

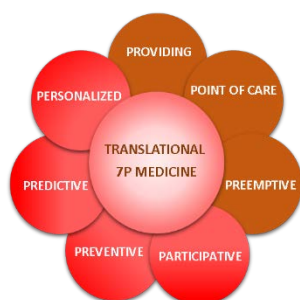


KFU's International Activity Report 2016

The strategic objective of Kazan Federal University is to enhance its prestige and raise academic reputation in research and development, achieve a high international level of academic programs and global leadership in a number of top-priority research areas in order to enter the list of world Top-100 universities.

In 2016 *Strategic academic units* (StrAU) became the new drivers of international cooperation development in KFU, <http://kpfu.ru/prioritetnye-napravleniya>.

- ✚ **Translational 7P Medicine**
- ✚ **Eco-oil**
- ✚ **Astrochallenge**
- ✚ **Teacher of the XXI century**



1. Cooperation Development

Development of strategic partnership and networking with world's leading research, educational and innovative organizations is one of the key objectives of KFU. At the moment KFU is cooperating with **249** partner universities, research and academic centres and companies from **60** countries from all over the world. Agreements with **70** of the aforesaid organizations were signed in 2016.

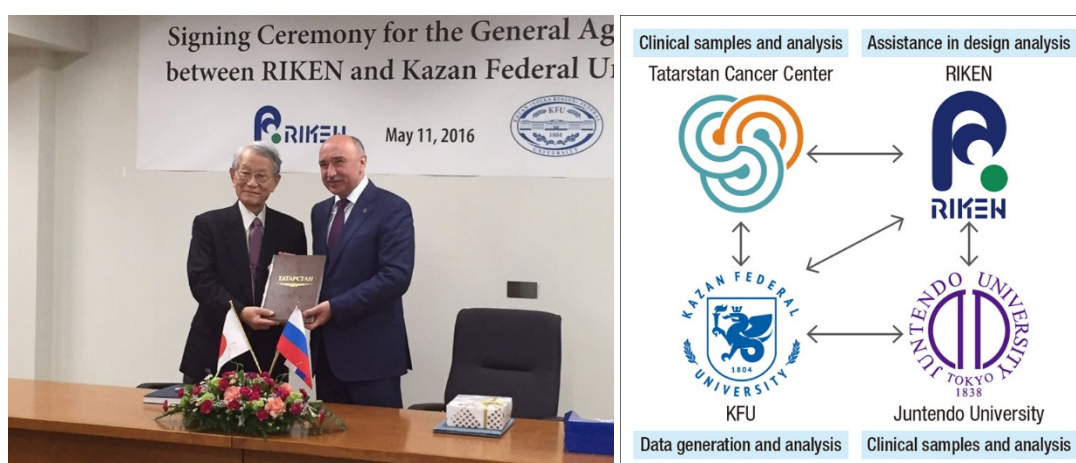
Dynamics of cooperation with foreign organisations

	2011	2012	2013	2014	2015	2016
Number of partnerships, total	80	105	133	187	210	249
Agreements concluded within the reporting period	19	25	28	54	59	70
Partners among						



22 partner universities of KFU were ranked Top 300 in the Times Higher Education and QS World University Rankings in 2016-2017: the University of Cambridge (Great Britain), Trinity College (Ireland), the Catholic University of Leuven (Belgium), Ludwig Maximilians University of Munich (Germany), Free University of Berlin (Germany), the University of Helsinki (Finland), Alma Mater Studiorum University of Bologna (Italy), University of Tübingen (Germany) and others.

On May 11, 2016 a **General Agreement of Cooperation between KFU and RIKEN** was signed in Yokohama (Japan). This strategic partnership agreement is the result of more than 10 years of fruitful cooperation in various fields, primarily, in Physics, Chemistry and Biomedicine. Information on joint KFU-RIKEN projects in medicine was included in a special edition of the information digest of the Government of Japan "**We Are Tomodachi**", devoted to cooperation between Japan and Russia. It was published on the eve of the visit of the President of Russia, Vladimir Putin, to Japan in December, 2016.



