

Information on KFU participation in international joint research and academic projects and international collaborations in 2019

In 2019 KFU staff participated in implementation of 76 international R&D as well as research and academic projects in cooperation with international partners or funded by international partners/ grantmaking organizations (tab.1). KFU also took part in 12 major international research collaborations (tab. 2).

Table 1. Projects

	Title	Source of funding	Duration	International partners	Unit of KFU
1.	Novel therapeutics in the prevention and treatment of cerebrovascular diseases	Ministry of Education and Science of the Russian Federation (letter of the Ministry of Science and Education No. AII-990/02 of June 15, 2016)	2017-2020	University of Pennsylvania, Harvard University (USA), Technische Universität München (TUM) (Germany), Queen Mary University of London (UK)	Institute of Fundamental Medicine and Biology
2.	Anhydrous storage of biomaterial using protective proteins of an anhydrobiotic insect	Russian Science Foundation (RSF) , Ministry of Agriculture, Forestry and Fisheries of Japan - MAFF/AFFRCS (Japan)	2017-2019	National Institute of Agrobiological Sciences (Japan)	Institute of Fundamental Medicine and Biology
3.	Small molecule stabilizers/activators of mutant p53	Russian Foundation for Basic Research (RFBR), The Royal Society, (London, UK)	2019 -2020	University of Southampton (United Kingdom), prof. Matthias Baud	Institute of Fundamental Medicine and Biology
4.	Neuroprotector screening system in the model of focal ischemia of the cerebral cortex	RSF	2017 -2019	Institute of Mediterranean Neurobiology (INMED- INSERM, Marseille, France)	Institute of Fundamental Medicine and Biology
5.	Youth conference	British Council	2019	University of Nottingham (UK)	Institute of Fundamental

	"UK-Russia Genome Workshop- 2019"				Medicine and Biology
6.	Molecular function of serine protease HtrA: a novel secreted virulence factor of <i>Helicobacter pylori</i>	Ministry of Science and Higher Education of the Russian Federation / German Academic Exchange Service DAAD	2019	Friedrich–Alexander University Erlangen–Nürnberg (Germany)	Institute of Fundamental Medicine and Biology
7.	PII-like protein PotN from <i>Lactobacillus brevis</i> – a member of the new PII nitrogen regulator subfamily	Ministry of Science and Higher Education of the Russian Federation / German Academic Exchange Service DAAD	2019	Eberhard Karls University of Tübingen (Germany)	Institute of Fundamental Medicine and Biology
8.	Development of synthetic peptide-based biomaterials	RFBR	2018-2020	Bilkent University (Turkey)	Institute of Fundamental Medicine and Biology
9.	Study of topology of the N-terminal domain of the phosphate transporter NaPi2b and aminophospholipids under the conditions of modeling the tumor cell microenvironment	RFBR	2019-2022	Center of health sciences, University of Texas, USA	Institute of Fundamental Medicine and Biology
10.	Study of corrosion and degradation of the objects in nuclear reactor by microorganisms	Agreement on subsidy provision No. 05.612.21.0004 of September 27, 2019 Within the framework of federal central program	2019-2020	Keio University (Japan)	Institute of Fundamental Medicine and Biology
11.	Diagnostic and therapeutic RNA technologies for translational genomic medicine	KFU Road Map	2017-2020	RIKEN (Japan); Fox Chase Cancer Center (USA); National Agriculture and Food Research Organization	Institute of Fundamental Medicine and Biology
12.	Development of technology for overcoming multidrug resistance based on inhibition of cellular ABC efflux transporters	KFU Road Map	2019-2020	University of Atlanta (USA)	Institute of Fundamental Medicine and Biology
13.	Cognitive and neurolinguistic	KFU Road Map	2019-2020	Arizona State University (USA);	Institute of Fundamental

