



# RESEARCH NEWSLETTER

OFFICE OF THE PROVOST - RESEARCH ADMINISTRATION  
QUARTERLY EDITION

July 13, 2022 | Issue 35



Vice Minister of Health of the Republic of Kazakhstan visited the School of Medicine Nazarbayev University



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# School of Medicine

## News

### **BIG DATA IN HEALTHCARE**

#### *DR. GAIPOV AND HIS TEAM IN SHYMKENT*

A Medical School team composed of Dr Abdhuzappar Gaipov (Associate Professor), Dr Aiymkul Ashimkhanova (Instructor) and Dr Anara Abbay (Instructor), as well as the research assistants Yesbolat Sakko and Sauran Yerdessov has participated in the International Scientific and Practical conference: “COVID-19 and other topical infections of Central Asia” in 23-24 June, Shymkent, Kazakhstan.

The team presented results from the Ministry of Education and Science and NU grant funded projects on Epidemiology of Infectious diseases using Big Data in healthcare. These presentations included one lecture in the plenary session (see photo), two oral presentations in the young scientists’ section competition and additionally two poster presentations in the best abstract competition.



Pictures showing Dr. Gaipov’s plenary lecture and the team in front of one of the posters

Dr. Gaipov’s plenary session was on “Big data in medical science: Use of unified electronic healthcare system of Kazakhstan for epidemiological studies of communicable and chronic noncommunicable diseases” and gained a lot of attention among the congress participants from Kazakhstan, Uzbekistan and Russia. When presenting: “Epidemiology of viral hepatitis in Kazakhstan: Data from Unified National Electronic Healthcare System 2014-2019.” Dr. Aiymkul Ashimkhanova won the second best oral presentation award. The next presentation was by Dr. Anara Abbay: “Dynamics of Hospital Admissions and all-Cause Mortality of HIV infected patients in Kazakhstan: Data from Unified Nationwide Electronic Healthcare Registry 2014-2019”. Our research assistant Yesbolat Sakko presented a poster on: “Epidemiology of Tuberculosis in Kazakhstan: Data from Unified National Electronic Healthcare System 2014- 2019” and won the competition for the best poster presentation. One more poster presentation was provided by Sauran Yerdessov on “Epidemiology of Viral Meningitis in Kazakhstan: Data from Unified National Electronic Healthcare System 2014-2019”.

## **WHAT SHOULD WE DO TO IMPROVE ATTITUDES TOWARDS HUMAN PAPILLOMAVIRUS VIRUS VACCINATION AMONG KAZAKHSTANI WOMEN?**

### *DR. AIMAGAMBETOVA AND HER TEAM ON HUMAN PAPILLOMAVIRUS VACCINATION*

High-risk human papillomavirus (HPV) infections cause multiple benign and malignant conditions. It is well known, that more than 90% of cervical cancer cases are associated with high-risk HPV infections, with HPV-16 and HPV-18 types being responsible for 70-75% of cases. As primary prevention of HPV-related diseases, HPV vaccination programs have been successfully implemented in many developed countries worldwide, which has led to a decline in cervical cancer incidence rates. However, the situation in developing and underdeveloped countries remains regrettable, as cervical cancer remains the leading cause of cancer-related death in women, due to inefficiency or lack of preventive measures.

According to the available epidemiological data, high-risk HPV prevalence in Kazakhstan among women attending gynecological clinics is ranging from 39% to 43%. It is directly linked to the increasing rates of cervical cancer in the country, which has grown by 20% during the period of 10 years (2009-2018). Although the national cervical cancer screening program is free of charge, the screening coverage is low (around 46%) and does not reach the demand level of 70% suggested by WHO.

In 2013, the HPV vaccination program was introduced in Kazakhstan as a pilot program in four large regions, targeting 11-12-year-old girls. However, the lack of an HPV vaccination informational campaign that should have preceded and accompanied the vaccination program and social media's negative coverage of the program has led to a negative public reaction and unwillingness of parents to vaccinate their children against HPV. As a result, in 2015 the vaccination program was discontinued. In 2020, the Ministry of Healthcare of the Republic of Kazakhstan announced an intention to re-launch the HPV vaccination program.

Given the importance of the re-introduction of HPV immunization to prevent HPV-related diseases, it is essential to understand what factors are associated with parents' willingness to vaccinate their children. Multiple factors determine attitudes towards vaccination: education, social status, family income, cultural and religious preferences. The successful re-launching of the HPV vaccination program largely depends on the HPV vaccine attitudes; therefore, studies to investigate society's perception of the vaccine are an essential part of the vaccination. campaign vaccination, as their attitude towards the vaccination has a direct impact on the HPV vaccination program coverage among the target group of 9-11 years old girls.

The research team found that women's age, education, number of children, confidence in the healthcare system, and belief in alternative medicine were associated with attitudes towards HPV vaccination. These factors should be taken into consideration when planning context-specific health education campaigns to form positive attitudes towards HPV vaccination in Kazakhstani women.

In addition, the propagation of accurate information regarding the safety, effectiveness, and benefits of HPV vaccination to prevent HPV infection and related diseases could potentially improve women's and mothers' attitudes. HPV educational interventions are essential for successfully re-launching and implementation the HPV vaccination in the national immunization program in Kazakhstan. This study was recently published in the Q1 journal „Vaccines“ (see details below)

As a result of the research project funded by the Nazarbayev University, Dr. Aimagambetova and the research team recently published a paper in the scientific journal “Vaccines”, in which they explored attitudes towards HPV vaccination among Kazakhstani



Dr. G. Aimagambetova

women and the factors potentially associated with different attitudes towards the HPV vaccine. The study showed that contrary attitudes toward HPV vaccination exist among Kazakhstani women in general, with approximately half of women having positive and almost half having negative or neutral attitudes towards the HPV vaccine. Moreover, if talking about mothers' attitudes, only 16% of mothers had a positive attitude towards the HPV vaccine, and the majority (64%) had a neutral attitude. This is an important group of the population, who requires more information on the HPV vaccination program.

Aimagambetova G, Babi A, Issa T, Issanov A. What Factors Are Associated with Attitudes towards HPV Vaccination among Kazakhstani Women? Exploratory Analysis of Cross-Sectional Survey Data. *Vaccines* (Basel). 2022;10(5):824. Published 2022 May 23.

[doi:10.3390/vaccines10050824](https://doi.org/10.3390/vaccines10050824)

## **WHAT YOU NEED TO KNOW ABOUT THE NEW EMERGING VARIANTS OF COVID-19?**

After more than two years from the beginning of the novel COVID-19 pandemic, there is still significant uncertainty about the evolution of the virus. After the Omicron wave, SARS-CoV-2 infection rates and hospitalizations appeared to fall to their lowest level since the summer of 2021, but the premise remains: we know that new variants are still likely to emerge but, we do not know the main attributes of their transmissibility, virulence, and immune escaping features to permit us to define with clarity when will the end of this pandemic come. Understanding the intrinsic properties of SARS-CoV-2 and its interaction with the immune system and vaccination is essential to make out the underlying mechanisms that have led to the appearance of these variants, helping to determine the next steps for better public management of this pandemic.



Dr. A. Sarria-Santamera

Novel variants present an important challenge in ending this long public health crisis as they influence a critical factor necessary to see the end of the pandemic: durable immunity, particularly against severe disease but also against infection. The main question is how fast will the SARS-CoV-2 virus evolve, and what will be the new variants capacity to overcome the immune system?

A recent paper published by Dr. Sarria-Santamera and Dr. Colet, investigators of a NU funded research project on COVID-19, together with their research team and in collaboration with Spanish scientists, has reviewed the most recent updates focusing on COVID-19 variants of concern, describing the impact these have had on the global dynamics of the pandemic.

The intrinsic properties of SARS-CoV-2, including its recombination and genetic basis and the selective pressure exerted by previous infections and vaccinations, increasing immunity levels, favor the evolution of SARS-CoV-2 parental lineages, leading to the appearance of different variants, comment Dr. Sarria-Santamera and Dr. Colet. They indicate how “we have seen during the last 2 years all the multiple variants have been identified. In fact, we are seeing globally a new surge in cases related to new variants: BA.4 and BA.5”.

Those two new variants were not included in this review because they appeared after researchers had finished their literature research. But interestingly, the identification of these new variants precisely reflects the main problems indicated by the authors of this manuscript: we should expect new variants.

The rise of BA.4 and BA.5 seems to stem from their capacity to infect people who were immune to earlier forms of Omicron & other variants. Lab studies also suggest antibodies triggered by vaccination are less effective at blocking BA.4 and BA.5. Even antibodies from people with hybrid

immunity, stemming from vaccination and previous infections, struggle to incapacitate BA.4 and BA.5.

