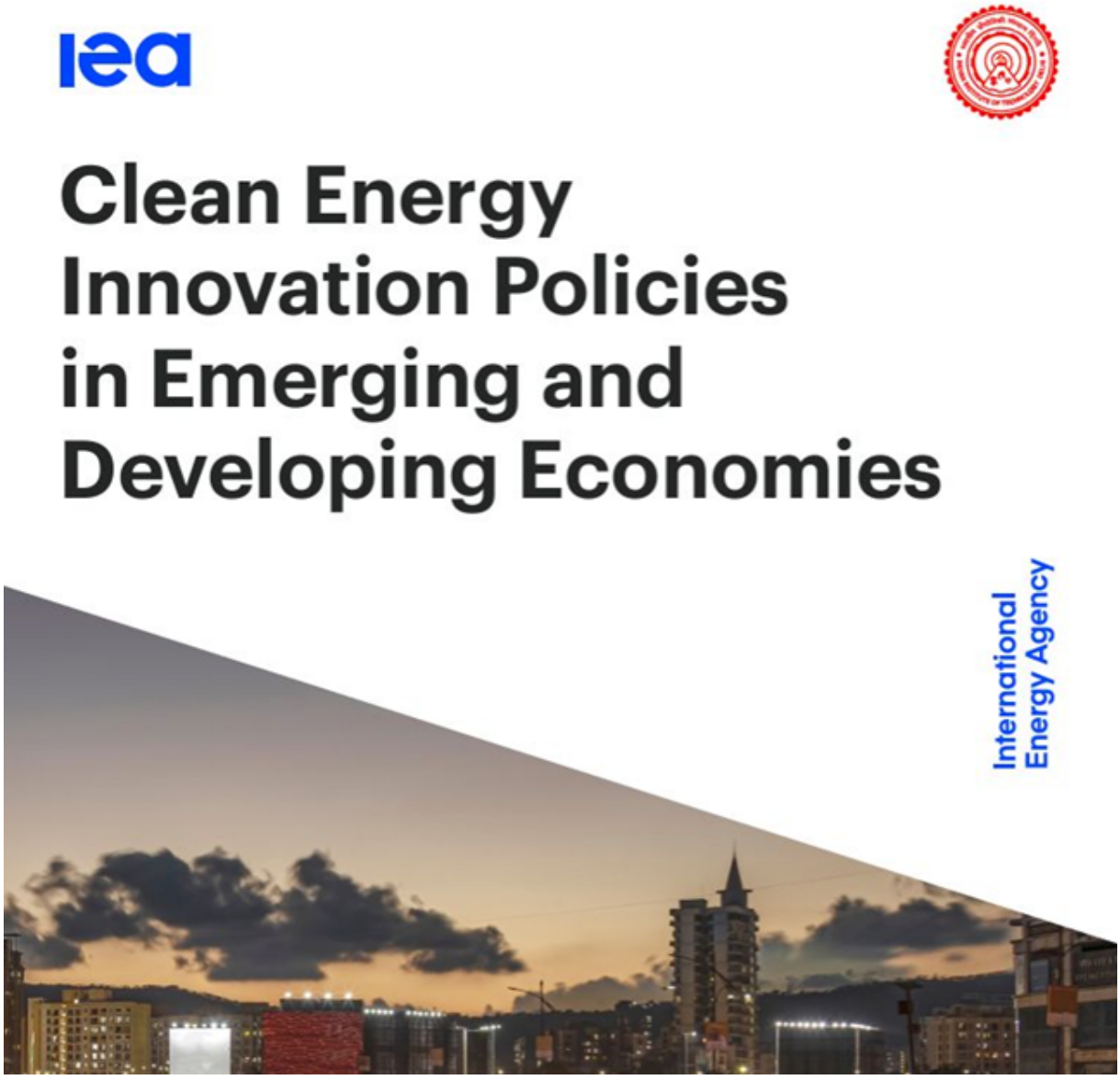
The workshop, organized in collaboration with the UN Food Systems Coordination Hub, Kazakhstan's Ministry of Agriculture, the UN Issue-Based Coalition on Sustainable Food Systems (IBC-SFS), and the Food and Agriculture Organization (FAO), brought together key food systems actors, including policymakers, technical experts, private sector leaders, youth, and civil society. This diverse group united to develop a practical roadmap for action, highlighting Kazakhstan's leadership in modernizing agricultural systems while addressing the broader climate crisis.

The Convergence Initiative aims to support national efforts to advance the alignment between the "food systems transformation" and "climate action" agendas to enable governments and relevant actors at the national level to strengthen synergetic action that will simultaneously support the achievement of the Sustainable Development Goals (SDGs) and the Paris Climate Agreement. To operationalize and ground the Convergence Initiative in different country contexts and realities, the UN Food Systems Coordination Hub supports pilots in selected countries across the globe. Kazakhstan will be the first pilot country in Europe and Central Asia, providing an opportunity to capitalize on the important strides and progress made on the food systems and climate action agendas. The pilot will be implemented in close collaboration with the Ministry of Agriculture of the Republic of Kazakhstan, the National Convenor, and the UN Issue-Based Coalition on Sustainable Food Systems (IBC-SFS).

Malika Tazhmuratova, the manager of SDSN Kazakhstan, provided insights into the “Resilient Rangelands: Balancing Rural Economies and Ecosystem Integrity” project. This initiative, funded by the Science for Nature and People Partnership (SNAPP), involves SDSN Kazakhstan as a key participant in the working group. Together with other 16 institutions, the SDSN Kazakhstan will help explore the ways to optimize management of Kazakh and Mongolian rangeland ecosystems to harmonise objectives of nature conservation and agricultural development. The project outputs will result in spatial plans and management options to guide project delivery and provide evidence to develop supportive policy frameworks at national levels.

The workshop became the first step and an important milestone of the pilot in Kazakhstan, to review national needs, discuss priorities, and agree on means to enhance synergetic action and policy coherence for food systems transformation and climate action.

