



RESEARCH NEWSLETTER

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NU response to COVID-19

New research projects addressing the COVID-19 outbreak start in August

In May, The Office of the Provost announced a special call for research projects aiming to address and mitigate the impacts of the Covid-19 pandemic. In total there were 19 proposals submitted by our faculty members, which all have been peer-reviewed by field experts from the University of Pittsburgh. On July 28th by the decision of the Managing Council 12 research projects officially start from August 1st this year and will be conducted by December 31, 2022. The given projects are intended to play a key role in understanding the gaps in our knowledge and provide valuable insights in mitigating the negative consequences of the pandemic in the national context. Below is the list of the awarded research proposals:

#	Project	PI	School
1	Clinico-epidemiological assessment of COVID 19 infection in Kazakhstan	Colet, Paolo	NUSOM
2	Cough Analyzer and symptoms tracking (COVID 19)	Clementi, Alessandra	NUSOM
3	The Immediate and Long-term Mental Health Effects of Providing Front-Line Hospital Medical Care During the Coronavirus Pandemic in Kazakhstan	Foster, Faye	NUSOM
4	Effects of pandemics on sustainable buildings and development of a sustainability assessment tool based on COVID-19 experience	Karaca, Ferhat	SEDS
5	Development of a diagnostic test for the detection of human antibodies to SARS-CoV-2 (COVID-19)	Hortelano, Gonzalo	SSH
6	Preparing Department of Kazakh Language and Turkic Studies (KazLT) for Online Teaching: Pedagogies, Practices and Technological Tools	Guyen, Funda	SSH
7	Battling host proteases to prevent productive infection by SARS-CoV-2 and severe complications of COVID-19	Burster, Timo	SSH
8	Crisis, Risk, and Uncertainty in Modern Eurasian Governance. Managing the politics of fear and the politics of science in the era of COVID-19.	Schenk, Caress	SSH
9	Suppression of SARS-CoV-2 viral replication and assembly by lithium chloride aerosol: Rationale for treatment of COVID-19 patients	Sarbassov, Dos	SSH
10	The Impact of the COVID-19 Pandemic on Trade Credit, Delinquency and Firm Dynamics in Kazakhstan	Seccia, Giulio	SSH
11	Rapid Detection of SARS-CoV-2 Spike Glycoprotein Using An Electrochemical Impedance Sensor	Kanayeva, Damira	SSH
12	The early detection of coagulation disbalances in COVID-19 infection using microfluidics chip for extracellular vesicles	Barteneva, Natalie	SSH

Latest research publications affiliated with NU about coronavirus

1. Covid-19 treatment: The race against time (Open Access)

Authors: Aljofan, M., Gaipov, A.

Brief Description: «The new outbreak of the novel coronavirus infection emerged in Wuhan-China in late 2019, by the end of Mar 2020, it has spread in more than 178 countries and territories. There is no vaccine or antiviral treatment for COVID-19. Currently, there are several drugs and vaccines being tested for their potential activity against the disease. In this review, we briefly discuss some of the investigational drugs and vaccines being tested against COVID-19 as well as their potential drawbacks.»

Full text is available via this [link](#)

2. Management of pediatric rheumatic patients in Kazakhstan during the coronavirus disease 2019 (COVID-19) pandemic

Authors: Mukusheva, Z., Assylbekova, M., Poddighe, D.

Brief Description: «The current COVID-19 pandemic created several and important issues for the management of patients with chronic diseases. Even if children are not the population most at risk of developing severe forms of COVID-19, rheumatic diseases and the related immunosuppressive therapies are known to predispose to several infections...»

Full text is available via this [link](#)

3. Clustering analysis of countries using the COVID-19 cases dataset (Open Access)

Authors: Zariakas, V., Pouloupoulos, S.G., Gareiou, Z., Zervas, E.

Brief Description: «There is a worldwide effort of the research community to explore the medical, economic and sociologic impact of the COVID-19 pandemic. Many different disciplines try to find solutions and drive strategies to a great variety of different very crucial problems. The present study presents a novel analysis which results to clustering countries with respect to active cases, active cases per population and active cases per population and per area based on Johns Hopkins epidemiological data. The presented cluster results could be useful to a variety of different policy makers, such as physicians and managers of the health sector, economy/finance experts, politicians and even to sociologists. In addition, our work suggests a new specially designed clustering algorithm adapted to the request for comparison of the various COVID time-series of different countries.»

Full text is available via this [link](#)

4. COVID-19 outbreak in post-soviet states: Modeling the best and worst possible scenarios (Open Access)

Authors: Issanov, A., Amanbek, Y., Abbay, A., (...), Kashkynbayev, A., Gaipov, A.

Brief Description: «COVID-19 pandemic has presented extreme challenges to developing countries across the world. The aim of this paper was to provide estimates for current development COVID-19 pandemic in the Post-Soviet states and forecast potential best and worst scenarios for spread of this deadly infection. Methods: The data on COVID-19 cases extracted from official governmental sources until April 18, 2020. A modified SEIR (Susceptible-Exposed-Infected-Recovered) modelling was used to plot the pandemic outbreak in 10 PostSoviet states and forecasting over the period of 10, 30 and 60 days. The optimal measures (best-scenario) and suboptimal measures (worst-scenarios) of potential spread of COVID-19 in these countries were estimated. Results: It was estimated that Armenia and Azerbaijan have reached their peaks, Kazakhstan, Kyrgyzstan, Moldova, and Uzbekistan are expected to reach their peaks in the early May-2020), with comparatively low cases of COVID-19 in the best-case scenario. In contrast, Belarus, Russia, and Ukraine would likely see the outbreaks with the largest number of COVID-19 cases amongst the studied Post-Soviet

States in the worst-scenario during the next 30 and 60 days. Conclusion: Governmental response was shown to be as an important determining factor responsible for the development of COVID-19 epidemic in Post-Soviet states. The current protection rates should be maintained to reduce active cases during upcoming 30 and 60 days. The estimated possible scenarios based on the proposed model can potentially be used by healthcare professionals from each studied Post-Soviet States as well as others to improve plans to contain the current and future epidemic.»

Full text is available via this [link](#)

5. Chloroquine and COVID-19: A light at the end of the tunnel, or is it another train? (Open Access)

Authors: Aljofan, M., Gaipov, A.

Brief Description: «Over the last a few decades, the world has faced several viral disease outbreaks including Hendra, Nipah, severe acute respiratory syndrome (SARS), Influenza (H1N1), Middle East respiratory syndrome (MERS), Zika and most recently coronavirus disease 2019 (COVID-19). The economical and health impacts of the outbreaks were limited to certain affected areas only, but the recent outbreak of COVID-19 seems to have a global impact on human health, health resources and global economy.»