We cannot say that BA.4/5 is the final variant, as the emergence of additional mutations is still highly probable. One possible future scenario is that SARS-CoV-2 will become like the other seasonal coronaviruses, usually peaking in winter and typically reinfecting people every three years. The big, underlying question is whether these new variants may become milder. This study has recently been published in the Q2 "Journal Journal of Personalized Medicine" (see below).

Ortega MA, García-Montero C, Fraile-Martinez O, Colet P, Baizhaxynova A, Mukhtarova K, Alvarez-Mon M, Kanatova K, Asúnsolo A, Sarría-Santamera A. Recapping the Features of SARS-CoV-2 and Its Main Variants: Status and Future Paths. *J Pers Med.* 2022 Jun 18;12(6):995. doi: [10.3390/jpm12060995](https://doi.org/10.3390/jpm12060995).

## **BIOMEDICAL RESEARCH OPEN DAY ON MAY 26, 2022**

On May 26th the Ministry of Science and Education (MES) and NU Medicine organized a Biomedical Research Open Day in the Medical School building. This event was organized to stimulate interactions and collaborations between Nazarbayev University and other Kazakh universities working in the biomedical area. Therefore, representatives from several universities including, *Kazakh National Medical University named after Asfendiyarov*, *Kyzylorda University named after Korkut Ata*, *North Kazakhstan University named after M. Kozubayev*, *Astana Medical University*, *Kokshetau University named after S.Ualikhanov*, *Taraz regional university named after H. Dulati*, *East Kazakhstan University named after Amanzhol Sarsenov*, *Semey State University named after Shakarim*, *Semey State Medical University*, *Atyrau State University, named after H. Dosmukhamedov*, *Mukhtar Auezov South Kazakhstan University*, *International Kazakh-Turish University named after H.Yasayi*, *Kazakh National University named after Abay*, *Eurasian National University named after Gumilev* were invited to attend presentations and participate in round table discussions of different topics.



After welcoming notes from the Provost and Vice President of Medicine many interesting and stimulating presentations were delivered by various faculty from different schools including, Dr. Riethmacher, Dr. Tulchinsky, Dr. Vangelista, Dr. Gaipov, Dr. Poddighe, Dr. Hortelano, Dr. Molnar, Dr. Pham, Dr. Xie, Dr. Vorobyev and Dr. Sarbassov. The breakout sessions and round table discussions were held on five different topic during the early afternoon: 1. Clinical research and Clinical Trials, 2. Cancer biology and signaling, 3. Infectious diseases, 4. Inflammation and Immunity and 5. Population Health. The research open day included also a tour through the Medical School research facilities and the main University Campus research facilities in S1, C4, and Technopark. Research collaborations and other joint activities have already been developing as result of this event in neuroscience, pharmacology, big health care data in chronic diseases.

## VISIT OF THE VICE MINISTER OF HEALTH DR. VYACHESLAV DUDNIK ON THE PROGRESS OF THE “AGEING AND HEALTHY LIFESPAN RESEARCH PROGRAM” FUNDED BY THE MINISTRY OF HEALTH

On the 3rd of June the Vice Minister of Health, Dr Vyacheslav Dudnik, visited the Medical School and the main University Campus to be informed on the progress of the targeted research program on Aging and Healthy Lifespan funded by the Ministry of Health (MOH). Following a short



Vice Minister of Health of the Republic of Kazakhstan visited the School of Medicine Nazarbayev University

introduction about the School of Medicine and the infrastructure to support research by Dean and VP Dr. Pignatelli, the Chairman of the Board of the University Medical Center Dr. Pya also underlined the importance of the School of Medicine for medical education and research in UMC and for the Republic of Kazakhstan. The Director of the “Aging and healthy lifespan program” Dr. Prim Singh explained the overall structure of the program and progress made. The Vice-Minister was given a guided tour of the Medical School building focusing on the research facilities and laboratories of Dr.

Riethmacher and Dr. Singh’s research groups, funded by this MoH program. The Vice Minister then continued the tour by visiting the research laboratories on the main University Campus where he then met Provost, Dr. Vorobyev co-PI of this MoH program and Dr Dos Sarbassov, Acting Director, National Laboratory Astana. Below are some photos during the tour of the Medical School research facilities.





# School of Sciences and Humanities News

## **COMPLIANT OR DEFIANT? ECONOMIC SANCTIONS AND THE UNITED NATIONS GENERAL ASSEMBLY VOTING BY TARGET COUNTRIES**

*ADHIKARI BIMAL, JIN MUN JEONG, AND DURSUN PEKSEN  
at International Interactions (Forthcoming)*



Dr. Adhikari Bimal

Economic sanctions are one of the most frequently used tools of economic statecraft by powerful countries, especially the United States (US). Sanctions are employed particularly to inflict economic pains on the target countries, so that target leaders would abandon policies that are considered undesirable by sender states. However, we have little understanding of the effectiveness of such coercive tactics, especially in the realm of foreign policy. In other words, do economic sanctions incentivize target leaders to pursue policies that are more in line with that of sender states? Or do target countries defy sanctions and counter senders by pursuing dissimilar foreign policies? We examine the voting pattern between the US and target of US sanctions in the United Nations General Assembly (UNGA) using data on economic sanctions and UNGA voting for over 150 countries for the 1984-2006 period. Our findings suggest that economic sanctions exacerbate the tension between target countries and the US. Also, we find that more severe sanctions result in more voting divergence between the states in the UNGA.

Targets of US sanctions also often use the UNGA as a platform to bring attention to pains caused by sanctions on the general public and cast the US as the primary cause of the suffering. Target leaders also utilize the annual sessions of the UNGA, which are widely covered by media, to denounce the US as a reckless superpower seeking to interfere in the domestic affairs of states that do not agree with its policies. Leaders of target states, such as Burundi, Iran, Nicaragua, and Zimbabwe, have regularly used the UNGA platform to criticize US' sanctioning behavior, blaming the sanctions for impeding development and prosperity. One of the most significant contributions of this paper is that we use UNGA voting patterns to study the impact of sanctions on bilateral relations. The UNGA is generally considered to be a weak institution (at least compared to the UN Security Council) as the resolutions passed by this body of the UN are nonbinding. However, the UNGA is the most representative body of world opinion, where the US has often found itself to be in a relatively weak position. And major powers often compete for the support of other countries for their preferred policies in the UNGA because higher support in the UNGA is considered greater support for their vision of the world order. For instance, in recent years, China has been actively courting states to switch their support from US-backed policies to those that are more in line with its preferred position. It is conceivable that given the frequent use of economic sanctions and its failure to get target countries to change their behavior, the US may lose its influence in the global arena, thus, inadvertently contributing to the rise of rival powers such as China.

# NU PHYSICISTS IN COLLABORATION WITH INTERNATIONAL COLLEAGUES ACCOMPLISHED BETTER UNDERSTANDING OF ELECTRONIC PROCESSES IN NOVEL SEMITRANSSPARENT ORGANIC SOLAR CELLS

SHARED BY VIKTOR BRUS

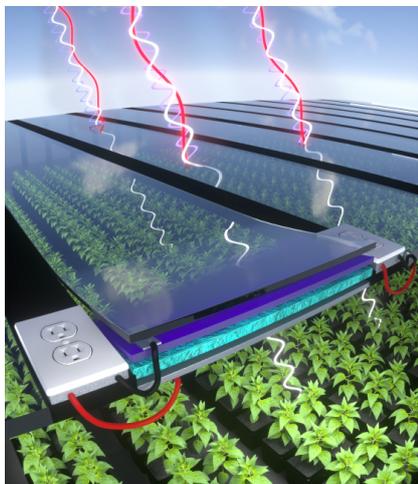


Fig. 1 A concept of selectively transparent organic solar cells integrated into a greenhouse.

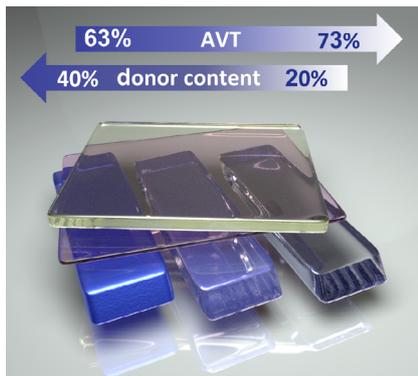


Fig. 2 A schematic representation of organic active layers with different average visible transmittance (AVT).