SDSN KAZAKHSTAN CONTRIBUTES TO THE INTERNATIONAL ENERGY AGENCY'S (IEA) CASE STUDY COLLECTION



The SDSN Kazakhstan team of researchers — Dr. Stefanos Xenarios, Dr. Stella Tsani, Dr. Aliya Sembayeva, and Dr. Serik Orazgaliyev — authored a chapter in the IEA's report on Clean Energy Innovation Policies in Emerging and Developing Economies. The national case study article entitled "Energy and industrial transitions, and Kazakhstan's sovereign wealth fund" specifically explores approaches to achieve carbon neutrality and decrease emissions in alignment with the Paris Agreement.

This report presents 11 new case studies, authored by national experts, that cover a range of technologies and highlight distinct aspects of the energy innovation process across diverse settings in Argentina, Brazil, China, Colombia, India, Kazakhstan, Kenya, Mexico, Morocco, Nigeria and South Africa.

The chapter on Kazakhstan examines clean innovation policies and support in Kazakhstan focusing on the role of its Sovereign Wealth Fund SAMRUK-KAZYNA. Samruk-Kazyna, which owns industrial and commercial firms accounting for about 40% of national GDP, has initiated several energy innovation initiatives to curb emissions and stimulate economic development in its portfolio, contributing to national carbon reduction efforts. The chapter highlights the unique position of Samruk-Kazyna in Kazakhstan to channel capital towards long-term socioeconomic and environmental objectives in a manner that may not be feasible for private investors in similar emerging market economies. Unlike private investors who face pressure to prioritise short-term returns, the long-term value of Samruk-Kazyna's portfolio is intricately tied to climate change and its enduring effects. This linkage presents an opportunity to integrate climate risk into the core of its corporate strategy while also providing an economic foundation for the nation.

The key findings of the report include:

- Effective innovation ecosystems can look very different depending on a country's resources and institutional history;
- There is huge potential for all countries to innovate the clean energy technology improvements the world needs, and for international innovation co-operation to support developing countries with their development, climate and energy security goals;
- It is important that domestic policy and international support account for local contexts and identify areas for sharing experiences between governments.

The full report is accessible via the link (the chapter on Kazakhstan is on pp. 139-156).

A NEW ARTICLE IS OUT: CLEAN ENERGY CHALLENGES AND INNOVATION OPPORTUNITIES IN KAZAKHSTAN

The SDSN Kazakhstan team has published an article on «*Clean energy challenges and innovation opportunities in Kazakhstan*» in the Environmental Research Communications (ERC) Q1 Journal.

This study identifies and assesses the enablers and barriers related to clean energy innovation in Kazakhstan. Using the combination of SWOT analysis, survey data from 41 experts and the DEMATEL decision support tool, the authors evaluated the key factors affecting Kazakhstan's clean energy innovation and their implications for energy transition.

Assessment results show that the immature business environment, underpinned by technological, institutional, and socioeconomic factors, is perceived as a high-impact constraint for clean energy innovation and green finance deployment in Kazakhstan. Skilled labour shortages, high reliance on hydrocarbons and low retail energy prices are significant challenges to Kazakhstan's clean energy innovation. The low-profit margin and high investment risk in clean energy projects are identified as transition barriers in the power and energy-intensive industries. In contrast, Kazakhstan's endowments of resources critical for developing clean energy technologies (rare earth metals, uranium, gas) and the potential of low-carbon investments (e.g. carbon storage) are perceived as prominent enablers of clean energy innovation. Results are consistent across expert subgroups (academia, industry, NGOs, etc). Findings call for policy support to modern and attractive business environments, capacity, and human capital development. The findings can provide helpful insights for countries in Central Asia and beyond with similar socioeconomic structures that aim for a timely energy transition.

The full article can be found here.

SDSN KAZAKHSTAN PARTICIPATES IN THE ADAPTABILITY, RESILIENCE, AND SUSTAINABILITY CONFERENCE (ADRES-2024)

The Co-Chair of SDSN Kazakhstan, Dr. Serik Orazgaliyev, delivered a keynote speech at the Adaptability, Resilience, and Sustainability Conference (ADRES-2024): An ESG-oriented and SDG-driven interdisciplinary annual conference organized by the London Institute of Social Studies on November 23, 2024.

ADRES-2024 serves as a premier platform for exchanging cutting-edge ideas and strategies to foster resilience, adaptability, and sustainability in businesses and educational systems. The conference aims to equip stakeholders with the necessary skills and knowledge to thrive in an ESG-oriented and SDG-driven environment through interdisciplinary collaboration and shared expertise.

NAZARBAYEV UNIVERSITY
CENTRAL ASIAN RESEARCH CENTRE FOR EDUCATIONAL INNOVATION AND TRANSFORMATION (CARCEIT)

The Central Asian Research Centre for Educational Innovation and Transformation (CARCEIT) is dedicated to advancing education research and innovation in Central Asia. As part of the Graduate School of Education at Nazarbayev University, CARCEIT aims to shape global knowledge, influence education policy and leadership, and build a robust regional research community. CARCEIT is dedicated to driving innovation and transformation of educational practices across the region.

Dear Readers,

I am truly excited to welcome you to this latest edition of the CARCEIT Research News, your portal to the world of educational innovation at the Central Asian Research Centre for Educational Innovation and Transformation (CARCEIT). Since our launch on November 15, 2022, we have blossomed into a vibrant hub of excellence and creativity in Central Asia, all thanks to the generous support from the Nazarbayev Fund and the inspiring leadership of Dr. Aida Sagintayeva, Vice-Provost of Academic Planning and Budget and Dean of the Graduate School of Education (GSE). Nestled within the GSE and guided by our dedicated Steering Committee, chaired by Professor Chester Jablonski, NU Vice Provost for Research, we are committed to making a real difference in educational research, policy development, and its practical application.

As we wrap up the fall term, I am proud to share our significant accomplishments with you. In this edition, you'll find highlights of our various research events, stakeholder engagements, capacity-building initiatives, publications, and staffing updates that showcase our progress since October this year. I invite you to join us on this exciting journey of educational transformation. Get involved, stay connected with us through our social media channels, and help shape the future of education in Central Asia and beyond.

Wishing you all a joyful New Year and a restful winter break!