Full text is available via this [link](#)

6. Assessing air quality changes in large cities during COVID-19 lockdowns: The impacts of traffic-free urban conditions in Almaty, Kazakhstan

Authors: Kerimray, A., Baimatova, N., Ibragimova, O.P., (...), Plotitsyn, P., Karaca, F.

Brief Description: «Number of cities worldwide experienced air quality improvements during COVID-19 lockdowns; however, such changes may have been different in places with major contributions from nontraffic related sources. In Almaty, a city-scale quarantine came into force on March 19, 2020, which was a week after the first COVID-19 case was registered in Kazakhstan. This study aims to analyze the effect of the lockdown from March 19 to April 14, 2020 (27 days), on the concentrations of air pollutants in Almaty. Daily concentrations of PM_{2.5}, NO₂, SO₂, CO, O₃, and BTEX were compared between the periods before and during the lockdown. During the lockdown, the PM_{2.5} concentration was reduced by 21% with spatial variations of 6–34% compared to the average on the same days in 2018–2019, and still, it exceeded WHO daily limit values for 18 days. There were also substantial reductions in CO and NO₂ concentrations by 49% and 35%, respectively, but an increase in O₃ levels by 15% compared to the prior 17 days before the lockdown. The concentrations of benzene and toluene were 2–3 times higher than those during in the same seasons of 2015–2019. The temporal reductions may not be directly attributed to the lockdown due to favorable meteorological variations during the period, but the spatial effects of the quarantine on the pollution levels are evidenced. The results demonstrate the impact of traffic on the complex nature of air pollution in Almaty, which is substantially contributed by various nontraffic related sources, mainly coal-fired combined heat and power plants and household heating systems, as well as possible small irregular sources such as garbage burning and bathhouses.»



NAZARBAYEV
UNIVERSITY
N A T I O N A L
LABORATORY ASTANA

NLA RESEARCHERS ANALYZE DNA OF PATIENTS WHO RECOVERED FROM COVID-19



A group of scientists from the National Laboratory of Astana are planning to study the DNA of individuals who have had COVID-19 in Kazakhstan. Currently, protocols for biomaterial intake are being developed and blood collection in hospitals has been started. All works with primary material will be carried out in the laboratories licensed to work with infected material.

In particular, scientists plan to study the DNA of patients with coronavirus infection, to sequence complete genomes of patients with

coronavirus and genomes of coronaviruses themselves to understand the infection's clinical course and various presentations in humans. Scientists of the National Laboratory Astana Nazarbayev University have the necessary equipment, infrastructure, and relevant research experience at their fingertips to successfully perform such a task.

– After the primary procedures, we plan to analyze safe material in NU high-tech laboratories on sequencers of the next generation of the Laboratory of Genomic and Personalized Medicine. The scientists of the Laboratory of Bioinformatics and Systemic Biology will further analyze the sequencing data, – says Dr. Ainur Akilzhanova, Head of the Laboratory of Genomic and Personalized Medicine, National Laboratory Astana.

The National Program of Personalized Medicine Implementation for 2020-2022 was recently approved by the Government of the Republic of Kazakhstan. This program is the first large-scale one of its kind using personalized medicine to study leading chronic non-communicable diseases, with an emphasis on their prevention and early diagnosis. Along with the genetic predisposition of Kazakhstan's population, scientists will study the pharmacogenetic aspects of therapy.

It is noteworthy that this program's epidemiological research will cover all regions of Kazakhstan to assess the true prevalence of major chronic diseases and the readiness of primary health care organizations to work in the context of the COVID-19 pandemic. The planned study will also identify antibodies to SARS-CoV-2 to investigate how collective immunity to this infection might be formed.

PREPARED BY ZHAZIRA BUKINA



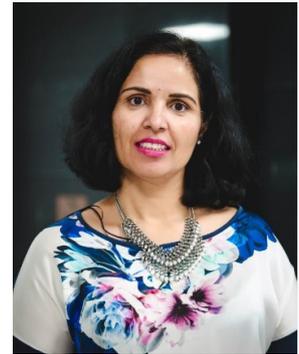
Graduate School of Education News

School Education Research Group (SERG) Research Update

Message from Research Chair,
Professor Naureen Durrani

It gives me great pleasure to showcase the remarkable research achievements of the School Education Research Group (SERG). Research undertaken by SERG members is concerned with the challenges of quality, equity and inclusion in education system delivery in Kazakhstan, in the post-Soviet space and globally.

Despite the disruption to our research due to school closures amidst the COVID 19 pandemic SERG members end the academic year 2019-2020 with amazing accomplishments. Collectively, SERG members have produced 46 new publications and have engaged in a range of knowledge exchange and public engagement activities in schools and beyond to support the educational reform agenda of the Government of Kazakhstan. I look forward to sharing with you the selected research stories of my team next term and wish SERG members a restful summer break and a prosperous and productive year ahead.



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NEW GRANTS

International/ External

1. *The Political Economy of Education Research (Peer) Network* funded by the Arts & Humanities Research Council (AHRC) UK (Apr 2020 - Dec 2023). PI: Prof A. Smith; co-PIs Prof **N. Durrani**, NU; Prof M. Novelli, (Sussex); Prof A. Badroodien (Cape Town).
2. *GCRF (Global Challenges Research Fund) Development Award: The Political Economy of Education Research (PEER) Network*, funded by AHRC (Arts and Humanities Research Council) UK, (July 2019 – June 2021). PI: Prof A. Smith (Ulster); co-PIs: Prof **N. Durrani** (NU); Prof M. Novelli (Sussex) & Prof A. Badroodien (Cape Town).
3. *Partnerships for Equity and Inclusion* funded by the Engineering and Physical Sciences Research Council (EPSRC) UK (Apr 2020 – May 2021). (PI: DR Ghazala Mir (Leeds); co-PI Prof **N. Durrani**).
4. *Teacher Leadership in Kazakhstan* (August 2019-June 2022) funded by CEF 'School for All', PI: **G. Qanay**; Co-PI: **M. Courtney**.

NU Grants

1. *Co-Writing Kazakh: Learning a new script with a robot* (2020-22) funded by Nazarbayev University Collaborative Research Grant. PI: A. Sandygulova; Co-PI: A.S. CohenMiller.
2. *Mental health and help-seeking behaviours of university students in Kazakhstan* (2020 - 2022) funded by Nazarbayev University Faculty Competitive Grant (PI: D. Hernández-Torrano; Co-PIs: A. Almukhambetova, Clementi,)
3. *Inclusive Early Childhood Education and Care (IECE) in Kazakhstan: An Explanatory Mixed-Method Approach* (2020 – 2022) funded by Nazarbayev University Faculty Competitive Grant. PI: F Polat; co-PIs – J. Helmer, K. Malone.