	technologies for personalized learning and rehabilitation of children			The University of Helsinki (Finland); Leiden University (Netherlands).	Medicine and Biology, Institute of Philology and Intercultural Communication, Institute of Psychology and Education
14.	Magnetic and transport properties of triple iron chalcogenides with reduced dimension	RFBR	2019-2021	Germany	Institute of Physics
15.	Development of positioning technology in an environment without the possibility of using GPS	Texas Research Institute, Texas corporation	2019-2022	Texas Research Institute (USA)	Institute of Physics
16.	Nonlinear Dynamics of Multidimensional Soliton and Vortex Structures in Complex Continuous Media	Shota Rustaveli National science foundation	2017 – 2020	Ivane Javakhishvili Tbilisi State University, Ilia Vekua Institute of Applied Mathematics	Institute of Physics
17.	Longitudinal dynamic structures in the mesosphere / lower thermosphere of middle latitudes	RFBR	2018-2020	Institute of Meteorology, Leipzig University (Germany)	Institute of Physics
18.	Functional programmable photonic materials for biomedical and info-communication applications	KFU Road Map	2014-2019	National Hellenic Research Foundation (Greece), Belarusian National Technical University (Belarus), Moldova State University (Moldova)	Institute of Physics
19.	Training Program for Russia-Japan Innovative Leaders of Tomorrow	Scholarship of the Government of Japan on «TRAINING GLOBAL LEADERS FOR 21st CENTURY» cooperation program between Russia and Japan	2018-2020	RIKEN Institute, Kanazawa University (Japan)	Institute of Physics, Institute of Chemistry, Institute of Fundamental Medicine and Biology

20.	Paleogeography of the Siberian continent in the Late Paleozoic era and the global bipolarity of glaciations: Carboniferous-Permian glacial and interglacial events in Verkhoyansk (RSF Grant №19- 17-00178)	RSF	2019-2021	Boise State University (USA)	Institute of Geology and Petroleum Technologies
21.	Biotic and abiotic events in Siberia at the Paleozoic and Mesozoic frontier: trap effusions as a trigger for global extinction	Ministry of Science and Higher Education of Russia State assignment № 5.2192.2017/ПЧ	2017-2019	Boise State University (USA)	Institute of Geology and Petroleum Technologies
22.	Lithological and petrophysical modeling of oil and gas complexes	PJSC Tatneft, Tatk	2019	Bochum University (Germany)	Institute of Geology and Petroleum Technologies
23.	Extraction and transportation of unconventional hydrocarbons	KFU ROAD MAP	2016-2020	Middle East Technical University (Turkey), University of Rostock (Germany), Santander Industrial University (Colombia), Southwest Petroleum University (China)	Institute of Geology and Petroleum Technologies
24.	Study of oxidation reactions mechanism in aliphatic and aromatic hydrocarbons and oil based on the analysis of thermodynamic and kinetic parameters, as well as free radical particles content	RSF	2017-2019	Southwest Petroleum University (China)	Institute of Geology and Petroleum Technologies
25.	“Synthesis and in vivo imaging of glycoclusters and related compounds; application in synthetic studies in vivo”	KFU ROAD MAP	2014 -2022	RIKEN (Japan)	Institute of Chemistry

26.	Improving the efficiency of primary screening of biologically active compounds using computational models	Grant agreement with the Ministry of Science	2018-2020	Palacky University in Olomouc (Czech Republic)	Institute of Chemistry
27.	Machine Design of Small Molecules by Artificial Intelligence (MaDeSMaT)		2019	Belgium	Institute of Chemistry
28.	High-speed calorimetry methods development for the studies of polymers, composition and biological materials	RF Mega-grant program (Order 220)	2016-2019	University of Rostock (Germany)	Institute of Chemistry
29.	Autonomous calibration of on- board cameras of a robotic system using surface coordinate marks	RFBR	2018-2019	Indian Institute of Technology Delhi (India)	Higher School of Information Technology and Intelligent Systems
30.	Damage recovery Management Information System for Floods and Landslides with Distributed Heterogeneous Group of Robots	RFBR	2019-2021	Kyoto University (Japan), Mahidol University (Thailand)	Higher School of Information Technology and Intelligent Systems
31.	Modeling of ATP- and serotonin-activated nociceptive activity in migraine	KFU ROAD MAP	2018- until present	University of Eastern Finland (Finland)	Higher School of Information Technology and Intelligent Systems
32.	Disaster Management Information System for Floods and Landslides with Distributed Heterogeneous Group of Robots	RFBR	2019-2021	Kyoto University (Japan), Mahidol University (Thailand)	Institute of Computational Mathematics and Information Technologies
33.	Numerical methods for optimization problems	Academy of Finland	2018-2019	University of Oulu (Finland)	Institute of Computational Mathematics and Information Technologies