Organic photovoltaics offer sustainable, solution-processable, and cost-effective integrated energy harvesting solutions (see Fig. 1). While opaque organic solar cells underwent enormous progress in the past decade, it remains a challenge to reach simultaneously high performance and transparency in the visible spectral range.

Prof. Viktor Brus at Physics Department is working in the emerging field of semitransparent organic photovoltaics, trying to improve the efficiency of semitransparent organic solar cells via a detailed understanding of photoelectronic processes in these devices (<https://vvbrus.wixsite.com/brusgroup>). In the scope of this project, Prof. Brus coordinated an international research group comprising his PhD student Gulnur Akhtanova, enthusiastic colleagues from NU Core Facility Dr. Alexandr Arbuz and Nurgul Daniyeva, and prominent scientists from the University of California Santa Barbara (USA), Vidyasirimedhi Institute of Science and Technology (Thailand) and Pusan National University (Korea). The international team developed highly-transparent organic active layers based on a narrow-bandgap acceptor and wide-bandgap donor via the systematic dilution of the donor concentration from 40% to just 20% (see Fig. 2).

The investigation of advanced materials science and device physics in these structures yields quantitative insights into changes in the charge generation, recombination, and extraction dynamics upon the donor dilution, paving the way to next-generation integrated green energy solutions based on visibly transparent organic solar cells. The obtained results have been recently published in *Advanced Materials* (Wiley) - a prestigious top-tier interdisciplinary journal:

N. Schopp, G. Akhtanova, P. Panoy, A. Arbuz, S. Chae, A. Yi, J. Kim, V. Promarak, T.-Q. Nguyen and V.V. Brus, Unraveling Device Physics of Dilute-Donor Narrow Band Gap Organic Solar Cells with Highly Transparent Active Layers, *Advanced Materials* (2022) in press. DOI: [10.1002/adma.202203796](https://doi.org/10.1002/adma.202203796)

In August the article will appear in the “*Rising Stars*” special issue of *Advanced Materials*, highlighting outstanding Research Articles on studies conceptualized and supervised by recognized early career researchers from around the world upon invitation from the editorial team only.

## DR. MICHAEL RYAN'S ACTIVITIES ON COVID-19

Dr. Michael Ryan (Associate Professor of Sociology) has taken part in a number of recent publications and conferences related to the ongoing COVID-19 pandemic, including the following:

- A co-guest edited special issue of the *International Review of Sociology* (the oldest journal in the discipline of sociology) on the topic of “**What does the Covid-19 crisis reveal about interdisciplinarity in social sciences?**” available [here](#).
- A recent interview with *Syndemic Magazine* (a project of the Wilson Institute at McMaster University, Canada) about the ongoing COVID-19 pandemic for a series that also includes interviews by Noam Chomsky, Naomi Klein, and Nancy Fraser, among others. You can find the interview [here](#).
- An invited keynote address for the De La Salle University Research Conference 2022 (Manila, Philippines) entitled “**Thinking about Yesterday, Today, and Tomorrow: Ten lessons for/from the ongoing COVID-19 pandemic**” available [here](#).
- An invited keynote address for the Transitions Research Group (hosted by George Mason University, USA) with George Ritzer entitled “**McDonaldization in the Age of COVID-19**”
- An invited presentation for Ryerson University (Canada) on the topic of gender inequality and the COVID-19 pandemic



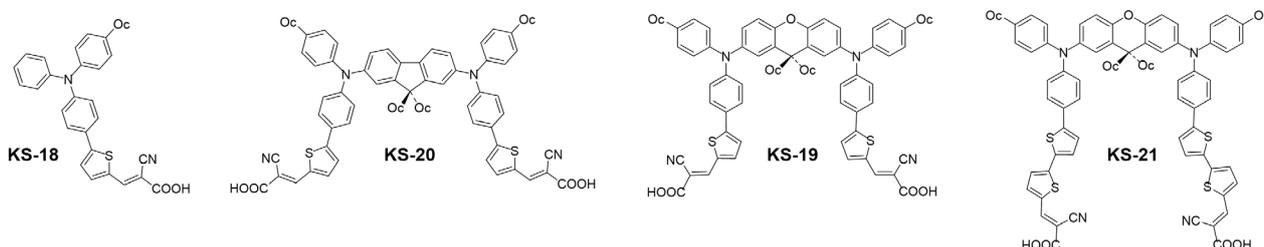


# Laboratory of Functional Materials and Computational Chemistry

www.balanayresearch.page

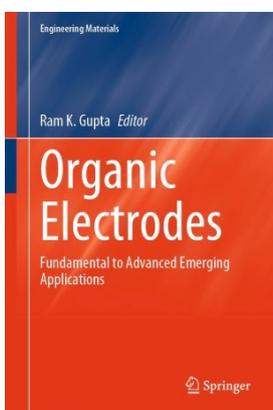
SHARED BY MANNIX P. BALANAY

The fmc2 laboratory headed by Dr. Mannix P. Balanay of the Department of Chemistry, School of Science and Humanities has recently published research articles in collaboration with Kunsan National University, Gunsan, Korea on the use of bridged structures as sensitizers for dye-sensitized solar cells as shown in the Figure below. The research outputs were



published in *Dyes and Pigments* (Elsevier, Q1, IF: 5.122) and *ACS Applied Energy Materials* (American Chemical Society, Q1, IF: 6.024).

In these structures, we assessed two types of bridging: (1) 9,9-dioctyl-9H-fluorene, and (2) 9,9-dioctyl-9H-xanthene. The dianchoring approach allow not only stronger binding of the molecule to the semiconductor but can also produce an excellent charge-transfer properties. The long alkyl chains were introduced into the core of di-anchoring dye to avoid its aggregation and minimize its semiconductor/electrolyte recombination reactions. The photoconversion efficiency produced 6.90 % for KS-21, followed by 6.25 % (KS-19), then 5.37 % for KS-20. While the monoanchoring dye (KS-18) only produced 5.37 % efficiency. The study shows that the strategy of using dianchoring dyes not only produced better efficiencies but also makes the dye sensitized solar cell more stable. To further read the results please click on the following, [Dyes and Pigments](#) and [ACS Applied Energy Materials](#) papers.



Our group recently published a book chapter entitled «Conjugated Polymers as Organic Electrodes for Photovoltaics» as part of the book *Organic Electrodes: Fundamental to Advanced Emerging Applications* edited by Prof. Ram Gupta from Pittsburgh State University, USA and is published under Springer Cham Publications. This chapter discusses the use of conjugated polymers as organic electrodes for photovoltaics. Conjugated polymers are very attractive due to their ability to form flexible substrates which can be applied either as an anode or a cathode depending on their configuration. Its properties can easily tune via synthetic or post-synthetic treatment processes.

In this chapter, an overview of the brief history is given to provide a background on the solar cell technology. The conjugated polymers are commonly observed in the third-generation solar cells specifically in dye-sensitized, perovskite, and organic solar cells, which mostly utilizes it as counter electrodes.

First, we briefly discuss the components, criteria, and representative conjugated polymers for dye-sensitized solar cells. Then followed by the composition, mechanism, and utilization of conjugated polymers in perovskite solar cells. Lastly, we introduce the basic configuration of an organic solar cells that uses conjugated polymers as both cathode and anode. Click this [link](#) for more information about the book.

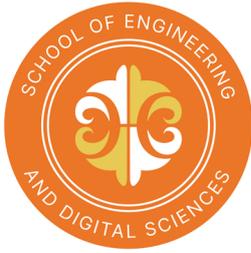
A collaborative research between the members of the fmc2 laboratory and the research group of Dr. Annie Ng from the Department of Electrical and Computer Engineering, SEDS entitled «A Morphological Study of Solvothermally Grown SnO<sub>2</sub> Nanostructures for Application in Perovskite Solar Cells» published in Nanomaterials (MDPI, Q1, IF: 5.719)

This paper focuses on the morphological study of SnO<sub>2</sub> nanostructures grown by a solvothermal method. The growth parameters including growth pressure, substrate orientation, DI water-to-ethanol ratios, types of seed layer, amount of acetic acid, and growth time have been systematically varied. To read the full article, please click on the [link](#).

Our group also welcomed 3 visiting Ph.D. students, two from Eurasian National University and the other is from Kazakh-British Technical University in Almaty. They will be doing their various Ph.D. research works at the fmc2 laboratory. To know more about what they are doing, please go to this [link](#).



(L to R) Diana Suleimenova and Ayagoz Ibrayeva are doing their Ph.D. in Chemistry at Eurasian National University, while Ademau Aliakbarova is doing her Ph.D. in Nanotechnology and Nanomaterials at Kazakh-British Technical University in Almaty.