EXISTING GRANTS

International:

1. *Modelling in Biology - Leaders in Science and Engineering (MoBiLSE) (2015 – 2021)* funded by Math Science Partnership Grant, US. PI: **K. Malone**, co-PIs: K. Irving, Z. Sabree, L. Ding, K. Harper.

Social Policy Grants:

1. *Content and language Integrated Learning (CLIL) at Nazarbayev Intellectual Schools: exploring teachers' conceptions and self-reported practices of code-switching (2019-2020)* PI: L. Karabassova.
2. *Early Career Teachers: How prepared are they for the job? (2018-2020)* funded by NU Social Policy Grants. PI: J. Helmer.
3. *Perceptions of Science Teachers Towards Science Modeling and Engineering and Barriers to Authentic Practice (2018-2020)* PI: K. Malone.

Faculty Development Grants:

1. *Gender and Schooling in Kazakhstan (2019-2021)* PI: N. Durrani; Co-Is: A.S. CohenMiller & Z. Kataeva.
2. *Dramatic Inquiry, Engineering Design, Primary Students' and STEM vs STEAM (2018-2021)* PI: K. Malone; co-PIs: J. Helmer & A. Shafiei.
3. *Quality issues in rural schools in Kazakhstan (2018-2020)* PI: M. A.Tajik; Co-PI: D. Shamatov.
4. *Why the pipeline leaks? Understanding female students' experiences in STEM in Kazakhstan.* PI: A. Almukhambetova. Co-PI: D.Hernandez Torrano & Aliya Kuzhabekova.



Dr Ainur Almukhambetova



Dr Anna CohenMiller



Dr Matthew Courtney



Dr Janet Helmer



Dr Daniel Hernández-Torrano



Dr Laura Karabassova



Dr Kathy Malone



Dr Gulmira Qanay (Kanayeva)



Dr Duishon Shamatov



Prof Elaine Sharplin



Dr Mir Afzal Tajik

SERG
MEMBERS

PUBLICATIONS

SERG members have been very productive in turning their excellent research into outputs. In total, the group has published 45 outputs, including 33 peer-reviewed papers in international journals, 10 peer-reviewed book chapters and 2 papers in peer-reviewed national journals.

Peer-reviewed Papers: International Journals

1. Ajodhia, A. & CohenMiller, A. S. (2019). Can arts-informed pedagogy facilitate communities of learning and belonging for minoritised early years children? An integrative review of research. [International Journal of Early Years Education](#).
2. Almukhambetova, A. & Kuzhabekova, A. (2020). Factors affecting the decision of female students to enrol in undergraduate science, technology, engineering and mathematics majors in Kazakhstan. *International Journal of Science Education* (6), 934-954.
3. Almukhambetova, A., & Hernández-Torrano, D. (2020). Gifted students' adjustment and underachievement in university: An exploration from the self-determination theory perspective. [Gifted Child Quarterly](#), 64, 117-131.
4. CohenMiller, A. S. & Demers, D. (2019). Conflicting roles of mother and academic?: Exploring the use of arts-based self-care activities to encourage wellbeing. [Art/Research International: A Transdisciplinary Journal](#).
5. CohenMiller, A. S. & Pate, E. (2019). A model for developing interdisciplinary research and theoretical frameworks. [The Qualitative Report](#), 24(6).
6. CohenMiller, A. S. (2020). Performing, passing, and covering motherhood in academia: A heartfelt autoethnography. [Learning Landscapes](#), 13(1), pp. 97-114.
7. CohenMiller, A. S., Koo, S., Collins, N., & Lewis, J. (2020). EXPOSing gender in science: A visual analysis with lessons for gender awareness and science diplomacy. [Gender, Technology and Development](#), 24:2, 215-235.
8. CohenMiller, A. S., Smat, N., Yenikayeva, A., & Yassinova, K. (2020). Creative Pedagogy and Praxis with Social Media: Applications in and Out of the Qualitative Research Classroom. [The Qualitative Report](#), 25(5).
9. Crossouard, B., Dunne, M., & Durrani, N. (2019). Silencing youth sexuality in Senegal: intersections of medicine and morality. [Gender and Education](#), 31(2), 153 - 170.
10. Crossouard, B., Dunne, M., & Durrani, N. (2020). Understanding agency differently: female youth's Muslim identities, [Social Identities](#), 26(3), 361-375.
11. Dunne, M., Fincham, K., Crossouard, B., & Durrani, N. (2020). Gender symbolism and the expression of post-colonial national and religious identities, [Social Identities](#), 26(3), 376-387.
12. Dunne, M., Durrani, N., Fincham, K., & Crossouard, B. (2020). Pluralising Islam: doing Muslim identities differently, [Social Identities](#) 26(3), 345-360.
13. Durrani, N. & Crossouard, B. (2020). National Identities and the External Other in Muslim Majority Contexts: Youth Narratives in Pakistan and Senegal, [Social Identities](#) 26(3), 314-329.
14. Hernández-Torrano, D. & Kuzhabekova, A. (2020). The state and development of research in the field of gifted education over 60 years: A bibliometric analysis of four gifted education journals (1957-2017). [High Ability Studies](#).
15. Hernández-Torrano, D. & Ibrayeva, L. (2020). Creativity and education: A bibliometric review of the literature (1975-2019). [Thinking Skills and Creativity](#), 35, 1-17.
16. Hernández-Torrano, D., Ibrayeva, L., Sparks, J., Lim, N., Clementi, A., Almukhambetova, A., Nurtayev, Y., & Muratkyzy, A. (2020). Mental health and well-being of university students: A bibliometric mapping of the literature. [Frontiers in Psychology](#), 11, 1-16
17. Hernandez-Torrano, D., Somerton, M., & Helmer, J. (2020). Mapping research on inclusive education since the Salamanca Statement: A bibliometric review of the literature over 25 years. [International Journal of Inclusive Education](#) (published ahead of print)