Professor Naureen Durrani
Director, CARCEIT
Phone: +7 (7172) 70 63 51 | Email: carceit@nu.edu.kz | Website: carceit.nu.edu.kz
Address: 53 Kabanbay Batyr Avenue, Astana, Kazakhstan | Block C3, Office 5063
Follow CARCEIT: Facebook | Instagram | LinkedIn | X (Twitter)

NEW PUBLICATIONS

Lessons Learned from the Experiences of Domestic Violence Service Providers in Times of Crisis: Insights from a Central Asian Country

Domestic violence intensifies during crises, with existing gender inequalities worsened. This qualitative study examines how professionals in Violence Against Women (VAW) organizations in Kazakhstan adapted during the COVID-19 pandemic. Based on interviews with 45 professionals, the study highlights challenges such as reduced capacity, increased demand, remote service shifts, and funding cuts. It underscores the critical role of VAW organizations in both crisis and stable times and offers strategies to help achieve SDG 5.2 (ending violence against women) and SDG 3.8 (access to healthcare and support).

> Karabay, A., Akhmetova, S., & Durrani, N. (2024). Lessons Learned from the Experiences of Domestic Violence Service Providers in Times of Crisis: Insights from a Central Asian Country. *International Journal of Environmental Research and Public Health*, 21(10), 1326. https://doi.org/10.3390/ijerph21101326

Faculty perspectives on the changing research and teaching career tracks of academics at private universities in Kazakhstan

As part of the CARCEIT alumni grant, Dr. Dinara Mukhamejanova and Dr. Gulfiya Kuchumova have published an article exploring how faculty at private universities in Kazakhstan are adapting to separate teaching and research career tracks. This shift, aimed at boosting productivity and competitiveness, offers insights into the evolving academic landscape in Kazakhstan, examining faculty experiences, performance evaluation, and career advancement.

> Mukhamejanova, D., & Kuchumova, G. (2024). Faculty perspectives on the changing research and teaching career tracks of academics at private universities in Kazakhstan. *Studies in Higher Education*, 1–16. https://doi.org/10.1080/03075079.2024.2426533

Thirty years of gender mainstreaming: Evolution, development, and future research agenda through a bibliometric approach

While gender mainstreaming (GM) is globally recognized as a key strategy for realizing gender equality and achieving the Sustainable Development Goals, the evolution and development of GM research have yet to be analyzed. This article fills this gap in knowledge by undertaking a bibliometric analysis of the GM literature. GM has predominantly been researched in relation to public policy and decision-making, while research involving international human rights, peacekeeping, higher education, teaching, and curriculum is still developing. These emerging themes offer opportunities for researchers to align their future research agendas within GM.

> Kataeva, Z., Durrani, N., Izekenova, Z., & Roshka, V. (2024). Thirty years of gender mainstreaming: Evolution, development, and future research agenda through a bibliometric approach. *Women's Studies International Forum* 107, 103010. Pergamon. https://doi.org/10.1016/j.wsif.2024.103010

KNOWLEDGE EXCHANGE

Meeting with scholars at Zhubanov University

On November 7, 2024, the Strengthening Regional Universities project team, consisting of the Postdoctoral fellow Zhadyra Makhmetova, and two research assistants: Adiya Ibrayeva, and Ayaulym Duyssembekova, held a productive meeting with emerging scholars at Zhubanov University in Aktobe. The main objective of the meeting was to share their valuable insights and experiences as researchers within Kazakhstan's academic landscape. The team facilitated an in-depth discussion on various aspects of the research process, focusing on essential topics such as effective research methodologies, the intricacies of academic publishing, networking strategies for professional growth, and the significance of active participation in conferences.

Additionally, the team emphasized the importance of pursuing advanced research opportunities and career paths, highlighting programs such as the NUGSE Master's and PhD programs as key avenues for further academic development. This meeting provided a platform for exchanging ideas, and strengthening the academic ties between emerging scholars in regional universities and NUGSE researchers in Kazakhstan.

QazGreen project Seminar

From November 25 to 29, the QazGreen Health Project team conducted a series of impactful seminars and workshops in Shymkent as part of a local impact initiative to enhance healthcare education and practices in Kazakhstan. Organized in collaboration with the South Kazakhstan Medical Academy (SKMA), the seminars brought together healthcare professionals and students to share knowledge and expertise. This effort was led by Associate Professor Jonas Cruz, Assistant Professor Paolo Colet, and Meruyert Smagulova, project research assistant, with exceptional organizational support from Aizat Seidakhmetova in Shymkent.

Students participated in a three-day seminar focused on conducting research from scratch. Dr. Jonas Cruz delivered insightful lectures covering the theoretical aspects of the research journey, followed by hands-on workshops where students developed their own research projects. These sessions aimed to build foundational skills and inspire future healthcare researchers.

Healthcare professionals, primarily practicing nurses, attended a two-day seminar addressing the practical implications of ecological sustainability in healthcare organizations and quality improvement practices. These sessions included collaborative workshops where medical professionals worked in teams to identify existing challenges and propose actionable solutions.

Both students and medical workers demonstrated enthusiasm and engagement throughout the seminars. They showed a strong desire to acquire new skills and knowledge while sharing their own experiences. Feedback collected from participants revealed high levels of satisfaction with the seminar series, with many expressing interest in attending similar events in the future.

Participants shared comments such as: “I want to highlight the seminar’s excellent preparation level; the information from the professors was valuable and very useful”, “Visit more often; it was very interesting”, “A serious approach with clear and interesting explanations”, “We found answers to all our questions.”

These responses underscore the relevance of the seminars and the growing commitment among healthcare professionals to promoting ecological sustainability within the field. This seminar series exemplifies how collaboration and shared learning can drive positive change in healthcare education and practice.

Quality Early Childhood Education in Australia - Online workshop for key stakeholders

On December 12, 2024, the Nurturing Young Minds (NYM) project team hosted an online workshop on Quality Early Childhood Education and Care, featuring Prof. Patricia Eadie, Director of the REEaCh (Research in Effective Education in Early Childhood) Centre at the University of Melbourne, Graduate School of Education (Australia). The event gathered representatives from the Ministry of Enlightenment, UNICEF, the National Early Childhood Education Institute, national ECEC experts, and staff from kindergartens and care centers across Kazakhstan.