# School of Engineering & Digital Sciences

## RESEARCHERS IN THE DEPARTMENT OF CHEMICAL AND MATERIALS ENGINEERING DEVELOP SYNTHETIC GRAFTS FOR ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTION



C. Erisken, PhD.



D. Saginova, MD,  
PhD



S. Kadyr, MD



B. Seitzhapparova  
B.Sc.



U. Nurmanova, MD

Reconstructed Anterior Cruciate Ligament (ACL) cannot completely restore its functions due to the absence of a physiologically viable environment for optimal biomaterial-cell interaction. Currently available procedures only mechanically attach grafts to the bone without any biological integration to the bone. How the ACL cells perform the native biological attachment is not fully understood partly due to the absence of an appropriate environment to test cell behavior both in vitro and in vivo. The availability of biomimetic grafts would enable scientists to better explore the behavior of cells at health and during tissue healing.

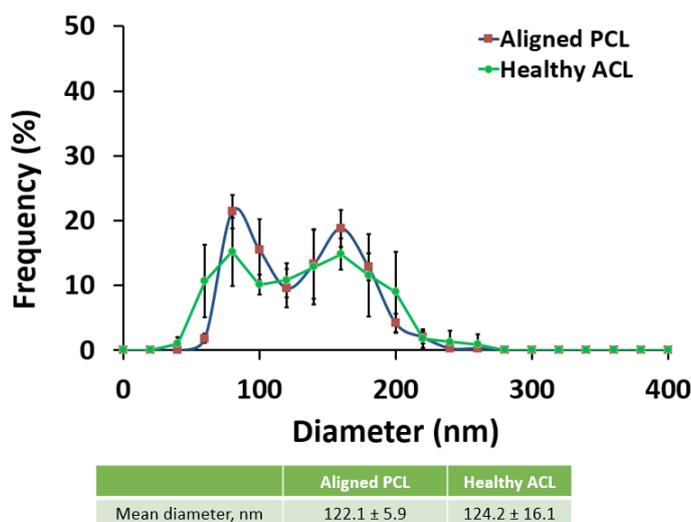


Figure 1. Quantitative comparison of fiber diameter distribution of Polycaprolactone (PCL) graft and Anterior Cruciate Ligament (ACL) of sheep. [From: MSc thesis of Smail Smatov (2021, SEDS, NU)]

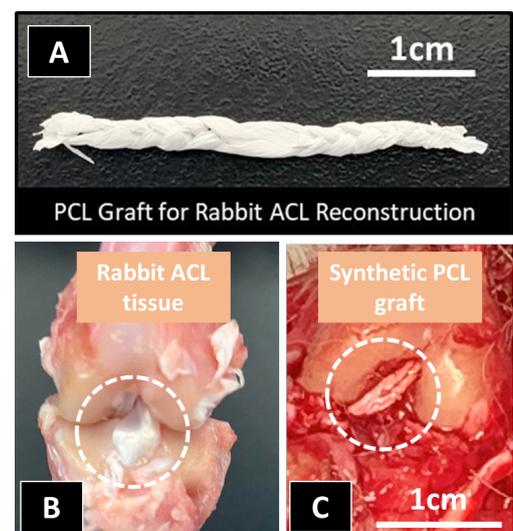


Figure 2. The synthetic Polycaprolactone (PCL) graft (A) for Anterior Cruciate Ligament (ACL) reconstruction in rabbit animal model. The native ACL (B) and the reconstructed PCL graft (C) are demonstrated in the figure.

In the Department of Chemical and Materials Engineering at NU, the native ACL tissues of bovine, sheep, and rats were successfully characterized and demonstrated to exhibit similar bimodal fibril diameter distributions. We are now developing synthetic grafts mimicking the morphological properties of the native ACL tissue. Our studies reveal that the fiber diameter distribution of polycaprolactone-based synthetic grafts is similar to that of the collagen fibrils in the native ACL tissue (Figure 1). This is significant because the suggested bimodal fibrous grafts can form a healthy tissue environment and the behavior of ACL cells cultured on these grafts may provide valuable inputs for the ACL regeneration mechanism. Together with the group of surgeons led by Dina Saginova in the National Scientific Center Traumatology and Orthopedics named after academician N.D. Batpenov, Nur-Sultan, we are carrying out in-vivo tests for the performance of the PCL grafts developed at NU (Figure 2A) using rabbit ACL reconstruction models (Figure 2B, C).

The only available treatments for torn ACLs up to date have been reconstruction surgeries using allograft, autograft, or suture-only repair. In 2021, the Food and Drug Administration (FDA) approved the first implant (BEAR) for ACL repair via suture to bridge the gap between the torn ends of ACL tissue. However, ACL ruptures in the vicinity of the ACL-Bone interface require bony nature for a biological integration that could be achieved with the implantation of synthetic grafts designed for ligament-bone attachment. Our work is, therefore, expected to have a significant impact on the progression of orthopedic-related research and the improvement of synthetic grafts for soft tissue-to-bone attachment.



# Graduate School of Education

## GSE HOSTS GLOBAL FULBRIGHT SCHOLAR



From March 28 to May 6, GSE hosted Global Fulbright Scholar Dr. Sonia Rocca as she completed a year-long research study in Uruguay, Japan, and Kazakhstan.

The Fulbright Program is the flagship international educational exchange program sponsored by the U.S. government and is designed to forge lasting connections between the people of the United States and the people of other countries, counter misunderstandings, and help people and nations work together toward common goals. The Fulbright Program is funded through an annual appropriation

made by the U.S. Congress to the U.S. Department of State. Participating governments and host institutions, corporations, and foundations around the world also provide direct and indirect support to the Program, which operates in more than 160 countries worldwide.

Dr. Rocca has 30 years' experience teaching foreign languages in three countries, holds a PhD in Theoretical and Applied Linguistics from the University of Edinburgh, and currently teaches Italian as a World Language to secondary school students at the Lycée Français de New York. During her Fulbright scholarship year, she visited the three countries to engage primary and secondary teachers in workshops and action research on mobile assisted language learning (MALL), teacher voice, and teacher agency.

While in Kazakhstan, GSE faculty and staff facilitated meetings between Dr. Rocca and teachers at: Montessori PreSchool Astana, Republican Physics and Mathematics School (FizMat), School 63, and Astana School of English.

Within GSE, Dr. Rocca delivered workshops for MA in Multilingual Education students on two topics: "Mobile Language Learning and Teaching for the 21st Century Classroom", and "Developing Language Teacher Identity and Voice in the 21st Century Classroom."

Bridget Goodman, Associate Professor of Multilingual Education at NUGSE, said, "we were very fortunate to have someone of Dr. Rocca's unique expertise and caliber come to Kazakhstan and Nazarbayev University to gather and share knowledge about foreign language teaching and learning."

Dr. Rocca commented on her time in Kazakhstan as follows: "Kazakhstan represents the culmination of my Fulbright project. My time here has been exciting as well as enlightening, as I productively engaged with faculty and students on topics that are very dear to me. In every school I visited, I felt such a warm welcome by everybody: teachers, staff, administrators and students. I'm deeply grateful to NUGSE for having given me the opportunity for such a rewarding experience.»

Upon return to the United States, Dr. Rocca plans to publish a book on global language education. She will continue to be a language educator, and additionally she will offer professional development workshops on her Fulbright topic, and embark on a new role as a language teacher mentor.

GENDER CONSORTIUM OF SCHOLARS

# SUMMER NEWSLETTER



GEN:  
CON:

The Consortium  
of Gender Scholars

We are pleased to share the following highlights from work of the Organizing and Executive team of the Consortium of Gender Scholars (GenCon) in local and international funded research, practice, and networking.