Latin America has become a new promising region for international scientific and academic cooperation development in KFU in the field of oil production and processing within the framework of the strategic academic unit *Eco-oil*. Negotiations for cooperation with Colombian oil companies and universities (Ecopetroleum, Industrial University of Santander) were conducted during bilateral visits.

A number of agreements for joint researches and joint educational programs were concluded with Paraguay (National University of Asuncion), Cuba (*CUPET*).

In addition, during the reporting period Kazan Federal University continued strengthening and expanding cooperation with universities from China, including cooperation within the research and academic partnership between Russian and Chinese regions in the format “Volga-Yangtze”. The total of **20** agreements was signed with Chinese colleagues in 2016. These agreements covered various avenues of collaboration: elaboration of joint academic programs, invitation of Chinese students to study in KFU, bilateral academic mobility, joint research, technology transfer, etc.



Kazan Federal University has been expanding partnership with **the world’s leading companies** within the priority areas of its development. Thus, the following cooperation agreements were signed in 2016 with the world’s leaders: in oil production and refining – PetroChina (China), Global New Petro Tec Ltd (Canada); in advanced materials – Rohde&Schwarz (Germany), Kraton Polymers LLC (USA) etc. Furthermore, KFU has conducted a series of negotiations with the companies: Pfizer, Intel (USA), Michelin (France), Siemens (Germany), Schlumberger (USA), etc. The main forms of cooperation between KFU and the leading companies are: development and implementation of joint academic programs for Master students and postgraduates; conduction of joint practice-oriented research; organizing of internships in various companies for KFU students; organizing of joint research and education centers and laboratories.

Kazan Federal University is a member of **15 international academic associations**. In 2016 KFU was admitted to **5** of them: International Association of Universities; International Association of

Higher Education Institutions of the Volga Region and the Upper and Middle Yangtze Provinces; Russian-Indian University Network; Journalism Education Association of Chinese Universities; Association to Advance Collegiate Schools of Business (AACSB).



Furthermore, about **80** University employees are members of international organizations, academic associations and unions such as: International Atomic Energy Agency (IAEA), United Nations Educational, Scientific and Cultural Organization (UNESCO), International Union for Conservation of Nature and Natural Resources (IUCN), International Informatization Academy, European Coordinating Committee for Artificial Intelligence (ECCAI), and others.

2. International Student Recruitment

In the academic year 2016/2017 **the amount of international students and postgraduates studying in KFU reached 4252 students** (from 102 countries), including 3468 students taking Bachelor, Master and Specialist degree programs and 134 postgraduate students, which is 43% as high year on year. Distribution of international students by types of payment: state-funded education – 1226 students, contractual education – 3026 students. Distribution by recruitment regions: CIS countries – 2789 students, other countries – 1463 students. The total of 447 international students takes programs in priority areas. Thus, the share of international students taking principal academic programs in the total number of Kazan students reached **10.9%**.

Historically Kazan is one of the attraction centres of the Turkic-speaking world. Thus, it is no coincidence that 47% of international students in KFU (1969 students) are from Azerbaijan, Kazakhstan, Kyrgyzstan, Turkey, Turkmenistan and Uzbekistan.

Dynamics of international student number (all programs and forms of education)

2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017
886	1010	1423	2106	3187	4252

An effective system of international student recruitment formed in the University fosters the increase in the number of international students in KFU. It includes a package of measures and structural and architectural solutions destined, particularly, to create a comfortable environment of their stay in the University. In 2015 – 2016 the International Office of KFU implemented the project “Forming an international student recruitment system as a factor of promoting international reputation of universities involved in the Project for Enhancing Competitive Ranking of the leading Russian universities among leading world centres of higher education and research” which was supported by the Global Universities Association as the best practice offered for replication in the higher professional education systems. The project funding made 4 600 thousand roubles.