Opening remarks were delivered by a representative of the Ministry of Enlightenment's Department of Early Childhood Education, emphasizing the importance of fostering innovation and collaboration to enhance early childhood education in the country. Prof. Eadie's keynote presentation highlighted evidence-based approaches to early childhood education in Australia, with practical examples of curriculum design, teacher training, and family engagement strategies, sparking discussions on their relevance and adaptability to Kazakhstan's context. The workshop concluded with actionable insights on adapting best practices to Kazakhstan, along with strengthened networks among stakeholders for ongoing collaboration. This event aimed to serve as a platform for knowledge exchange to inspire impactful improvements in early childhood education nationwide.

Zoom video recordings in English, Kazakh and Russian languages are available on our website.

Guest lecture at the Law Enforcement Academy

On December 12, 2024, CARCEIT post-doctoral research fellows Dr. Zhadyra Makhmetova and Dr. Laura Ibrayeva delivered an engaging guest lecture to 1st-year PhD students at the Law Enforcement Academy under the Prosecutor General's Office of the Republic of Kazakhstan. They shared valuable insights on conducting qualitative research in the fields of law, legal studies, and law enforcement, covering essential topics such as research topics, research problems, data collection, and analysis. The session proved to be an enriching experience for both the students and the presenters, fostering mutual learning and dialogue.

Updates from the Positive Peace project

As a follow-up to the intensive workshops held in summer 2024, the “Student Peace Ambassadors” participants submitted reports in September, October, and November, showcasing their work, highlighting the transformative changes they initiated within their communities and underscoring the importance of peace education.

During the visit to Cambridge, the team members had the honor of presenting the Positive Peace Ambassadors project at a roundtable with global experts at the University of Cambridge. Supported by the NU Social Development Fund, this presentation covered the project's goals, the structure of the workshops, and the inspiring initiatives spearheaded by Kazakhstani teachers and students.

One standout feature of the project is the creativity of the student-led initiatives. For instance, some students developed websites to support and promote the work of Peace Ambassadors. These digital platforms serve as dynamic hubs for sharing resources, connecting with peers, and showcasing peace-building activities in schools and communities.

Other impactful initiatives include empathy workshops, peer mediation circles, and the use of online tools to expand the reach of peace education efforts. The roundtable participants were deeply inspired by these efforts, particularly the active role students played in leading peace initiatives. The discussion highlighted the universal value of skills like active listening and conflict resolution and explored how this model could be adapted to other global contexts. The sight of students taking ownership of peace-building sparked a lively exchange of ideas, with many experts praising the project’s innovative approach to fostering positive change.

Highlights from the 8th Module of the "Academic Leadership Institute: Deans' School"

On December 3-4, 2024, Professor Naureen Durrani coordinated the 8th module of the "Academic Leadership Institute: Deans' School" program at the Graduate School of Education at Nazarbayev University. This dynamic event brought together 75 deans from various regional universities across Kazakhstan, all eager to deepen their understanding of "Research Management." This module was designed specifically to empower deans at regional universities to enhance the research capabilities of their faculty and students while fostering a culture of innovation. And it truly delivered! Through a blend of productive discussions, hands-on exercises, and networking opportunities, participants engaged in meaningful conversations about strategic planning for research activities, effective resource management, and cultivating research skills among both faculty and students.

The first day kicked off with an inspiring welcome from Aida Sagintayeva, the Dean of the Graduate School of Education and Vice-Provost for Academic Planning and Budget. Her passionate speech highlighted the vital role that deans play in fostering scientific research and innovation within our universities. Alongside Chet Jablonski, the Vice-Provost for Research, Professor Durrani led a session on "Strategic Planning of Research Activities and Resources." Participants also enjoyed engaging in workshops on topics like peer-reviewed publications and Intellectual Property Management.

Day two was equally compelling, featuring discussions on critical topics such as support for research initiatives, international scientific collaboration, university rankings, journal metrics, and the effective management of laboratories and scientific infrastructure. A standout moment was the opening session by Darkhan Ahmed-Zaki, the Vice-Minister for Higher Education and Science, who shared valuable insights on securing grants and funding, as well as strategies for building international partnerships.

Professor Durrani extends her heartfelt appreciation to Zhanyl Zhontayeva and her team for their exceptional organisation, which played a crucial role in the module's success. She also thanks all the facilitators—Dr Abuzhappar Gaipov, Dr Anas Hajar, Dinara Berdykhanova, Dr Dina Sharipova, Assanbay Jumabekov, Dr Shazim Memon, and Aidos Baumuratov—for their engaging workshops that enriched the participants' learning experience.

This module not only equipped deans with valuable tools and insights but also fostered a collaborative spirit among leaders in academia, setting the stage for a brighter future in research and innovation across Kazakhstan's educational landscape. We look forward to seeing the impactful changes that will emerge from this initiative and the continued growth of research excellence in Kazakhstani universities!

CABACITY BUILDING EVENTS

Strengthening Regional Universities Project Collaborative Activities

The research team from CARCEIT's project, "Strengthening Regional Universities in Kazakhstan," led by Professor Ahmet Aypay, completed an impactful series of collaborative activities in Petropavl, Aktobe, and Astana between October 28 and November 12, 2024. These efforts aimed to establish robust partnerships, enhance research capacities, and contribute to the strategic development of regional universities.

A key component of the visit to Petropavl and Aktobe was a series of expertly conducted seminars and workshops tailored for faculty and staff. On October 28, Dr. Alper Çalıkoğlu delivered a workshop on Systematic Literature Review to faculty members and Ph.D. students. This session meticulously guided participants through methodologies and tools essential for conducting rigorous academic research. The following day, October 29, Dr. Zhadyra Makhmetova hosted a seminar on Curriculum Development and Assessment in Higher Education, where she shared innovative strategies for designing effective and impactful curricula. On October 30, Dr. Dana Embergenova led an engaging session on Qualitative Research Methods, providing participants with practical insights into applying qualitative approaches in education and social sciences.