**Anna CohenMiller** (GSE)

**Jenifer Lewis** (GSB)

(Co-Founding Directors GenCon)

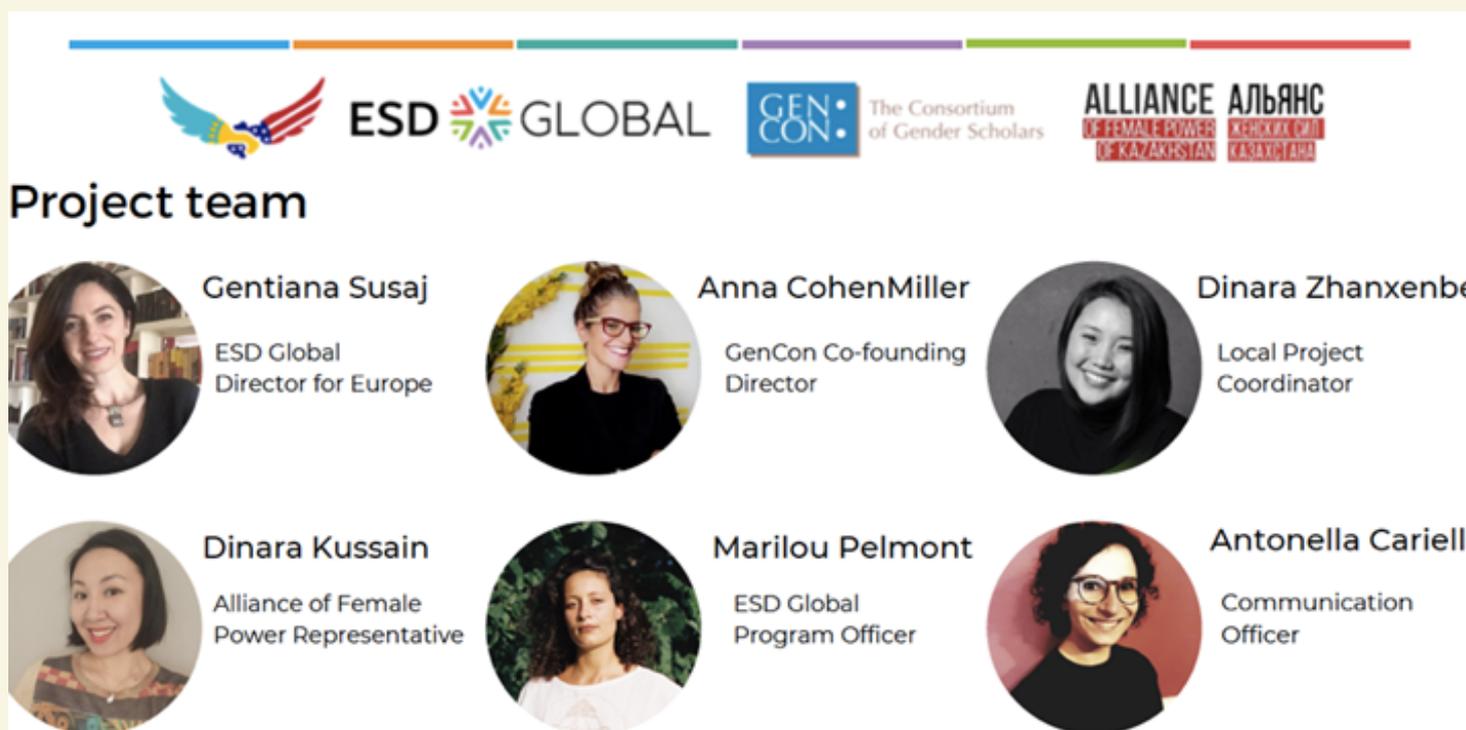
*in collaboration with* **Yelizaveta Kamila** (NU Library)

(Organizing Member & Newsletter Editor)

**Inside this issue:**

Funding highlight: *Empowerment Self-Defense (ESD) Global and the US Embassy Grant*

In this Research Newsletter update, we are highlighting a research-based praxis. In this work, the Consortium of Gender Scholars is integrating gender-based scholarship with sharing experience across the country. **Dr. Anna CohenMiller (Co-Founding Director of GenCon, GSE)** is leading the grant on behalf of GenCon. Other GenCon members currently involved include **Dr. Aray Saniyazova (GSE Alumni)** and **Zhanar Saniyazova (SSH alumni)**. The grant was awarded to work with Empowerment Self-Defense (ESD) Global and the US Embassy, along with the Alliance of Female Power. The following provides an overview of the progress in implementation of the project in Kazakhstan, ESD in general, and its relevance to Kazakhstan.



**Project team**

	<b>Gentiana Susaj</b> ESD Global Director for Europe		<b>Anna CohenMiller</b> GenCon Co-founding Director		<b>Dinara Zhanxenbe</b> Local Project Coordinator
	<b>Dinara Kussain</b> Alliance of Female Power Representative		<b>Marilou Pelmont</b> ESD Global Program Officer		<b>Antonella Carielli</b> Communication Officer

In the framework of the project, the grant into implementation of a three-pronged approach to address Sexual and Gender-based Violence (SGBV) in professional, social service and community settings and create a replicable model, including:

1. Individual knowledge and action
2. Institutional changes in policies and programs
3. Community awareness and action around SGBV, "Tools for Empowered Living in Kazakhstan" project is focused on promoting gender equality and women's empowerment to combat gender-based violence through
4. Organizing 7-day training for 14 gender and social service professionals to become certified ESD instructors
5. Organizing 3 online trainings related to GBV for other gender and social service professionals
6. Creating a cohort of individuals from a range of sectors, providing training and developing an advocacy plan around personal safety institutional and governmental policies, programs, and practices.

## Introduction to ESD

Empowerment Self Defense (ESD) is a system of learning how to avoid danger, de-escalate conflict, increase problem-solving, and build physical self-defense skills. ESD, while taught to individuals, includes community building and advocacy as a pillar of its teaching.

ESD Global is a network dedicated to building cohorts of Empowerment Self Defense (ESD) trainers and community leaders across the world, who are dedicated to preventing, interrupting, responding to, and healing from intrapersonal violence and providing tools for individuals to defend themselves.

### ESD Global works to expand the network of teachers worldwide.

ESD Global aligns with the feminist, intersectional, and human rights-based approach. These frameworks describe how women's overlapping identities—such as race, ethnicity, gender, sexual orientation, ability, physical appearance, and class, among others—affect the way they experience sexism and gender-based violence. Global access to empowerment self-defense training supports women's collective power to claim their rights to safety, respect, and freedom from violence, exploitation, and discrimination.



## ESD GLOBAL IN PARTNERSHIP WITH THE US EMBASSY

**Teacher Training 2022**  
in Kazakhstan  
September 2nd- 9th, 2022

The **Teacher Training** is a unique 7-day intensive program for **leaders and changemakers**, both aspiring and experienced, who want to develop their skills to deliver **Empowerment through Self Defense (ESD) classes** to their communities to prevent interpersonal and gender-based violence and empower individuals.  
**Apply today!**  
The training is free of charge.

The Instructor Training is a project sponsored and supported by the U.S. Diplomatic Mission to Kazakhstan.

### Progress and Implementation of the Project in Kazakhstan

The project implementation started in March 2022 and is ongoing. To date the project has included:

- Development of the full team with ESD Global Direction from Europe
- Kick-off meeting was held on 15 March with 27 participants
- Around 40 applications have been collected for the Training of Instructors in Kazakhstan, which is to be held on 2-9 September 2022
- All training materials have been translated into Kazakh and Russian.



### Current situation

Sexual, emotional, physical and economic aggression and abuse- 17% of ever-partnered women aged 18-75 reported having experienced physical or sexual violence, or both, by an intimate partner in their lifetime. 23.8% of women experience verbal, economic, physical or sexual aggression in a lifetime.

COVID-19 ramifications: Quarantine have brought “the pandemic of violence.” This is based on many factors. First is the mandatory quarantine where women are less able to leave a violent or potentially violent situation. Second is the economic stress that the pandemic put on families which correlated to increased violence (and economic abuse). Finally, while women to under-report and under-seek services for domestic violence, the closure or abbreviated hours of social service agencies hindered their work. (Okasova & Akshabayev 2020; UNFPA Kazakhstan, 2020). This confluence of factors left women trapped in many ways. In June 2020 the rate of domestic violence had risen by 25% in the three months since the beginning of quarantine (Rakhmetov, 2020).

### Relevance of ESD in Kazakhstan: Goals and Objectives

2 out of 3 women in Kazakhstan who had experienced physical and/or sexual violence by an intimate partner have reported being physically injured. Situation has worsened in the past 5 years, as domestic violence in Kazakhstan is not criminalized according to the Domestic Violence Law and survivor protections is inadequate. Intimate partner violence has consequences for women’s reproductive health- 7% of women who experienced Intimate Partner Violence reporting having had a miscarriage following their partner’s behavior.