18. Humphreys S, Dunne M, Durrani N, Sankey S, & Kaibo J. (2020). Becoming a teacher: Experiences of female trainees in initial teacher education in Nigeria. [Teaching and Teacher Education](#) 1;87:102957.
19. Karabassova, L. (2019). CLIL or “just good teaching” in Kazakhstan? [Revista Nebrija de Linguística Aplicada a la enseñanza de las Lenguas](#). 13 (27), 55-71.
20. Karabassova, L. (2020) Is top-down CLIL justified? A grounded theory exploration of secondary school Science teachers’ experiences, [International Journal of Bilingual Education and Bilingualism](#).
21. Kuzhabekova, A., & Almukhambetova, A. (2019). Women’s progression in the leadership pipeline in the universities of Kazakhstan and Kyrgyzstan. [Compare: A Journal of Comparative and International Education](#). 1-19.
22. Malone, K.L., Irving, K.E., Tiarna, V., Kajfez, R., Lin, H., Giasi, T., & Edmiston, B. (2018). Engineering Design Challenges in Early Childhood Education: Effects on Student Cognition & Interest. [European Journal of STEM Education](#) – Special Issue: STEM and Early Childhood Education, 3(3).
23. Namyssova, G., Tussupbekova, G., Helmer, J., Malone, K., Afzal, M. & Jonbekova, D. (2019). Challenges and benefits of Blended Learning in Higher Education: A case of Kazakhstan. [International Journal of Technology in Education](#), 2 (1), 22-31.
24. Nishioka, S. & Durrani, N. (2019). Language and cultural reproduction in Malawi: Unpacking the relationship between linguistic capital and learning outcomes, [International Journal of Educational Research](#), 93: 1-12.
25. Porter, Teresa, West, Meg E., Kajfez, Rachel L., Malone, K. L., & Irving, Karen E. (2019). The Effect of Teacher Professional Development on Implementing Engineering in Elementary Schools, [Journal of Pre-College Engineering Education Research \(J-PEER\)](#). 9(2).
26. Qanay, G., Ball, Sh., Anderson-Payne, E., Barnett, P., Kurmankulova, K., Mussarova, V., Kenzhetaeva, G. and Tanayeva, A. (2019). Developing teacher leadership in Kazakhstan. [International Journal of Teacher Leadership](#), 10(1): 53-64.
27. Senior, K., Chenhall, R., & Helmer, J. (2020). «Boys mostly just want to have sex”: Young Indigenous people talk about relationships and sexual intimacy in remote, rural and regional Australia. [Sexualities](#), 1-23.
28. Somerton, M., Helmer, J., Kasa, R., Hernández-Torrano, D., & Makoelle, T. (2020). Defining Spaces: Resource Centres, Collaboration, and Inclusion in Kazakhstan. [Journal of Educational Change](#).
29. Tajik, M.A. & Wali, A. (2020). Principals’ strategies for increasing students’ participation in school leadership in a rural, mountainous region in Pakistan, [Improving Schools](#), 1-19.
30. Veal, W., Malone, K.L., Wenner, JA., Odell, M., & Hines, SM., (2019). Increasing science preservice teachers’ ability to become lifelong learners through a professional online learning community. [Innovations in Science Teacher Education](#), 4(1).
31. Winter, L., Hernández-Torrano, D., McLellan, R., Almukhambetova, A., & Brown-Hajdukova, E. (2020). A contextually adapted model of school engagement in Kazakhstan. [Current Psychology](#).
32. Yılmaz, Ö., & Malone, K.L. (2020). Preservice Teachers Perceptions about the use of Blended Learning in a Science Education Methods Course. [Smart Learning Environments](#), 7 (1), 1-21.

Peer-reviewed Book Chapters

1. CohenMiller, A. & Lewis, J. (2019). «Gender Audit as Research Method for Organizational Learning and Change in Higher Education», Demos, V., Segal, M. and Kelly, K. (Ed.) [Gender and Practice: Insights from the Field](#) (Advances in Gender Research, Vol. 27), Emerald Publishing Limited, pp. 39-55.
2. Durrani N. & Nawani D. (2020). Knowledge and Curriculum Landscapes in South Asia. In: Sarangapani P., Pappu R. (eds) [Handbook of Education Systems in South Asia. Global Education Systems](#). Springer, Singapore.
3. Durrani N., Kaderi A.S., & Anand K. (2020). National Identity and the History Curriculum. In: Sarangapani P., Pappu R. (eds) [Handbook of Education Systems in South Asia. Global Education Systems](#). Springer, Singapore.
4. Durrani, N. & Halai, A. (2020). Gender equality, education, and development: Tensions between global, national, and local policy discourses in postcolonial contexts. In: Wulff, A. (Ed) [Grading Goal Four: Tensions, threats and opportunities in the sustainable development goal on quality education](#) (PP 65-95). Brill Sense.
5. Hernández-Torrano. D., Tursunbayeva, X, & Almukhambetova, A. (2019). Teachers' conceptions about giftedness and gifted education: An international perspective. In M. A. Zanetti, G. Gualdi, M. Cascianelli (eds.), [Understanding Giftedness: A guide for parents and educators](#). London: Routledge.
6. Malone K.L., Helmer, J. & Polat, F. (2019). Student authored Case Studies: The Case of an Educational Leadership Course in Kazakhstan. In Baron, A. & McNeal, K. (eds.), [Case Study Methodology in Higher Education](#) (pp. 133-159). Hershey, PA: IGI Global.
7. Malone, K.L., Schuchardt A.M. & Sabree, Z. (2019). Models and Modeling in Evolution. In Ute Harms and Michael J Reiss (Eds), [Evolution Education Re-considered: Understanding What Works](#) (pp. 207-226). Switzerland: Springer International Publishing.
8. Namysova, G., Tussupbekova, G., Helmer, J., Malone, K., Afzal, M. & Jonbekova, D. (2019). Challenges and benefits of Blended Learning in Higher Education: A case of Kazakhstan. [International Journal of Technology in Education](#), 2 (1), 22-31.
9. Shamatov, D., Dyikanbaeva, T. & Omokeev, U. (2019). Language and Education Quality in Kyrgyzstan: Demographic and Geographic Analysis of National Scholarship Test Results. In Brunn, S., Kehrein, R. & Gilbreath, D. (Eds.). [Handbook of the Changing World Language Map](#). Dordrecht, the Netherlands: Springer publishing company.
10. Shamatov, D., Kerimkulova, A., McHutchon, D. & Tajik, M.A. (2019). Teacher education in Kazakhstan, in Karras, K. & Wolhuter, C. (eds), [International Handbook on Teacher Education Worldwide \(Volume 1 & 2\)](#). Atrapos Editions, Germany.

Publications in National Journals

1. Shamatov, D., Ibrasheva, A., & Mazbulova, Z. (2019). Improving scholarly publications in Kazakhstan by introducing peer review (in Russian). Higher School of Kazakhstan, 3(27), 27-32.
2. Shamatov, D. (2019). Standardized testing as indicator of educational quality (in Russian). N 5 (85), 2019. Eastern Kazakhstan oblast, Pedagogic Vestnik, pp. 53-56.
3. Shamatov, D. & CohenMiller, A. (2020). Webinars as Effective Tools for Online Learning: Session by Andy Hargreaves. Information and methodical journal "Pedagogic Dialogue, 2 (32) 2020. Nur-Sultan. NIS.