In Aktobe, the academic activities continued with a seminar on Quantitative Methods led by Professor Ahmet Aypay on November 4. This session offered university faculty members a detailed exploration of research design and data analysis techniques, deepening their understanding of quantitative approaches. To ensure accessibility, Dr. Makhmetova supported the seminar by providing translations in Kazakh. On November 5, Dr. Makhmetova conducted a second workshop on Systematic Literature Review, equipping participants with hands-on skills in planning, conducting, and organizing systematic reviews. She introduced specialized tools like Covidence and Zotero, along with databases such as Scopus and Web of Science,

enabling participants to streamline their research processes. On November 6, Dr. Makhmetova continued her efforts by facilitating a workshop on Curriculum Development and Assessment in Higher Education. This session fostered a rich dialogue among participants on aligning curricula with contemporary educational demands and evaluating their effectiveness.

Beyond academic engagements, the team actively explored opportunities for collaboration between universities, local industries, and government. Visits to enterprises such as Kdr.kz 'Raduga,' the Kirov Plant, and the Aktobe Metallurgy Factory provided valuable insights into the synergies between academia and industry. These companies shared their experiences with university collaborations and offered practical recommendations for strengthening these partnerships in the future. Additionally, discussions with local government representatives enriched the team's understanding of regional priorities and the role universities can play in driving economic and social development.

On November 12, 2024, the research team concluded their visit with a seminar on the Strategic Development of Universities, presented as part of the Dean's School, a professional development program organized by Nazarbayev University's Graduate School of Education (NUGSE) for deans and middle managers from Kazakhstani universities. During this seminar, Dr. Makhmetova shared findings from her analysis of the strategic plans of regional universities, offering actionable insights to participants and inspiring them to consider innovative approaches in their institutional strategies.

This journey to Petropavl, Aktobe, and Astana was far more than a collection of workshops and meetings. It represented a transformative exchange of ideas, experiences, and aspirations. Through building partnerships, empowering educators, and fostering connections with industries and governments, the CARCEIT team made significant strides toward the shared goal of strengthening regional universities in Kazakhstan and positioning them as engines of regional and national development.

Nurturing Young Minds project visit to the University of Melbourne, Australia

In November 2024, the Nurturing Young Minds (NYM) research team members Prof. Daniel Hernández-Torrano (PI) and postdoctoral fellow Dr. Laura Ibrayeva, visited the Graduate School of Education at the University of Melbourne. The visit facilitated productive discussions with Prof. Dianne Vella-Brodrick, Director of the Centre for Wellbeing Science (CWS), and Prof. Patricia Eadie, Director of Research in Effective Education in Early Childhood (REEaCh), and their teams.

The visit was instrumental in deepening the collaboration between the CARCEIT NYM team and their international partners at the University of Melbourne through alignment on project goals, data analysis strategies, dissemination plans, and future research opportunities.

A key outcome of the visit was the refinement of an art-based data collection and analysis approach, resulting in the development of a robust codebook and systematic protocol to interpret the data. Significant progress was also achieved in consolidating critical decisions on a systematic literature review examining the effects of positive psychological interventions on young children's mental health and well-being.

The collaborative efforts at the visit focused on thematic analysis, drafting sections of the manuscript, and integrating targeted feedback. Additionally, the NYM team attended the Education Research Conference 2024, organized by the Graduate School of Education, which offered insights into academic trends and event management practices that can inform and enhance the research culture at Nazarbayev University Graduate School of Education.

The visit also featured strategic planning discussions on the following stages of the project and potential opportunities for broader international collaboration. This milestone marks an important step in advancing impactful global research on the well-being of young populations in Kazakhstan and beyond.

Positive Peace project visit to the University of Cambridge

The CARCEIT research team working on the ICEP project “Positive Peace Education in Kazakhstan,” recently completed a productive and inspiring week at the University of Cambridge in the UK. Nazarbayev University's Graduate School of Education Professor Lynne Parmenter, along with research assistants Aizat Arystanbek and Gulbagira Toleu, and former research assistant Assylzhan Ospanbek who is now a PhD student at Cambridge University, participated in transformative discussions and forged meaningful connections with leading experts in peace education including Professor Hilary Cremin, project co-PI and Dean of the Faculty of Education at the University of Cambridge, during the second week of November 2024.

The team engaged in discussions with other global peace education experts and representatives of Cambridge Assessment on the development of a global positive peace education curriculum and future international collaborative work. Participants made commitments to support the project through e-resources, focus groups, and other actionable steps - exciting times ahead for global impact!

The CARCEIT team presented a comprehensive overview of their project, detailing its goals, methodology, and preliminary findings from 23 interviews conducted across seven schools. Using UNESCO’s “Ways of Being,” “Ways of Knowing,” “Ways of Living Together,” and “Ways of Doing” as organizing themes, the presentation led to rich discussion of issues shared across diverse country contexts, including urban-rural inequities, progress towards inclusive education, pressures on teachers, and the impacts of structural and cultural violence.

A Professional Development Program "Enhancing Research Productivity of Faculty at Regional Universities"

A Professional Development Program (PDP) was organized on November 20-21 as part of a research grant supported by CARCEIT. The program welcomed 11 faculty members from Semey, Petropavl, and Kokshetau. Designed to address needs identified through research with regional universities, the PDP focused on enhancing research productivity and empowering academic growth.

The program featured contributions from esteemed speakers, including Dr. Naureen Durrani (Director of CARCEIT), Andrew G. Drybrough, Dr. Shazim Memon, Prof. Michael Tsediso Makoelle, Dr. Elaine Sharplin, and Dr. Luis Ramon Rojas-Solórzano. A notable session on grant application procedures, delivered by Dr. Kairat Moldashev (SDU), was particularly well-received by participants. The event concluded with a workshop led by co-grantees Aida Nuranova, Kairat Kurakbayev and Inara Akhmetova, providing valuable insights and a strong finish to the two-day program.

This initiative underscored the importance of collaboration in building research capacity and strengthening academic networks across Kazakhstan. The enthusiasm and active participation of attendees demonstrated a shared commitment to advancing research and higher education excellence.

Celebrating Women's Leadership: Prof. Durrani Speaks at Amanat Party's Anniversary

On November 18th, Professor Durrani had the honour of addressing an inspiring event organised by the Women's Wing of the Amanat Party to celebrate its first anniversary. A special thank you goes to Dr. Assel Sharimova for her invaluable logistical support and for providing simultaneous translation of her talk.