34.	Topological and geometrical properties of Banach spaces and operator algebras II	Czech Science Foundation (Czech Republic)	2017-2019	Czech Technical University in Prague, Charles University (Czech Republic)	Institute of Mathematics and Mechanics
35.	Algebraic structures and enumeration operators	National Science Fund of Bulgaria	2017-2019	Staff members of Sofia University (Bulgaria)	Institute of Mathematics and Mechanics
36.	Study of classical and quantum fields and related effects in wormhole spaces	RFBR	2019	Universidade Federal do ABC (Brasil)	Institute of Mathematics and Mechanics
37.	Adaptation of the neuropsychological NEPSY-II battery	KFU ROAD MAP	2018-2020	University of Udine (Italy)	Institute of Psychology and Education , Institute of Philology and Intercultural Communication
38.	New teacher for new school	KFU ROAD MAP	2016-2019	TU Dresden (Germany)	Institute of Psychology and Education
39.	Classroom Cultural Diversity Climate	DFG	2019-2021	University of Potsdam (Germany)	Institute of Psychology and Education
40.	The Early Childhood Education Environment	KFU ROAD MAP	2016-2021	Göteborg University (Sweden), University of Jyväskylä (Finland)	Institute of Psychology and Education
41.	Teaching, Learning and Professional Development for beginning teacher	KFU ROAD MAP	2018-2019	ITELab, University College Dublin (Ireland)	Institute of Psychology and Education
42.	Childhood and youth studies in the era of migration	KFU ROAD MAP	2018-2019	University of Miami (USA)	Institute of Psychology and Education
43.	Comprehensive assessment of students' educational achievements (HSA)	KFU ROAD MAP	2018-2020	Harvard University (USA)	Institute of Psychology and Education

44.	Bi- and multilingualism between conflict intensification and conflict resolution –Ethno-linguistic conflicts, language politics and contact situations in post-Soviet Ukraine and Russia) A115718 VolkswagenStiftung	Volkswagen Foundation	2016 – 2019	JLU Giessen (Germany), National Academy of Sciences of Ukraine	Institute of Social and Philosophical Sciences and Mass Communication, Institute of Philology and Intercultural Communication
45.	Conflict regions in Eastern Europe	State of Hessen LOEWE grant (Germany)	2017-2020	JLU Giessen, Giessen Center for Eastern European Studies (GiZo), Herder Institute of Research on Historic Eastern and Central Europe, Marburg (Germany)	Institute of International Relations
46.	Seeing Like a State? Innovative approaches to the History of Education in Russia	Indiana University (USA)	2017-2019	Indiana University (USA)	Institute of International Relations
47.	Regional Revolution(s) – 1917 and Its Consequences in the Province	JLU Giessen (Germany)	2017-2019	JLU Giessen (Germany), University of Konstanz, ALU Freiburg, University of Bonn (Germany)	Institute of International Relations
48.	Korean studies in Tatarstan and southern regions of Russia	Academy of Korean Studies	2016 - 2020	Academy of Korean Studies (Republic of Korea)	Institute of International Relations
49.	“The Dictionary/ Grammar Reading Machine: Computational Tools for Accessing the World’s Linguistic Heritage” (699523)	Horizon 2020, JPICH Digital Heritage	2017-2021	Uppsala University (Sweden), Leiden University (Netherlands), Langage, Langues et Cultures d'Afrique Noire CNRS (France),	Institute of Philology and Intercultural Communication

				Tübingen University (Germany), University of Warsaw (Poland), Nankai University (China) Centre de recherches linguistiques sur l'Asie orientale (France), Max Planck Institute for the Science of Human History (Germany)	
50.	Some Aspects of Vocal Training of the Future Music Teacher in a Bilingual Environment Through the Elements of Moodle	KFU	February - May 2019	University of Salamanca (Spain)	Institute of Philology and Intercultural Communication
51.	Comparative analysis of the Signature Pedagogies in the Western and Russian educational system	KFU	April – June, 2019	Partap College of Education (India)	Institute of Philology and Intercultural Communication
52.	Improvement of students critical thinking through using of the method of case studies	KFU	April – June, 2019	Partap College of Education (India)	Institute of Philology and Intercultural Communication
53.	Traditional Music and Poetry of The Tatars-Mishars: Modern Forms of Existence	KFU	2019	Partap College of Education (India)	Institute of Philology and Intercultural Communication
54.	Formation of Visual Culture in Teenagers by Photographic Art	KFU	2019	Armenian State Pedagogical University named after Khachatur Abovyan (Armenia)	Institute of Philology and Intercultural Communication
55.	Musical reflection of "Tragedies of the Sons of the Earth" by Khadi Taktash in the works of Masguda Shamsutdinova	KFU	2019	Seattle Community Central College (USA)	Institute of Philology and Intercultural Communication