KNOWLEDGE EXCHANGE & PUBLIC ENGAGEMENT



Prof Durrani and Dr Kataeva presented findings from their ongoing research on ‘Gender and Schooling in Kazakhstan’ in a seminar organized by the Kazakh National Women’s Teacher Training University on November the 8th 2019. Senior academics and gender researchers from universities across Almaty, as well as NGOs focussing on gender participated in the seminar.

Capacity Development

- Funded by KERA, Dr Shamatov together with Hernández-Torrano facilitated a Winter School on Research Methods for researchers working in Kazakhstani universities, December 9-13, 2019.
- Funded by KERA, Prof Sharplin and Dr Shamatov conducted training for the faculty of Kokshetau State University on research ethics as part of the research project “Improving the quality of teacher education in Kazakhstan: Using stakeholder perspectives for innovation and research capacity building”. November 5-6, 2019.
- Dr Shamatov conducted a seminar on Qualitative Methods for trainers of Center of Excellence of NIS, June 19th, 2020
- Dr Shamatov conducted a webinar on “Academic Integrity in Secondary and Higher Education” on May 18, 2020. Participants included teachers, master students, doctoral students, postdoctoral fellows, teaching and research staff members.
- Dr Shamatov facilitated a two-day workshop on research methods for faculty of the Academy of Management under the President of Republic of Kazakhstan, Feb 28-29, 2020.

AGA KHAN LOCAL EDUCATION BOARD, RAWALPINDI

TOPIC:
THE POWER OF HABITS

THE POWER OF HABIT
WHY WE DO IT - WHAT WE DO IN LIFE AND BUSINESS

ON SUNDAY, JULY 12, 2020
5:00 – 6:00 PM
CONNECT VIA ZOOM

Who should attend?
Students and Parents

WEBINAR SERIES

HUMAN ACTIONS AND DECISIONS ARE CONTROLLED MAINLY BY THE BRAIN, THE HEART AND THE HABITS. THE THREE INTERACT AND INFLUENCE EACH OTHER. HOWEVER, THE HABITS, ONCE ESTABLISHED, CAN BECOME SO POWERFUL THAT THEY CAN OVSERHADOW THE BRAIN AND HEART.

Speaker:
Dr. Mir Afzal Tajik
Associate Professor and Director
PHD Program Education,
Nazarbayev University

A Joint Initiative of
AGA KHAN LOCAL EDUCATION BOARD, RAWALPINDI
& AGA KHAN YOUTH AND STUDIES BOARD, RAWALPINDI

During the Covid-19, Dr Tajik delivered the following seminars to audiences in Pakistan and Afghanistan:

- Seminar on “Leadership in the times of crises” for the Master students and faculty at Kardan University, Kabul, Afghanistan (April 22, 2020);
- Seminar on “The power of habits” for university and school students, parents and educators in Pakistan (July 12, 2020) organized by Aga Khan Education Board, Pakistan;
- Seminar on “Learning during lockdown” for teachers, educators, students and parents in Chitral and Gilgit-Baltistan (July 25, 2020).

CRN WEBINAR SERIES

25th JULY
4-5 PM

1. Learning during lockdown
Dr. Mir Afzal Tajik

2. Role of teachers in students' learning
Dr. Zehra Shah

3. Role of parents and wider groups in students learning
Dr. Sabahat Quresh

4. Effective use of technology in students learning
Sheer Nazim Khan

Speakers:
Dr. Mir Afzal Tajik
Associate Professor
Dr. Zehra Shah
Assistant Professor
Dr. Sabahat Quresh
Assistant Professor
Sheer Nazim Khan
Assistant Professor





- In April 2020, Dr Qanay gave an invited online presentation on teacher leadership in schools in Kazakhstan, as part of the “Birge Oqu” project organised by the «Elbasy Academy» under the Fund of First President.
- On June 27, 2020, Dr Qanay was an invited guest speaker to the [International Teacher Leadership Conference](#). Dr Qanay shared teachers’ leadership stories and highlighted the importance of facilitation for teacher leadership in schools in Kazakhstan.



In response to the rapid transition to online teaching and learning, Dr Anna CohenMiller created an [Online Teaching: An Evolving Compilation of Resources](#), shared on [How to Jump into Online Teaching: 4 Practical Steps and Questions to Ask Yourself](#) and helped founded the [Higher Ed Learning Collective](#) (which has close to 30,000 members) in Kazakhstan and internationally. The Collective was highlighted internationally including in Global Education Times, FeNews, and Business Because.

Support educators with online teaching during COVID-19

A GET News Item | © May 20, 2020



Facebook, Twitter, LinkedIn, YouTube, Instagram icons

— Anna CohenMiller is an Assistant Professor from Nazarbayev University’s Graduate School of Education and Co-Founding Director of The Consortium of Gender Scholars (Kazakhstan)

The Higher Ed Learning Collective started as a way to bring educators together to confront a worldwide crisis affecting education, the COVID-19 pandemic.

Dr CohenMiller led an arts-based workshop on Researching in Multicultural Contexts at the European Congress for Qualitative Inquiry, hosted by the University of Malta in February, 2020. The workshop was based upon the book she is writing for Routledge Press, Questions in Qualitative Research in Multicultural Contexts.



KEYNOTE SPEECHES



- Dr Shamatov gave a keynote speech, “Research ethics and academic integrity”, at the international and practical conference “Reflection of the mentality in different cultures”, Academic Consortium of the International University of Kyrgyzstan, June 17, 2020.
- Dr Shamatov gave a plenary speech titled “Promoting Social Cohesion in Central Asia through Education in the Context of Global Uncertainties and Challenges” in the high profile international event “Conference on Education for Social Cohesion and Peace” organized by the Aga Khan Foundation and UNICEF in the Kyrgyz Republic, February 6th, 2020.

Teacher Leadership in Kazakhstan initiative



Dr Gulmira Qanay
(Kanayeva)



Dr Matthew Courtney



Alexandra Nam

Developing school leadership is one of the most important aspects of educational reform in Kazakhstan (OECD, 2014). The NUGSE School Education Research Group (SERG) members Dr. Gulmira Qanay, Dr. Matthew Courtney, and Ms. Alexandra Nam, have become part of the nation-wide project called “Teacher Leadership in Kazakhstan” (TLK initiative), which aims at building support for non-positional teacher leadership throughout Kazakhstan.