The gathering was a remarkable assembly of influential figures, including the Parliament Chairperson, the head of the National Commission for Women Affairs, Family and Demographic Policy under the President of Kazakhstan, parliament members, local activists, and Amanat Party members from various regions of Kazakhstan. Additionally, women leaders from Central Asia, Azerbaijan, and Turkey joined us, fostering an essential dialogue on gender, leadership, and education.

In her presentation, Prof Durrani covered critical themes surrounding women leaders and gender equality in leadership roles and beyond. She emphasised the importance of advocacy, representation, and policy development in cultivating an equitable organisational culture. Drawing on key insights from her research, including her forthcoming book, Gender and Education in Central Asia (https://link.springer.com/book/9783031753008), she highlighted the pervasive gender bias and structural barriers that impede progress toward gender equality in Central Asia. This led to engaging discussions about the intersection of gender and national identity in education, the challenges women face in STEM careers, and the urgent need for transformative approaches to dismantle entrenched gender norms that limit the potential of all individuals.

Prof Durrani underscored the vital role of education as a catalyst for social transformation, emphasising strategic planning and thoughtful implementation to realise this potential. By cultivating a collective commitment to gender equality, we can pave the way for meaningful progress and create an environment where everyone—regardless of gender—can thrive.

CARCEIT SEMINARS

CARCEIT continues to host regular seminars, featuring researchers from NU GSE and guest speakers from other institutions. Below is a brief overview of the seminars held between October and December 2024. Recordings of these seminars are available on our website.

Soviet Legacy in Education - Seminar featuring Nurgul Moldabayqyzy

On October 11, CARCEIT hosted a seminar titled "Soviet Legacy: How Remnants of Soviet Education Are Still Reflected in the Present", presented by Nurgul Moldabayqyzy, a PhD student at Abay University and psychotherapist specializing in transgenerational cultural trauma. Nurgul discussed her research on the psychological impacts of Soviet-era education in Kazakhstan, focusing on how Soviet policies, which emphasized collective labor and loyalty to the state, have left lasting effects on personal identity and mental health.

Her presentation also highlighted the comparison between Soviet child-rearing practices and traditional Kazakh nomadic parenting. She explored how these traditions can be adapted to address modern parenting challenges, particularly in fostering mental resilience and personal growth.

The seminar concluded with engaging discussions and questions from the audience, reflecting on the enduring influence of Soviet education on contemporary society and its psychological impact across generations.

The Role of Non-Cognitive Skills in Kazakh Secondary Education: STEM vs Non-STEM Subjects

On 17th of October, Dr. Gulbakhyt Sultanova delivered a seminar, "The Role of Non-Cognitive Skills in Kazakh Secondary Education: STEM vs. Non-STEM Subjects". This study investigates the role of non-cognitive skills in academic achievement within STEM and non-STEM subjects in secondary education.

Using survey data from 795 teachers and 12,965 students across 20 STEM schools in Kazakhstan, the research examines how 26 non-cognitive skills impact performance in Math, Physics, First Language, and History. Regression and mediation analyses were applied to assess the direct influence of students' self-reported non-cognitive skills on academic achievement, as well as how teachers' evaluations mediate these effects.

Findings show varying direct and total effects of non-cognitive skills, with more consistent mediation effects across subjects. In Math and Physics, Information Processing Skill and Grit had the strongest direct and total effects, while Responsibility Management and Teamwork were most impactful in First Language and History. Except for Capacity for Optimism and Growth Mindset, all skills showed mediated effects across all subjects.

This study highlights how non-cognitive skills influence academic performance, offering insights for curriculum design and equitable educational policies. By focusing on Kazakhstan, it contributes to the global discourse on education and provides valuable recommendations for enhancing STEM education.

Dr. Gulbakhyt Sultanova is a leading researcher in the Research and Data Analysis Department at the Center for Pedagogical Measurements, Nazarbayev Intellectual Schools, Kazakhstan. She completed her PhD in Education Economics at RWTH Aachen University, Germany, and further pursued her postdoctoral studies at the University of the Balearic Islands, Spain.

Towards Determining the Socio-demographic and Economic Factors Affecting Young People of Becoming NEET (not in education, employment and training) in Kazakhstan

On October 24, CARCEIT hosted Dinara Alimkhanova, a PhD candidate at NU GSE, who presented her research on NEET youth—those not engaged in employment, education, or training—in Kazakhstan.

Globally, one-fifth of individuals aged 15–24 belong to a NEET population (not in employment, education or training). NEETs have become an increasingly important phenomenon, especially for policy-makers concerning significant concepts such as social exclusion and inequality, gender, or poverty among youth. While the rate of NEET youth is comparatively low in Kazakhstan, its conceptualization has not yet come to a consensus in the academic field as well as in national policy.

This research seeks to contribute to the debate by addressing the risk factors associated with NEET youth in Kazakhstan. It has been revealed that being a female, having children, and possessing a low education level are significantly associated with the NEET condition. Along with the finding NEET rate also increases with age, young people's engagement in informal employment sector delays their involvement in education and formal economy sectors. The research used data from the Labour Force Survey to examine factors that contribute to the NEET status and further explored those factors in-depth in Karaganda city which has shown the highest NEET rate across Kazakhstan. Determining the risk factors is significant to design better targeted preventive and intervening policy strategies towards NEET youth.

Teacher Appraisal for Professional Learning - Seminar with Dr. Moldir Ablayeva

On October 31, 2024, CARCEIT hosted a seminar by Dr. Moldir Ablayeva titled "Teacher Appraisal for Professional Learning: Perspectives from One Secondary School in Kazakhstan." Dr. Ablayeva presented the key findings of her PhD research, which explored teachers' and school leaders' perceptions of teacher appraisal and its influences on their professional learning in a mainstream secondary school in Kazakhstan. The research participants' perceptions were explored by applying the principles of adult learning theory. Data was collected through interviews, observations of teacher appraisal meetings, and analysis of relevant documents. The study findings revealed that teacher appraisal can enhance career development, engage teachers in multiple professional development opportunities, encourage teacher leadership, and motivate teachers. Although these findings reflect some principles of adult learning theory, they are hardly self-directed and based on teachers' individual needs.

Dr. Moldir Ablayeva is a graduate of NUGSE. She is a senior manager at the "Center for Pedagogical Measurements" under AEO "Nazarbayev Intellectual Schools".