56.	Quantitative linguistics	KFU ROAD MAP	2019	Leiden University (Netherlands)	
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57.	Intellectual technologies of text management	KFU ROAD MAP + RSF+RFBR	2018-2020	Arizona State University (USA), University POLITEHNICA of Bucharest (Romania)	Institute of Philology and Intercultural Communication
58.	Digital economy in Russia and abroad: legal control, perspectives of global integration	RSF	2019-2021	University of California (USA), Goethe University Frankfurt (Germany), University of Kiel (Germany)	Faculty of Law
59.	Volga International Centre of Excellence in European Studies VOICES+ (Project No 565693-EPP-1-2015-1-RU-EPPJMO-CoE)	Erasmus+ Programme, Jean Monnet Activities	2015-2019	---	Faculty of Law
60.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	Leipzig University (Germany)	International Office (all institutes can participate)
61.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	Humboldt University of Berlin (Germany)	International Office (all institutes can participate)
62.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	D.A. Tsenov Academy of Economics (Bulgaria)	International Office, Institute of management, economics and finance
63.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	University of Cadiz (Spain)	International Office, Institute of social and philosophical sciences and mass communications
64.	Academic mobility support	Erasmus+ Programme, Credit Mobility	2019-2020	TU Dresden (Germany)	Institute of philology and intercultural communication

65.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	Granada University (Spain)	International Office (all institutes can participate)
66.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	University of Castilla-La Mancha (Spain)	International Office (all institutes can participate)
67.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	Mendel University in Brno (Czech Republic)	International Office (all institutes can participate)
68.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	Marmara University (Turkey)	International Office (all institutes can participate)
69.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	Anadolu University (Turkey)	International Office (all institutes can participate)
70.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	Birmingham City University (UK)	International Office (all institutes can participate)
71.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	University of Oviedo (Spain)	International Office (all institutes can participate)
72.	Academic mobility support	Erasmus+ Programme, Credit Mobility,	2019-2020	University of Messina (Italy)	International Office (all institutes can participate)

		European Commission			
73.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	University of Silesia in Katowice (Poland)	International Office (all institutes can participate)
74.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	University of Vienna (Austria)	International Office (all institutes can participate)
75.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	KU Leuven	International Office (all institutes can participate)
76.	Academic mobility support	Erasmus+ Programme, Credit Mobility, European Commission	2019-2020	University of Bologna (Italy)	International Office (all institutes can participate)

Table 2. KFU participation in international research collaborations

№	International collaboration title	Membership since	Collaboration tasks and objectives	Short summary of KFU contribution
1.	Learning to Teach	2014	International networked study by the World Association for Educational Research (WERA) on teachers' effective learning in different countries in the context of the evolution of educational policies and research of effective approaches towards primary teacher education laying special emphasis on the context and the scope of historical, theoretical and empirical works	Comparative study of teacher education (models, policies, methods, research results) in different countries (UK, Russia, USA, Ireland, Australia, Israel, Japan, South Korea). Participation in the collective monograph preparation <i>Knowledge, Policy and Practice in Learning to Teach: A Cross-National Study</i> (Oxford-Press).