Photo 1. The TLK Induction conference at NUGSE in August 2019



Photo 2. School Network events (before COVID-19)

The TLK is a three-year-long initiative that involves 16 school principals, 32 school-based facilitators, and 150 teachers in Kokshetau, Taraz, Almaty, and Nur-Sultan city. The TLK initiative is led by several local and international organizations: NUGSE (Kazakhstan), Community Education Fund “School for All” (Kazakhstan), Soros-Foundation Kazakhstan (Kazakhstan) and HertsCam Network (UK). As a part of the TLK strategy group, NUGSE members provided consultation, monitored, and evaluated the school-based teacher leadership programme to improve the initiative during the next 3 years. In the first year, the NUGSE team provided support for 6 school-based group sessions, 3 one-to-one meetings, and 2 regional and national network events, and 1 international teacher leadership conference. 150 teachers and educators identified their professional concerns and development projects in their classrooms and schools by involving students, parents, colleagues, and community members. There are cases when teachers’ projects led to a nation-wide movement, whereby the programme participants developed websites to provide support to colleagues during the pandemic.

The outcome of the first year of the programme evaluation indicates the necessity of strategies and systematic support for teacher leadership to thrive in schools in Kazakhstan. There is a clear evidence that schools need structural conditions (e.g. time and space) for teachers to collaborate and lead change. The involvement of schools' principals and vice-principals is key to mobilizing leadership development in schools in Kazakhstan.



Photo 3. School-based group sessions (before COVID-19)

In Year 2 of the TLK initiative, the NUGSE team aims to provide further support to the TLK initiative both as consultants and researchers. Moreover, the team aims to publish a book with teachers' and school administrators' narratives.



Photo 4. School Network event after COVID-19

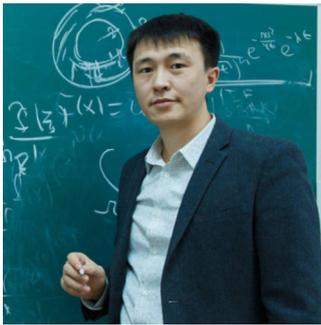
Reference

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School of Sciences and Humanities News

SSH Professor publishes two books

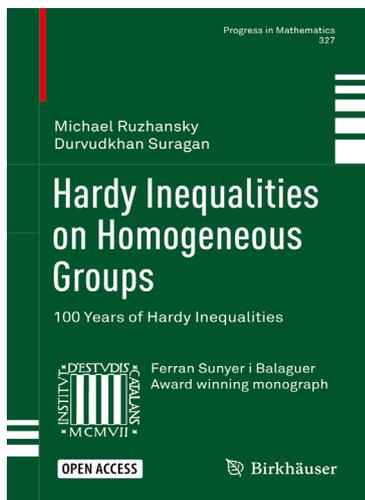


Prof. Durvudkhan Suragan

Professor Durvudkhan Suragan from Department of Mathematics together with his colleagues from Imperial College London, Ghent Analysis & PDE Center, Ghent University, Queen Mary University of London, Institute of Mathematics and Mathematical Modeling published two books.

The first book titled «Hardy Inequalities on Homogeneous Groups» is the winner of the 2018 Ferran Sunyer i Balaguer Prize, a prestigious award for books of expository nature presenting the latest developments in an active area of research in mathematics. As can be attested as the winner of such an award, it is a vital contribution

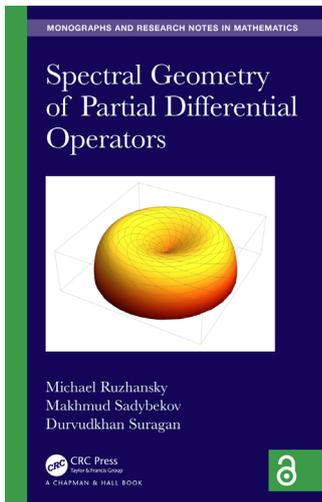
to literature of analysis not only because it presents a detailed account of the recent developments in the field, but also because the book is accessible to anyone with a basic level of understanding of analysis. Undergraduate and graduate students as well as researchers from any field of mathematical and physical sciences related to analysis involving functional inequalities or analysis of homogeneous groups will find the text beneficial to deepen their understanding.



This open access book provides an extensive treatment of Hardy inequalities and closely related topics from the point of view of Folland and Stein's homogeneous (Lie) groups. The place where Hardy inequalities and homogeneous groups meet is a beautiful area of mathematics with links to many other subjects. While describing the general theory of Hardy, Rellich, Caffarelli-Kohn- Nirenberg, Sobolev, and other inequalities in the setting of general homogeneous groups, the authors pay particular attention to the special class of stratified groups. In this environment, the theory of Hardy inequalities becomes intricately intertwined with the properties of sub-Laplacians and subelliptic partial differential equations. These topics constitute the core of this book and they are complemented by additional, closely related topics such as uncertainty principles,

function spaces on homogeneous groups, the potential theory for stratified groups, and the potential theory for general Hörmander's sums of squares and their fundamental solutions.

This book is available for download via the following [link](#)



The second book titled «Spectral Geometry of Partial Differential Operators» aims to provide a basic and self-contained introduction to the ideas underpinning spectral geometric inequalities arising in the theory of partial differential equations. Historically, one of the first inequalities of the spectral geometry was the minimization problem of the first eigenvalue of the Dirichlet Laplacian. Nowadays, this type of inequalities of spectral geometry have expanded to many other cases with numerous applications in physics and other sciences. The main reason why the results are useful, beyond the intrinsic interest of geometric extremum problems, is that they produce a priori bounds for spectral invariants of (partial differential) operators on arbitrary domains.

This book is available for download via the following [link](#)

SHARED BY DR. DURVUDKHAN SURAGAN

NU students share their research findings

Trade Credit, Delinquency, and Financial Crises in Kazakhstan

Authors: Zarina Adilkanova, Aruzhan Nurlankul, and Aizat Token

Trade credit (TC henceforth) is the type of credit relationship between firms in which the supplier provides intermediary goods on the promise of delayed payment. It plays a major role in firms' operations serving as a source of financing for debtors while suppliers may use it as an opportunity to increase their sales. TC is more prevalent than bank loans in Kazakhstan, unlike most other countries (Beck et al., 2008): Around 90% of large enterprises and 70% of SMEs recur to TC, whereas bank loans, the other major source of external financing, are accessed by only around 30% of large firms and 10% of SMEs. These relationships extend to the average sizes of TC and bank loans.