For more information or if you would like to get involved in ESD-Global, email Dinara Zhaxynbek, [Dinara.Zhax@esdglobalselfdefense.org](mailto:Dinara.Zhax@esdglobalselfdefense.org) or [Anna.CohenMiller@nu.edu.kz](mailto:Anna.CohenMiller@nu.edu.kz)



# Call for Newsletter Contributions

For the FALL GenCon 2022 NEWSLETTER

## The Consortium of Gender Scholars is seeking your contributions for the GenCon Fall newsletter

Ideas include (but are not limited to):

- News and announcements about research addressing gender in the Central Asian context
- Conferences and events related to / or incorporating gender
- Recent publications
- Insights, ideas, about gender in our current socio-political context

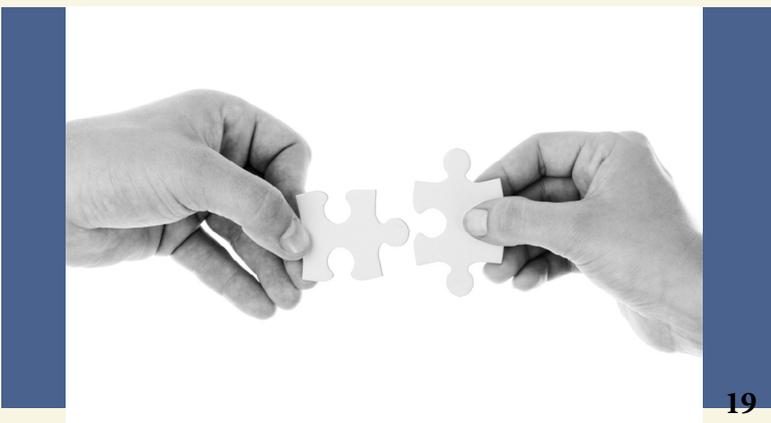
### Guidelines for Contributions

- All articles must be submitted in Word format and include a title
- Submissions may be in English, Russian or Kazakh. Translations are highly encouraged to include all three languages.
- Photos, images, or graphics are encouraged and may be resized for placement.

Articles are typically between 200-600 words but we are happy to work with you regarding space. Pictures, poems, humor, quotes, photographs, video interviews and other genres/mediums are always welcome!

**You can submit your contributions to [gencon@nu.edu.kz](mailto:gencon@nu.edu.kz)**

*By submitting a contribution to the GenCon Newsletter, you are agreeing that the content submitted will be publicly available. The Consortium of Gender Scholars reserves the right not to publish all submitted content in the GenCon Newsletter. Minor editorial changes and spelling corrections will be made. To establish the identity of contributors, your name and/or your group's name will be published with your article or contribution. By submitting images to be used with your articles, you authorize The Consortium of Gender Scholars to use these images in our publications.*



## Connect with us

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## INSTITUTE OF SMART SYSTEMS AND ARTIFICIAL INTELLIGENCE (ISSAI) LAUNCHES THERMAL FACES IN THE WILD DATASET



A paper entitled “TFW: Annotated Thermal Faces in the Wild” by the ISSAI data scientists A. Kuzdeuov, D. Aubakirova, D. Koishigarina and H. A. Varol was accepted to the prestigious journal IEEE Transactions on Information Forensics and Security. The link to the paper can be found [here](#).

In the paper, the authors present a novel dataset for the face and facial landmarks detection in thermal images. Face detection and localization of facial landmarks are the primary steps in many face applications. Numerous

algorithms and datasets have been introduced to achieve accurate detections in the wild. However, varying conditions of illumination still pose challenging problems. In this regard, thermal cameras are widely used because of their operation on longer wavelengths (without requiring the illumination or light). Thermal face and facial landmark detection in the wild is an open research problem because most of the existing datasets were collected in controlled conditions. In addition, many of them were not annotated with the face bounding boxes and facial landmarks.



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In this regard, ISSAI created the dataset “TFW: Annotated Thermal Faces in the Wild” with manually annotated bounding boxes and facial landmarks. The

dataset contains 9,982 images of 147 subjects collected under controlled and uncontrolled conditions. As a baseline, we trained the YOLOv5 and YOLO5Face models on our dataset and achieved accurate results on the external RWTH-Aachen thermal face dataset.

Some of the results of the paper show that the accuracy of the thermal face detection model was high (97.20%) when subjects were tested without the face masks with the low illumination level and remained high (85.89%) when the model was tested with the face masks and low illumination level.

**«The new dataset creates opportunities for building robust face detection models that are invariant to illumination changes, weather conditions, and skin color», - says ISSAI Data Scientist Askat Kuzdeuov.**

The dataset, source code, and pre-trained models are publicly available on [ISSAI's website](#) and on [GitHub](#) to bolster research in thermal face analysis.



NAZARBAYEV  
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LABORATORY ASTANA

## INTERVIEW WITH PROF. RUSLAN KALENDAR ON LAB PROTOCOLS



A Plos One Academic Editor Ruslan Kalendar (RK): Prof. Ruslan Kalendar is a Leading Researcher at the Laboratory of Bioinformatics and Systems Biology, National Laboratory Astana, Centre for Life Sciences, Nazarbayev University. His interests are in molecular genetics, with a particular focus on the evolution of the genome, and, in particular, mobile genetic elements. He pursues a general interest in the evolutionary processes underlying the spread and diversification of mobile genetic elements and their inactive descendants in eucaryotic genomes. The application of gene- and retrotransposon-based variation in mapping, diversity analysis, and

development of breeding tools. He has interests in the use of DNA technology in diagnostic research and software development and genomics and comparative bioinformatics (a search of repeats, DNA alignment, assembly, PCR primer design).

### **Q1. What do you think are the benefits of lab protocols for open science? How important are lab protocols in your field?**

**RK:** Plos One journal in collaboration with protocols.io has developed a unique and state-of-the-art platform for publishing lab protocols. This is a well-timed and valuable innovation. The development of scientific knowledge is based on various methodological approaches bordering on art. Due to the increasing complexity of scientific methods and their diversity, an appropriate forum or open science platform is needed, where the research community can present the best solution and point out the problems that may be encountered in other laboratories. Such a platform should of course be open, and in this form, it is really effective.

### **Q2. What is your overall experience handling the lab protocol? E.g., are there any challenges? What is the impact of this initiative on your research community?**

**RK:** In my research, I often encounter new problems for which solutions can be found in similar resources from other scientific publishers. Various publishers offer standard solutions for sharing laboratory methods and protocols. However, most of these solutions are only open to subscribers of a given publisher. Plos One in collaboration with protocols.io offers a truly unique resource for open science for laboratory methods and protocols. This is a consistent step in promoting open science in all directions, sharing experiences and new knowledge for the research community.

### **Q3. Did you have any difficulties in finding reviewers? What can we do to improve your experience?**

**RK:** The task of finding qualified reviewers is still the most difficult one. The editor gradually creates a shortlist of «verified» potential reviewers for a particular topic. But it is a matter of time and a great deal of voluntary dedication and enthusiasm on the part of the editor. The number of submissions to academic publishers increases every year. However, the number of qualified reviewers is not growing as fast as the number of articles submitted for review.

In addition, most of the researchers invited for review refuse to review scientific papers. Therefore, it can take quite a long time for an editor to find reviewers who are willing to be reviewed. In addition, the peer-review process does not guarantee that particular work will be sufficiently improved in the review process. In general, there has been an increase in the number of «weak» and low-quality papers published. Some publishers use different approaches to support the voluntary work of peer reviewers, including financially. An optimal solution for the peer review process would be the establishment of a single professional center for the research community of editors and reviewers. The role of editors and reviewers in reviewing and recommending improvements in peer-reviewed scientific papers is greater than ever before. Qualified experts can significantly improve the work submitted for review. Therefore, the involvement of an editor and an expert can be comparable to that of co-authors of a paper and can be added to the list of co-authors of a paper in the role of reviewer or editor. The names of the reviewers and the editor, are desirable in the list among the list of co-authors of the paper, in order to make the science complete - open science. In addition, the percentage of participation of each author and co-author in each published paper should be indicated.

**Q4. If you have any other comments that you would like to share with us about Lab Protocols in PLOS ONE, please let us know.**

**RK:** The next step for open science, I see, is dynamic (as opposed to today's static resource), updatable protocols and methods, and most importantly, directly updatable research results. Working on a given problem is always a team effort. Therefore, researchers from different parts of the world can work together on a given problem, and add new ideas, knowledge, and new approaches to the overall mega-work. For this purpose, it would be more consistent to have a platform for mega-articles, with updated content, which is regularly improved by adding new results from different labs and researchers. Including methodological approaches and protocols could also be updated. In this way, each individual researcher's work and contribution would be visible. The scientific activity would move to a new level of scientific data exchange and the number of scientific papers would move to a new quality. We would go from the number of publications to their quality.