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				IFTE annual international scientific conference.
2.	FANTOM	2015	Global scientific consortium aimed at creating an atlas of gene expression in all cells and tissues of the human body (48 organizations from more than 20 countries)	Since 2017 KFU has managed to upgrade its status at the project: from a standard participant to the initiator of a new project– FANTOM-muscles. The development of new methods of diagnosis and treatment of various diseases will make the result of this project.
3.	Code modernisation	2015	Collaboration based on CERN Openlab (Switzerland) jointly with Gesellschaft für Schwerionenforschung (GSI), Newcastle University (UK) and Intel Corporation. The project's objective is to research widely used high energy physics codes, including neuroinformatics, biology or astrophysics for the maximum efficiency on Intel equipment. Design and optimization of data structures for vectorization process connection and minimization of the input/output restrictions	Participation of KFU technical experts and students in the course of the project
4.	European Endangered Species programme	2015	International project on preservation and breeding of polar bears at the regions with the climate conditions untypical for their habitat jointly with the Eurasian Association of Zoos and Aquariums and the San Paolo Aquarium (Brazil)	Academic exchange for the faculty members, joint research and internships for master students
5.	HealthNet (Program for collaboration in healthcare)	2016	Moderation, development and maintenance of E-lek basic drugs forum as an international discussion platform for drugs policy and drugs rational use;	Using the methodology for assessing the rational use of drugs in the scientific and educational processes of

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			provision of updated and independent information on drugs and drugs policy (www.healthnet.org) (supported by Health Action International and WHO)	<p>the Department of Fundamental and Clinical Pharmacology (KFU)</p> <p>The research works of the Department's staff members have been published</p> <p>Using the problem-oriented methodology in the scientific and educational processes of the Department of Fundamental and Clinical Pharmacology (KFU)</p>
6.	ThEOR	2016	International platform for creation and distribution of revolutionary "green" EEE-technologies of in-situ oil refining (300 specialists, 47 companies and universities from 12 countries -Russia, China, USA, Canada, France, Turkey, Denmark, Indonesia and Latin America)	<p>In 2016, KFU initiated an international networking group on developing and distributing EEE-technologies for hydrocarbon production.</p> <p>Constantly active international networking research platform on in-situ oil refining that annually provides result summaries has been based at KFU</p>
7.	Silk Road	2017	Historical reconstruction and study of events, objects, personalities, mass migrations, socio-economic and political processes associated with the dynamics of the Silk Road over a long historical period. Research of routes in the historical corridor of the Great Silk Road through geo-information systems with the integration and semantic description of objects of archeological and historical heritage.	Organizational and methodical preparation of the nomination dossier on the Volga and Caucasus corridors of the Silk Road.
8.	COST EVBRES	2018	Science-based research in the sphere of Health Sciences Participants: Western Norway	

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			University of Applied Sciences, Bergen, Norway, Centre for Evidence-Based Practice, Western Norway University of Applied Sciences, Bergen, Norway, The Research Council of Norway, The Norwegian Knowledge Center for the Health Services, Oslo, Norway, SEARCH Research Group, University of Southern Denmark, Odense, Denmark Musculoskeletal Statistics Unit (MSU), The Parker Institute, Copenhagen, Denmark. Professor Hans Lund Professor / Centre for Evidence-based Practice / Western Norway University of Applied Sciences	
9.	Spectrum-Rentgen-Gamma	2018	International Russian-German orbital observatory project. The project is focused on the classification and characterization of hard radiation sources based on their optical and X-ray observations as well as on the participation at global cooperation with space orbiting observatories (INTEGRAL, SWIFT, PLANCK) on optical identifications of new X-ray sources, supermassive black holes, galaxy clusters. 100,000 galaxy clusters and groups, 3 million active galactic nuclei and quasars are to be detected.	Observation and measurement are carried out on the Russian- Turkish optical telescope RTT-150 installed by Kazan Federal University in Turkey (optical identifications of new X-ray sources, X- ray map of the Universe). Participants: Max Planck Institute for Physics (Germany), Space Research Institute of the Russian Academy of Sciences.
10.	European Vegetation Archive (EVA)	2019	European initiative on vegetation research, oriented at development and maintenance of data archive obtained from vegetation cover observations	Joint participation with Masaryk University (Czech Republic)
11.	sPlot – The Global Vegetation Database	2019	sPlot – the first global database on vegetation cover provided with a standardized catalogue of plants. sPlot 2.1. current version contains data of over one million vegetation land plots supplied by regional, national and continental databases. The data is in accordance with TRY Plant Trait Database (TRY, www.try-db.org) and is currently used for several studies of global vegetation models.	Joint participation with German Centre for Integrative Biodiversity Research (iDiv) Halle-Jena-Leipzig

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12.	DarkDivNet	2019	Global observation network for dark diversity studies of plant communities	Data collection for the project on the territory of the Republic of Tatarstan