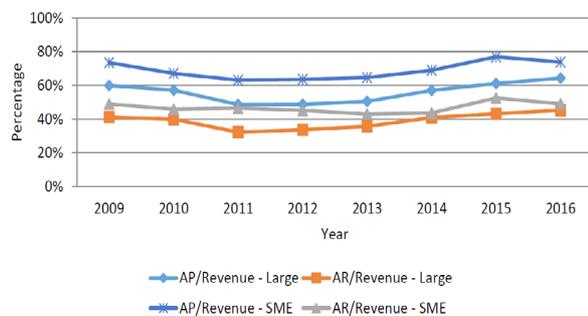


Figure 1. Average Ratios of TC to Revenue for Firms with Access

Figure 1 depicts the dynamics of TC normalized by revenue of large firms and SMEs in Kazakhstan over the period from 2009 to 2016, measuring TC demand and supply via short-term accounts payable (AP) and accounts receivable (AR). This period spans two recent crises: the year 2009 global financial crisis, part of the Great Recession, and the year 2014-5 economic crisis in Kazakhstan that followed the sharp decline in energy prices. We observe that

both crises are associated with higher amounts of TC. Another lesson from this graph is that relatively smaller firms secure TC from relatively larger firms on average, explaining the gap between accounts receivable and payable figures.

Analyzing the TC behavior of Kazakhstani firms is then essential to understand the financial position and resilience of different types of firms that can help tailor policies to support businesses. The relevant confidential data are obtained from the Statistics Committee of the Ministry of National Economy of the Republic of Kazakhstan. The data for large firms additionally contain information on delinquent receivable from suppliers and delinquent payable to customers, the latter being the unique feature of the Kazakhstani data. TC delinquency is not uncommon in Kazakhstan: Around 5% of large firms have overdue payables amounting to about 40% of their revenue on average.

We find that the relationship between TC demand and bank loans is mainly substitutional in Kazakhstan including the year 2009 global financial crisis, consistent with the finding of Hyun (2017) from Korea, and the degree of substitutability decreases with the size of bank loans. This relationship was, however, complementary for large firms following the year 2014-5 economic crisis, corroborating the findings of Love and Zaidi (2010) from four East Asian countries and Tsuruta (2015) in Japan. This new piece of evidence from Kazakhstan might provide further insight into the mixed findings present in the literature. We also discern that TC demand is more prevalent among capital-intensive firms.

Our estimates show that the ability of a large Kazakhstani firm to pay its TC on time is dependent on the ability of its borrowers to pay TC on time: On average, around 6% of delinquent receivable are passed to the partner firms through delayed TC payments, and around 17% if only the firms that are already delinquent on their payables are considered. These statistics were amplified by 60% and 95% respectively during the year 2014-5 crisis showing that TC delinquency acts as a transmission channel of aggregate fluctuations. We also find that less liquid Kazakhstani firms secured less TC on average in crisis, likely due to default risk with credit contagion. These findings impart how TC delinquency may form a chain of financial problems in the economy and be particularly important nowadays considering the ongoing COVID-19 pandemic.

Zarina Adilkhanova is a 2019 MAE alumna who works at NAC Analytica.

Aruzhan Nurlankul is a 2020 BA Economics alumna who will pursue her MA degree in Economics at RoME.

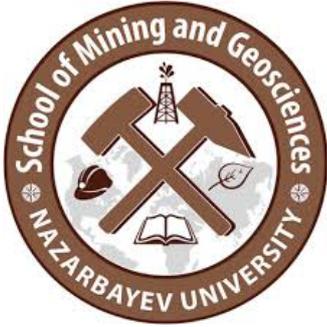
Aizat Token is a 2019 a BA Economics alumna who is now an MAE student.

Note: Funding for this paper is provided by grant no. SHSS2018002 through the “Small Grant Program.” The relevant paper, written jointly with Dr. Berk Yavuzoglu, is R&R at the Journal of Asian Economics.

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SHARED BY PROF. BERK YAVUZOGLU



School of Mining and Geosciences

Most Cited Tunnelling and Underground Space Technology Article published since 2017, extracted from Scopus



Prof. Saffet Yagiz

Prof. Saffet Yagiz, one of the leading researchers in this area, and his research colleagues published a manuscript in Tunnelling and Underground Space Technology Journal having Impact Factor: 3.942, CiteScore: 7.1, and Q1 level within %98.

The manuscript entitled “*Development of hybrid intelligent models for predicting TBM penetration rate in hard rock condition*” is the most cited article since 2017 and one of the leading articles in the research area. The manuscript and the output of the research are summarized below:

“The research is about to develop new hybrid artificial intelligent models for estimating the tunnel boring machine performance (TBM) in hard rock mass condition. The Pahang-Selangor Raw Water Transfer Tunnel in Malaysia was studied and the data collected along the tunnel in the field and also in the laboratory to be used for the proposed models. To develop models, rock properties including uniaxial compressive strength, Brazilian tensile strength, rock quality designation, rock mass rating, weathering zone, and also machine parameters including thrust force and revolution per minute were obtained and then, the dataset composed of both rock and machine parameters were established. Using the database which consists of 1286 points along the tunnel, two-hybrid artificial intelligent techniques namely particle swarm optimization (PSO)-artificial neural network (ANN) and imperialism competitive algorithm (ICA)-ANN and also simple ANN model were developed to obtain the best intelligent model for the aim. It is found that the hybrid intelligent models are superior in comparison with simple artificial intelligence techniques”.

The manuscript could be reached from the [link](#)

PREPARED BY PROF. SAFFET YAGIZ

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School of Engineering & Digital Sciences News

Mechanical & Aerospace Engineering students became Certified SolidWorks experts



As of July 2020, 56 Mechanical and Aerospace Engineering students became Certified SolidWorks Associate (CSWA) and one, Nursultan Alzhanov, Certified SolidWorks Professional (CSWP). Congratulations to Nursultan Alzhanov and all CSWA titleholders!

[The CSWA and CSWP](#) are practical online tests, which cover 3D modeling, design concepts, and sustainable design over the course of 3-3.5 hours. CSWP is intended for applicants with a minimum of two years of SOLIDWORKS experience and advanced