**[Interviews with the lab protocol community — insights from an Academic Editor and a reviewer April 25, 2022, Jianhong Zhou Interviews](#)**

PLOS ONE has published a Lab Protocols Collection to highlight this new article type launched in early 2021. This collection showcases a set of peer-reviewed lab protocols across our broad scope, including cell biology, molecular biology, biochemistry, biotechnology, structural biology, and archaeology. We interviewed Academic Editors and reviewers from the community, in order to learn more about the importance of lab protocols in their field and their thoughts on the benefits of this article type for open science. We also discussed the future development of open science to conclude this community engagement.

# Advanced Nanomaterials Laboratory



SHARED BY KAMILA ZHUMANOVA

## EDITORSHIP



We are pleased to inform you that Prof. Atabaev has been appointed as an Associate Editor for the [Frontiers in Chemistry](#) journal (IF = 5.545). Frontiers in Chemistry is a high-profile and high-quality journal that publishes rigorously peer-reviewed articles across all chemical sciences. Associate editors for the Nanoscience section are looking for cutting-edge fundamental and applied research in all areas of materials chemistry and nanotechnology.

## EXTERNAL GRANTS AND INTERSHIPS

We are delighted to announce that the NU American Chemical Society International Student Chapter (@nu\_acs\_ics) led by Prof. Atabaev has received an external ACS grant (\$ 3000) for the third year in a row. The grant will cover the costs of organizing a Summer Chemistry Camp in Nur-Sultan for children from low-income families.



February 23, 2022

Prof. Dr. Timur Atabaev  
Nazarbayev University Student Chapter  
[timur.atabaev@nu.edu.kz](mailto:timur.atabaev@nu.edu.kz)

**SUBJECT:** Information about your 2022 Festival Grant submission

Dear Prof. Dr. Atabaev:

On behalf of the American Chemical Society's Committee on International Activities (IAC), Committee on Community Activities (CCA) and Society Committee on Education (SOCED), we want to **congratulate** you as a recipient of a 2022 Festival Grant in the amount of **\$3000**.



Sagyntay Sarsenov, a second-year MSc student in the Chemistry department and RA at Advanced Nanomaterials Lab, has been awarded a prestigious Erasmus grant to complete a two-month internship at Trinity College Dublin (Ireland). In the program framework, Sagyntay learned how to use new approaches to photocatalytic thin film deposition for hydrogen evolution.

## RESEARCH ARTICLES HIGHLIGHTED IN INTERNATIONAL NEWS

**materialstoday**  
Connecting the materials community



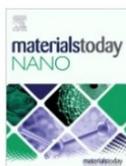
Materials Today Nano  
Featured reviews

> Submit your paper

We are pleased to bring you a selection of handpicked reviews published in 2022 from [Materials Today Nano](#).

The featured papers have been made freely available until the end of June. We hope you enjoy reading them.

- Heterogeneous advanced oxidation processes over stoichiometric  $ABO_3$  perovskite nanostructures  
Mamba, Mafa, Muthuraj, Mashayekh-Salehi, Royer, Nkambulea, and Rtimi
- [Designing inorganic nanoparticles into computed tomography and magnetic resonance \(CT/MR\) imaging-guidable photomedicines](#)  
Molkenova, Atabaev, Hong, Mao, Han, and Kim
- Recent advances in drug delivery systems for glaucoma treatment  
Patel, Barrios Silva, Park, Shakouri, Keskin-Erdogane, Sawadkar, Cho, Knowles, Chau, and Kim



A review article titled «*Designing inorganic nanoparticles into computed tomography and magnetic resonance imaging guidable photomedicine*» published in [Materials Today Nano](#) journal was featured in the prestigious Materialstoday news outlet.



Posted in | News | Materials Analysis | Graphene

### Reduced Graphene Oxide and TiO<sub>2</sub> Thin Films in Solar Cells

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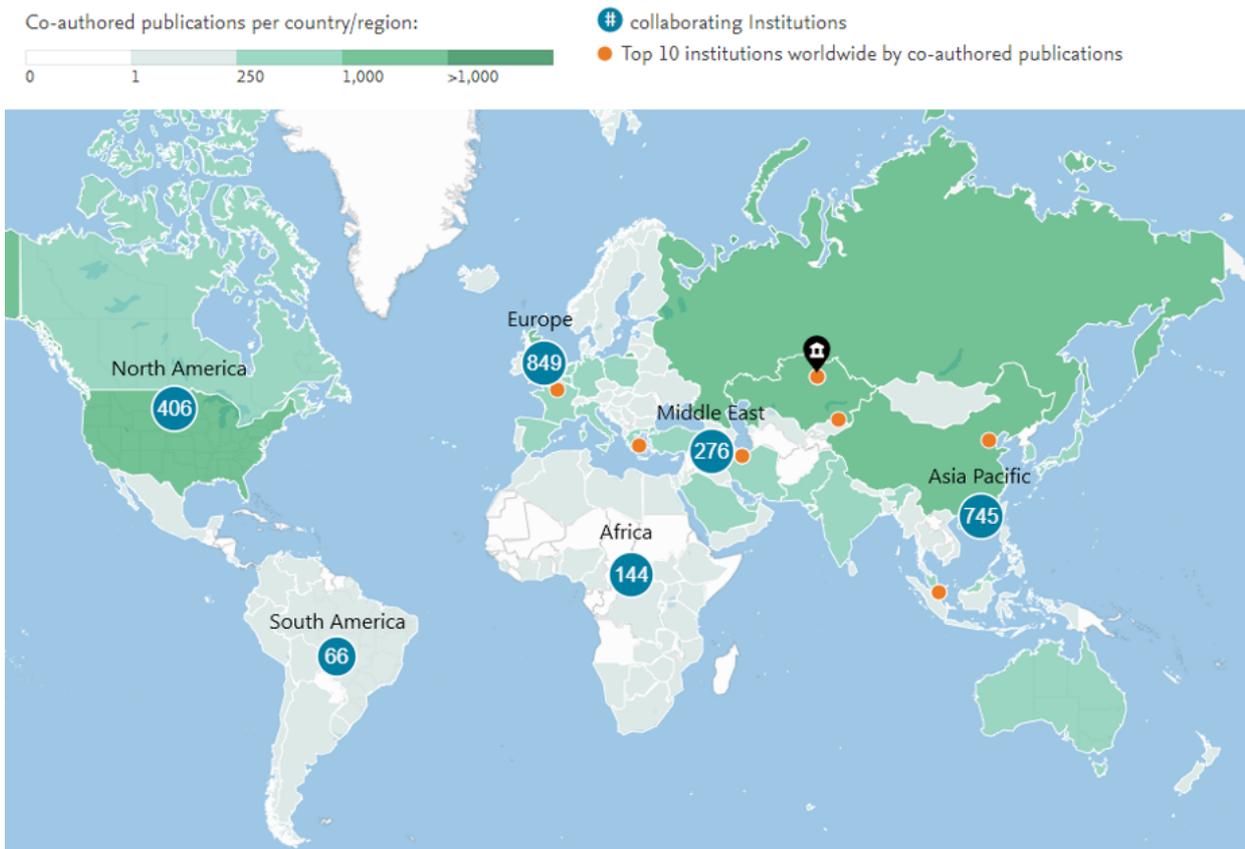
By Adrian Thompson  
Reviewed by Skylla Baily

Feb 10 2022

Solar harnessing devices require optimized, high-performance materials to ensure they are as efficient as possible. A recent paper presented in the journal *Coatings* looks at the use of thin films comprised of TiO<sub>2</sub> and reduced graphene oxide (TiO<sub>2</sub>-rGO) as an increasingly popular material in solar harvesting devices.

A research article describing a novel method for deposition of crack-free and thickness-controllable TiO<sub>2</sub> thin films containing rGO nanoflakes was highlighted in AZO materials news outlet. [AZO Materials](#) is the leading online publication that educates and informs a worldwide audience of researchers, engineers, and scientists about the latest industry news, information, and insights from the materials science industry.

# 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 6,172 peer-reviewed publications indexed by Scopus, and have been cited 53,474 times for 2011-2022 period (Source: SciVal, July 2022). The approximate number of citations per peer-reviewed publication is 8.7. The overall H-index of NU is 73, whereas H5-index is 54. The field-weighted citation impact is 1.3, meaning that our publications have been cited 30% more than would be expected based on the world average for similar publications.

The map above demonstrates the collaboration between NU and other institutions across the globe based on co-authored publications over the period from 2017 to 2022. There are 3,651

NU research papers published in collaboration with international institutions, which accounts for 68.3% of the total number of publications produced by our University. The Field-Weighted Citation Impact is 1.4.