Confronting English at a women's college in the Indian periphery: Stories of agency, (dis)empowerment and decolonisation

On November 7, 2024, CARCEIT hosted a seminar featuring Thomas Kral, a PhD researcher from Lancaster University, who presented his ongoing PhD research on the role of English in a non-elite women's college in South India. In his talk, "Confronting English at a Women's College in the Indian Periphery: Stories of Agency, (Dis)empowerment, and Decolonization," Kral shed light on the daily experiences of students who see English as both a stepping stone toward independence and a hurdle. Through personal narratives, Kral painted a vivid picture of students striving for empowerment, yet often facing societal expectations and the lingering influence of colonial language norms.

Kral's presentation highlighted the unique challenges and aspirations of these students, many of whom are the first in their families to pursue higher education in English. From dreams of career success to struggles with native-speaker norms, the seminar opened up meaningful discussions on the transformative power of language.

Institutionalization of Human Subject Protection in Research (IREC policy)- Seminar with Dr. Botagoz Ispambetova

On November 14, 2024, Dr. Botagoz Ispambetova from Nazarbayev University's Graduate School of Education delivered a seminar: "Institutionalization of Human Subject Protection in Research: A Case Study of One Accelerated University in Kazakhstan" focusing on the adoption and implementation of the Institutional Research Ethics Committee (IREC) policy at NU.

Dr. Ispambetova's presentation examined the motivations and processes behind NU's adoption of the IREC policy, which follows international standards in a unique non-Western context. She explored the three stages of IREC policy implementation—Normative, Regulative, and Cultural-Cognitive—and highlighted how the policy has been internalized to enhance research capacity at NU and across Kazakhstan.

The findings revealed the critical drivers of policy adoption, such as legitimacy and lesson-drawing, and provided actionable recommendations for higher education institutions in similar contexts. Dr. Ispambetova emphasized the role of local students and cultural representatives in the internalization process, offering valuable insights for universities aiming to adopt and adapt similar policies.

Visualizing Success Using AI-generated Images: Unveiling Challenges and Success Strategies of Undergraduate Women in IT Degrees

On November 21, 2024, CARCEIT hosted a seminar titled "Visualizing Success Using AI-generated Images: Unveiling Challenges and Success Strategies of Undergraduate Women in IT Degrees." The speakers: Alexandra Nam, Ariya Seidin, and Moldir Amanzhol, mentored by NUGSE Associate Professor Dr. Munyaradzi Hwami, presented their research findings under a CARCEIT Education Impact Project.

The project investigates the experiences of undergraduate women in Kazakhstan pursuing IT degrees, a field marked by rapid development yet significant gender disparities. Despite national efforts to enhance educational opportunities in IT, women remain underrepresented, mirroring global trends in STEM fields. This study addresses the gap by exploring the specific barriers and success strategies identified by these women.

Utilizing AI tools, 30 undergraduate women created visual representations of factors they consider crucial or lacking for their academic and career success in IT. These visualizations were further analyzed to uncover personal and institutional influences on their educational journeys. The findings offer nuanced insights into the academic and professional challenges faced by women in IT, aiming to inform actions that support gender equity in the field.

Students' Navigation of Language, Identity, and Culture in Academic Texts

On November 28, 2024, CARCEIT hosted an insightful seminar featuring Assel Sadykova, Teaching Fellow at the Center for Preparatory Studies (CPS), Nazarbayev University. The seminar focused on her research project, "Students' Transition and Navigation of Language, Identity, and Culture in Academic Texts: Exploring Systemic Functional Linguistics and Bourdieu."

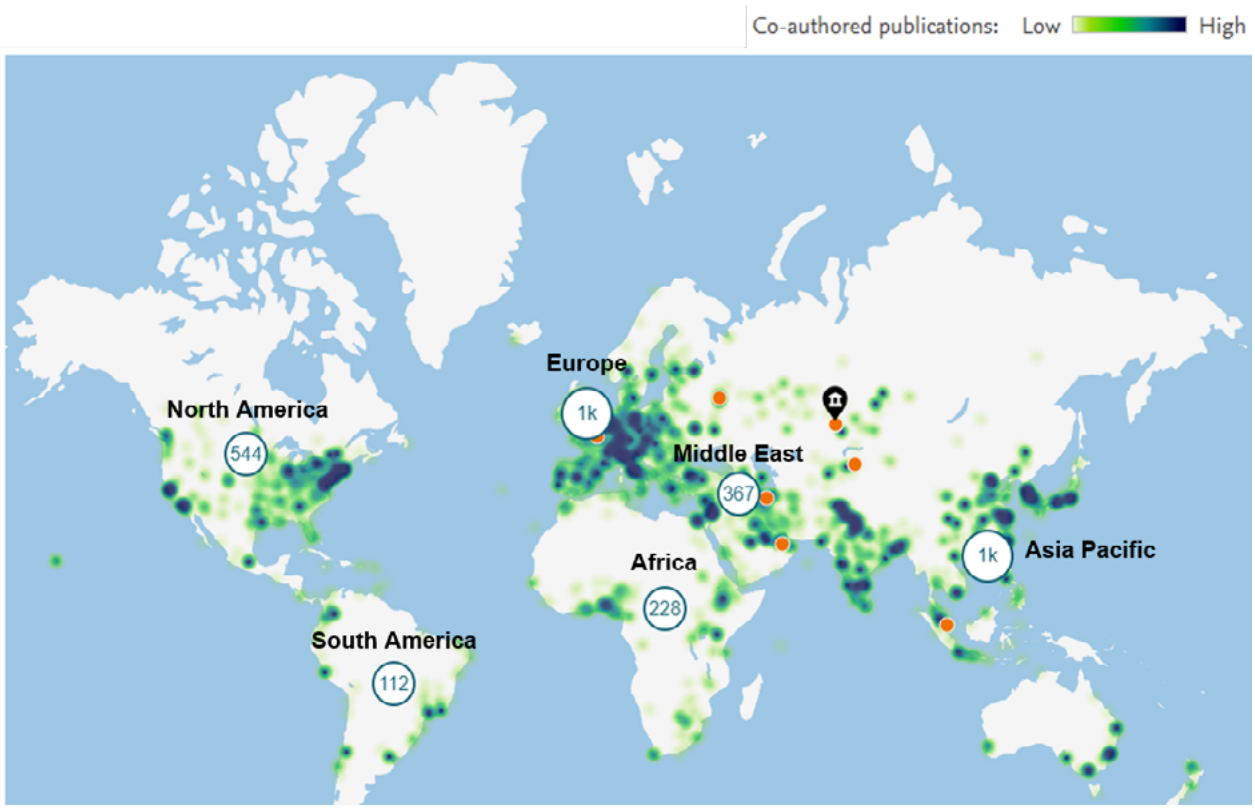
Assel explored the experiences of students from diverse backgrounds in Kazakhstan as they engage with academic texts in English-medium university settings. The presentation delved into the cultural, linguistic, and identity-related challenges students face and highlighted how these factors influence their academic journeys. By applying Systemic Functional Linguistics and Bourdieu's cultural capital framework, the research revealed the profound impact of socioeconomic status and prior schooling on students' engagement with academic texts.