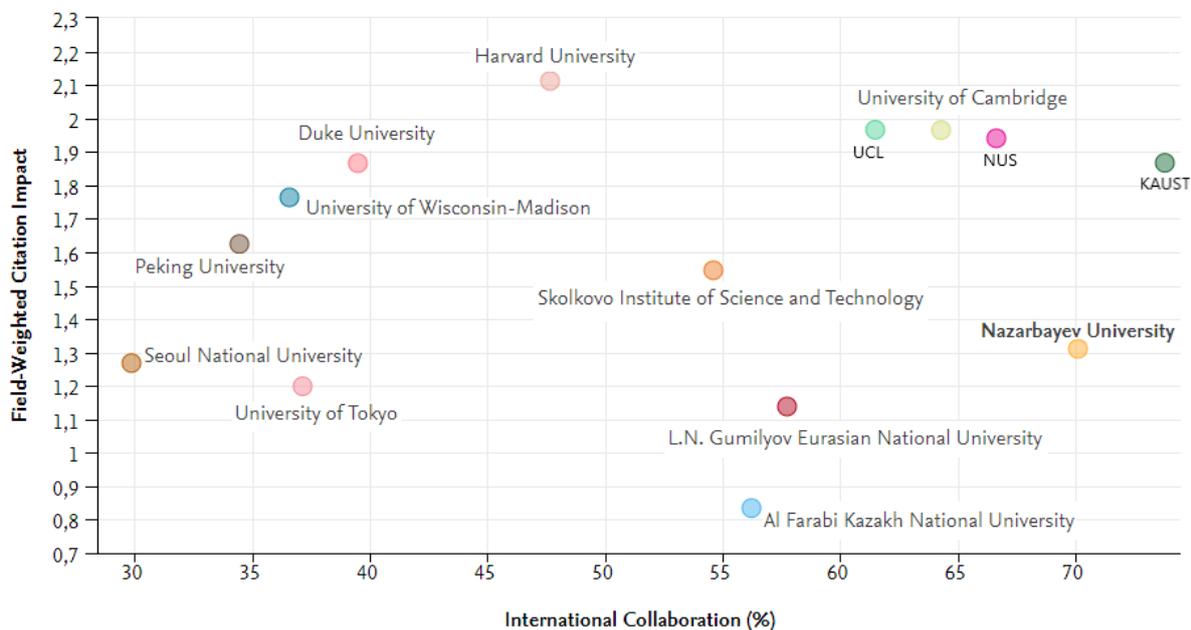
knowledge of engineering practices. SOLIDWORKS recommends that students “have at least 100 hours of classroom time learning SOLIDWORKS or using SOLIDWORKS with advanced engineering design principles and practices”.



SOLIDWORKS is the most widely used 3D CAD package on the planet (Abraham et al., 2017, Advances in Intelligent Systems and Computing, page 110). It is also used in many industrial companies and plants in Kazakhstan. The SOLIDWORKS exams cost \$99, but free for our students. So, it is a great opportunity for students to prove their skills by certification and find better jobs and/or internships. Mechanical and Aerospace Engineering students take CSWA exam after passing MAE 201 Computer-aided design (CAD) course.

WRITTEN BY PROF. YERKIN ABDILDIN

Research Performance Evaluation using SciVal



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 3,907 peer-reviewed publications indexed by Scopus, and have been cited 21,892 times for 2011-2020 period (Source: Scopus, July 28). The approximate number of citations per peer-reviewed publication is 5.6. The overall H-index of NU is 49, whereas H5-index is 35. The field-weighted citation impact is 1.25, meaning that our publications have been cited 25% more than 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 [presentation](#) prepared using SciVal research evaluation platform.

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

FUNDING OPPORTUNITIES

#	Opportunity	Comments	Funder	Deadline	Source link
<u>1</u>	Grant Financing Tender Documentation young scientists in scientific and (or) scientific and technical projects for 2021-2023		Ministry of Education and Science of the RK	21.08.2020	<u>URL</u>
<u>2</u>	Wildlife Acoustics scientific product grant		Wildlife Acoustics	15.08.2020 15.11.2020	<u>URL</u>
<u>3</u>	Call for expressions of interest for the KIX Europe, Asia and Pacific region: Generating and mobilizing innovative knowledge for regional education challenges		IDRC and Global Partnership for Education	02.09.2020	<u>URL</u>
<u>4</u>	Extract bioactive compounds from new, under-exploited and/or recalcitrant residual bio-based streams for high-value applications		European Commission	03.09.2020	<u>URL</u>
<u>5</u>	Central and Peripheral Control of Balance in Older Adults (R01 Clinical Trial Optional)	As a Foreign component	NIH	02.10.2020	<u>URL</u>
<u>6</u>	2020 LIFE call for proposals for traditional projects – Climate action	As a collaborator	European Commission	06.10.2020	<u>URL</u>
<u>7</u>	Reducing Stigma to Improve HIV/AIDS Prevention, Treatment and Care in Low- and Middle-Income Countries		NIH	12.10.2020	<u>URL</u>
<u>8</u>	Knowledge frontiers: International Interdisciplinary Research 2021	As a collaborator	The British Academy	21.10.2020	<u>URL</u>
<u>9</u>	AHRC Global Challenges Research Fund Urgency Grants pilot	As an international co-investigators	Arts and Humanities Research Council	31.10.2020	<u>URL</u>
<u>10</u>	Yamagiwa-Yoshida Memorial International Cancer Study Grants		The YY Study Grants	01.11.2020	<u>URL</u>
<u>11</u>	The Small Research Grants on Education Program		Spencer foundation	03.11.2020	<u>URL</u>
<u>12</u>	Grant programmes funding vital research into diet, weight, physical activity and cancer		World Cancer Research Fund International	16.11.2020	<u>URL</u>
<u>13</u>	Conference and Workshop Grants		The Wenner-Gren Foundation	01.12.2020	<u>URL</u>
<u>14</u>	Higher Education for Leadership, Innovation, and Exchange New Partnerships Initiative		USAID	02.04.2021	<u>URL</u>
<u>15</u>	Eradication of HIV-1 from Central Nervous system Reservoirs (R01 Clinical Trial Not Allowed)		NIH	07.05.2023	<u>URL</u>
<u>16</u>	Fundamental Research to Counter Weapons of Mass Destruction Department of Defense Defense Threat Reduction Agency		Defense Threat Reduction Agency	30.09.2024	<u>URL</u>
<u>17</u>	Annual Program Statement - Policy, Advocacy, and Communication Enhanced for Population and Reproductive Health		Agency for International Development	12.03.2025	<u>URL</u>
<u>18</u>	Moving Integrated, Quality Maternal, Newborn, and Child Health Services, Voluntary Family Planning, and Reproductive Health Care		USAID	30.09.2025	<u>URL</u>

FUNDING OPPORTUNITIES

#	<u>Opportunity</u>	<u>Comments</u>	<u>Funder</u>	<u>Deadline</u>	<u>Source link</u>
<u>19</u>	JUST TECH COVID-19 RAPID-RESPONSE GRANTS		The Social Science Research Council (SSRC)	applications are accepted on a rolling basis	<u>URL</u>
<u>20</u>	Get funding for ideas that address COVID-19	As an international co-investigators	UK Research and Innovation	apply at any time	<u>URL</u>
<u>21</u>	Emergency Heritage Rescue		The Prince Claus Fund	open call	<u>URL</u>
<u>22</u>	Lyle Spencer Research Awards program		Spencer foundation	TBA	<u>URL</u>

New research publications indexed by Scopus (count: 266)

- Abdikamalov, E., & Foglizzo, T. (2020). Acoustic wave generation in collapsing massive stars with convective shells. *Monthly Notices of the Royal Astronomical Society*, 493(3), 3496-3512. doi:10.1093/mnras/staa533
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