For getting more comprehensive information on the research performance at NU, please have a look at the following [presentation](#) prepared using SciVal research evaluation platform.

If you have any questions regarding the provided information, please contact Saule Sadykova ([ssadykova@nu.edu.kz](mailto:ssadykova@nu.edu.kz))

# FUNDING OPPORTUNITIES

#	<u>Opportunity</u>	<u>Funder</u>	<u>Deadline</u>	<u>Source link</u>
<a href="#"><u>1</u></a>	Support knowledge exchange for CHANSE digital transformations research	Economic and Social Research Council (ESRC)	26-Jul-22	<a href="#"><u>URL</u></a>
<a href="#"><u>2</u></a>	Cure JM 2022 Grant (juvenile myositis worldwide)	Cure JM Foundation	30-Jul-22	<a href="#"><u>URL</u></a>
<a href="#"><u>3</u></a>	Cure JM 2022 Grant	Cure JM Foundation	30-Jul-22	<a href="#"><u>URL</u></a>
<a href="#"><u>4</u></a>	Research Large Project Grant (emergency medicine researchers)	Society for Academic Emergency Medicine Foundation (SAEMF)	1-Aug-22	<a href="#"><u>URL</u></a>
<a href="#"><u>5</u></a>	Emerging Infectious Disease and Preparedness Grant (emergency medicine researchers)	Society for Academic Emergency Medicine Foundation (SAEMF)	1-Aug-22	<a href="#"><u>URL</u></a>
<a href="#"><u>6</u></a>	The Small Research Grants Program	The Spencer Foundation	9-Aug-22	<a href="#"><u>URL</u></a>
<a href="#"><u>7</u></a>	NEXT – Neuromorphic Computing	Volkswagen Foundation	16-Aug-22	<a href="#"><u>URL</u></a>
<a href="#"><u>8</u></a>	2022 research grants program	The Merck	31-Aug-22	<a href="#"><u>URL</u></a>
<a href="#"><u>9</u></a>	Advancing Research on Care and Outcome Measurement 2.0 (ARCOM)	The Alzheimer's Association and Brain Canada Foundation	9-Sep-22	<a href="#"><u>URL</u></a>
<a href="#"><u>10</u></a>	Grant Program	The Foundation for Prader-Willi Research (FPWR)	9-Sep-22	<a href="#"><u>URL</u></a>
<a href="#"><u>11</u></a>	Research Funding (Parkinson's)	Cure Parkinson's	29-Sep-22	<a href="#"><u>URL</u></a>
<a href="#"><u>12</u></a>	APDA DIVERSITY IN PD RESEARCH GRANT: ACADEMIC YEAR 2022-2023	The American Parkinson Disease Association (APDA)	3-Nov-22	<a href="#"><u>URL</u></a>
<a href="#"><u>13</u></a>	Early Career Awards (pediatrics worldwide)	Thrasher Research Fund	4-Nov-22	<a href="#"><u>URL</u></a>
<a href="#"><u>14</u></a>	General Research Grants: Scholarships	Gerda Henkel Foundation	24-Nov-22	<a href="#"><u>URL</u></a>
<a href="#"><u>15</u></a>	Path to a Cure – Research Grants (cystic fibrosis worldwide)	Cystic Fibrosis Foundation	1-Dec-22	<a href="#"><u>URL</u></a>
<a href="#"><u>16</u></a>	Macular Degeneration Research Program (established investigators worldwide)	BrightFocus Foundation	5-Dec-22	<a href="#"><u>URL</u></a>
<a href="#"><u>17</u></a>	Macular Degeneration Research Program (new investigators worldwide)	BrightFocus Foundation	5-Dec-22	<a href="#"><u>URL</u></a>
<a href="#"><u>18</u></a>	Macular Degeneration Research Program	BrightFocus foundation	5-Dec-22	<a href="#"><u>URL</u></a>
<a href="#"><u>19</u></a>	Funding Programme Lost Cities (humanities worldwide)	Gerda Henkel Foundation	24-May-23	<a href="#"><u>URL</u></a>
<a href="#"><u>20</u></a>	Individual Investigator Research/Clinical Innovation Awards (retinal degenerative diseases)	Foundation Fighting Blindness	Rolling submissions	<a href="#"><u>URL</u></a>
<a href="#"><u>21</u></a>	Outreach and Engagement Grant	Society for Applied Microbiology	Rolling submissions	<a href="#"><u>URL</u></a>

## New research publications indexed by Scopus (count: 280 as of July 11)

- Abbasi Shirsavar, M., Taghavimehr, M., Ouedraogo, L. J., Javaheripi, M., Hashemi, N. N., Koushanfar, F., & Montazami, R. (2022). Machine learning-assisted E-jet printing for manufacturing of organic flexible electronics. *Biosensors and Bioelectronics*, 212 doi:10.1016/j.bios.2022.114418
- Abdallah, Y. O., Shehab, E., & Al-Ashaab, A. (2022). Developing a digital transformation process in the manufacturing sector: Egyptian case study. *Information Systems and e-Business Management*, doi:10.1007/s10257-022-00558-3
- Abdikarim, A., & Suragan, D. (2022). Green's identities for  $(p, q)$ -sub-laplacians on the heisenberg group and their applications. *Complex Analysis and Operator Theory*, 16(3) doi:10.1007/s11785-022-01219-6
- Abdiyev, K. Z., Toktarbay, Z., Orynbayev, B. Y., Zhursumbaeva, M. B., Seitkaliyeva, N. Z., & Nakan, U. (2022). Structure formation in suspensions and biocidal properties of copolymer of 2-acrylamido-2-methylpropanesulfonic acid and allylamine. *Materials Today: Proceedings*, doi:10.1016/j.matpr.2022.06.050
- Abibullaev, B., & Zollanvari, A. (2022). A systematic deep learning model selection for P300-based brain-computer interfaces. *IEEE Transactions on Systems, Man, and Cybernetics: Systems*, 52(5), 2744-2756. doi:10.1109/TSMC.2021.3051136
- Abulkhair, S., & Madani, N. (2022). Stochastic modeling of iron in coal seams using two-point and multiple-point geostatistics: A case study. *Mining, Metallurgy and Exploration*, doi:10.1007/s42461-022-00586-0
- Adair, D., & Jaeger, M. (2022). Use of the chebyshev collocation method for vibration analysis of carbon-nanotube reinforced composite beams with elastic boundary conditions doi:10.1007/978-981-16-8806-5\_4 Retrieved from www.scopus.com
- Adhikari, B., Jeong, J. M., & Peksen, D. (2022). Compliant or defiant? economic sanctions and united nations general assembly voting by target countries. *International Interactions*, 48(3), 397-422. doi:10.1080/03050629.2022.2059478
- Adilkhanova, Z., Nurlankul, A., Token, A., & Yavuzoglu, B. (2022). Trade credit and financial crises in kazakhstan. *Journal of Asian Economics*, 80 doi:10.1016/j.asieco.2022.101472
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- Aghdamigargari, M., & Spitas, C. (2022). Predicting the cumulative variation of 3-D mechanical assemblies using an 'Idea algebra' framework. *Journal of Engineering Design*, 33(6), 441-460. doi:10.1080/09544828.2022.2084330
- Ahmed, K., Sheikh, A., Fatima, S., Haider, G., Ghias, K., Abbas, F., . . . Abidi, S. H. (2022). Detection and characterization of latency stage of EBV and histopathological analysis of prostatic adenocarcinoma tissues. *Scientific Reports*, 12(1) doi:10.1038/s41598-022-14511-4
- Ahmed, T., Nisar, U. B., Khan, S., Abid, M., Zahir, M., Murtaza, R., & Sagin, J. (2022). Effects of water qualities of kabul river on health, agriculture and aquatic life under changing climate. *Desalination and Water Treatment*, 252, 319-331. doi:10.5004/dwt.2022.28259
- Aimagambetova, G., Babi, A., Issa, T., & Issanov, A. (2022). What factors are associated with attitudes towards HPV vaccination among kazakhstani women? exploratory analysis of cross-sectional survey data. *Vaccines*, 10(5) doi:10.3390/vaccines10050824
- Ainayev, Y., Zhanbyrbekuly, U., Gaipov, A., Kissamedenov, N., Zhaparov, U., Suleiman, M., . . . Khairli, G. (2022). Autologous testicular tunica vaginalis graft in Peyronie's disease: A prospective evaluation. *International Urology and Nephrology*, 54(7), 1545-1550. doi:10.1007/s11255-022-03223-3
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