Changing Academic Profession in Kazakhstan: Examining Faculty's Research Performativity and Accountability in the Post-Socialist Context of Higher Education

On December 5, 2024, CARCEIT hosted a seminar as part of the Education Impact Project: Changing Academic Profession in Kazakhstan. The project is led by Aida Nuranova, Professional Learning and Development Expert at Nazarbayev University, with mentorship from Assistant Professor Kairat Kurakbayev of NU GSE.

They provided an overview of the successful delivery of the Professional Development Program (PDP) held on November 20-21, highlighting its impact and relevance to faculty from regional universities. The speakers also shared their experiences with data collection and analysis, offering insights into the unique challenges and peculiarities of conducting research in regional universities. Additionally, the seminar outlined the project's next steps, focusing on plans and future initiatives to publish.

RESEARCH PERFORMANCE OVERVIEW



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 9,437 peer-reviewed publications indexed by Scopus, and have been cited 139,811 times for 2011-2024 period. The approximate number of citations per peer-reviewed publication is 14.8. The overall H-index of NU is 120, whereas H5-index is 77 (Source: SciVal, December 2024).

The Field-Weighted Citation Impact of NU over 2020-2024 years is 1.99, meaning that our publications have been cited 99% more than would be expected based on the world average for similar publications.

International collaboration is widely recognized as a key factor that positively influences citation metrics. By expanding professional networks and fostering global partnerships, collaboration often leads to the production of highly cited publications.

During the period from 2019 to 2024, NU exhibited a significant commitment to international collaboration, as evidenced by the production of 4,439 research papers in partnership with 3,490 organizations from 131 different countries. These collaborative efforts accounted for 64.5% of the total number of publications indexed by Scopus. The map above illustrates how these collaborations are spread throughout the world. The overall Field-Weighted Citation Impact of these co-authored papers is 2.27, meaning that these papers are cited more than twice as much as would be expected based on the world average for similar publications.

For getting more comprehensive information on the research performance at NU, please have a look at the following report generated by 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	AACR-Sontag Foundation Brain Cancer Research Fellowship	AACR	14-Jan-25	URL
2	2024-2025 Liquid Biopsy Request For Proposals	The Brain Tumor Funders' Collaborative	16-Jan-25	URL
3	AACR Hematologic Malignancies Research Fellowship	AACR	21-Jan-25	URL
4	Sleep Contributions to Neurodegeneration (SCN) Grant Program	the Alzheimer's Association	29-Jan-25	URL
5	AGA-Dr. Harvey Young Education & Development Foundation's Young Guts Scholars Program	AGA	31-Jan-25	URL
6	AACR-KidneyCAN Kidney Cancer Innovation and Discovery Grants	AACR	18-Feb-25	URL
7	Climate and Health Award: Advancing climate mitigation solutions with health co-benefits in low- and middle-income countries	Wellcome	18-Feb-25	URL
8	Wellcome Early-Career Awards	Wellcome	25-Feb-25	URL
9	Victoria's Secret Global Fund for Women's Cancers Career Development Awards, in Partnership with Pelotonia & AACR	AACR	Mar-25	URL
10	Victoria's Secret Global Fund for Women's Cancers Rising Innovator Research Grants, in Partnership with Pelotonia & AACR	AACR	Mar-25	URL
11	Wellcome Career Development Awards	Wellcome	3-Apr-25	URL
12	Wellcome Discovery Awards	Wellcome	8-Apr-25	URL
13	American Tinnitus Association`s grant program	The American Tinnitus Association	rolling basis	URL
14	ARequest for Proposals (RFP) for preclinical and clinical translational research with the potential for high impact on diagnosis, treatment, or survivorship of colorectal cancer	Colorectal Cancer Alliance	rolling basis	URL
15	ATA Innovative Grants Research Program (Awards for Student and Postdoctoral Investigators, travel grants)	The American Tinnitus Association (ATA)	rolling basis	URL
16	Carl Zeiss Humboldt Research Award	the Humboldt Foundation	rolling basis	URL
17	Clean Energy Accelerator	Amazon	rolling basis	URL
18	DIAGNOSTICS ACCELERATOR: PERIPHERAL BIOMARKERS PROGRAM	The Alzheimer's Drug Discovery Foundation	rolling basis	URL
19	Energy Foundation`s grants	Energy Foundation China	rolling basis	URL

FUNDING OPPORTUNITIES

#	Opportunity	Funder	Deadline	Source link
20	Fraunhofer-Bessel Research Award	the Humboldt Foundation	rolling basis	URL
21	Friedrich Wilhelm Bessel Research Award	the Humboldt Foundation	rolling basis	URL
22	HODGKIN-HUXLEY RESEARCH GRANT	The FamilieSCN2A	rolling basis	URL
23	Impact Collaboration Programme (ICP 2023)	The Geneva Science-Policy Interface	rolling basis	URL
24	Project Grants	The Myrovlytis Trust	rolling basis	URL
25	Research Core Award: Non-rodent Large Animal Model for Inherited Retinal Disease (worldwide)	Foundation Fighting Blindness	rolling basis	URL
26	Research Grants and Support	Nestlé Foundation	rolling basis	URL

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