Benchmarking is a methodological framework of the project as an instrument of finding and formalizing the best practices, as well as of sharing experiences between universities involved in the project. Other project participants:

- 20 universities participating in 5-100 Russian Academic Excellence project – within the framework of networking cooperation and task team, organized to share experiences relating to this project;
- 6 universities from this group – as grounds for methodology testing subject to customer approval (Peter the Great St. Petersburg Polytechnic University, Ural Federal University, Lobachevsky University, Immanuel Kant Baltic Federal University, Tomsk State University, Kazan Federal University).

Experience built up by staff members of Kazan Federal University in the sphere of recruiting international prospective students and developing an integral system in support of this activity has been taken as a basis for the project. Furthermore, we have studied the international experience of the top internationalized universities from different countries of the world, as well as the experience of the leading Russian universities, primarily, 5-100 project participants. The project implementation results were presented and discussed during a series of scheduled project activities with the involvement of the Ministry of Education and Science of the Russian Federation, representatives of universities participating in 5-100 Project, Russian and international experts in higher education management. The project materials are posted on the site of the International Office of KFU: <http://kpfu.ru/international/proekty-i-granty/formirovanie-sistemy-privlecheniya-inostrannyh>. They have also provided the basis for the special edition of the journal “University management:

Practice and Analysis”, <http://umj.ru/pub/inside/1844/> (No. 6, 2016) and the monograph “International Student Recruitment by Russian Universities: Practice Guide”.



In 2016 KFU took part in **7** international educational exhibitions and publicity tours, held in China, India, Tadzhikistan, Vietnam, USA, Australia and Great Britain. Besides, on-site consultations on admission to and study at KFU were organized in Uzbekistan, Tadzhikistan, Kazakhstan and Kyrgyzstan. According to their results **773** students were admitted to KFU, including **433** students from Uzbekistan, **221** from Kazakhstan, **80** from Tadzhikistan, and **39** from Kyrgyzstan.

By now Kazan Federal University has signed **43** agreements with recruiting agencies, the majority of which operate on the territory of Asian and Middle Eastern countries. The aforesaid companies have recruited **327** students for degree programs and Preparatory school of KFU.

“**School Force**” program is another actively developed focus area of recruiting international prospective students for study in KFU. Its objective is to develop cooperation with foreign secondary schools, including employment of KFU teachers at schools in China, India, South Africa and Cuba. According to the results of 2016, the number of international schoolstudents participating in “School Force” program was over 3, 000. It resulted in 187 applications from China and 20 applications from India.

Introduction of a **grant system of international student education** is an effective mechanism for attracting international students to KFU. Based on competitive selection results, between 2013 and 2016 the total of 77 international students and postgraduates was awarded KFU grants, including 54 Master students and 23 postgraduates.



In 2016 Kazan Federal University continued developing and implementing **joint (network) academic programs and double degree programs** in cooperation with the leading international universities and scientific organisations. The majority of joint double degree programs are offered for majors in natural and technical sciences: physics, chemistry, biology, geology and others, which is connected with high international reputation of Kazan University schools of natural sciences and multi-year scientific ties with foreign partners.

Thus, **16** joint double degree programs (awarding the degrees of KFU and foreign partner university) are currently implemented in KFU in the following majors:

Bachelor programs		International partners	
French Language in Professional Communication		University of Paris III, Sorbonne Nouvelle, France	
German-Russian Studies		University of Regensburg, Germany	
Master programs		International partners	
Complex System Physics		ISMANS, France	
Chemoinformatics and Molecular Modelling		University of Strasbourg, France	

General and Strategic Management (Transition Management)	University of Giessen, Germany
Production Management	Lappeenranta University of Technology, Finland
Stratigraphy	Freiberg University of Mining and Technology, Germany
Comprehensive Data Analysis in Petroleum Geology	French Institute of Petroleum, France
Open Informatics	Czech Technical University in Prague, Czech Republic
Russian as a Foreign Language	Beijing International Studies University, China

Postgraduate programs

International partners

Material Science	University of Parma, Italy
Advanced Materials Research	RIKEN, Japan
Neurobiology	University of Eastern Finland, Finland
Advanced Material Physics	University of Antwerp, Belgium
Chemoinformatics and Molecular Modelling	University of Strasbourg, France
Genetics and Evolutionary Biology	Hiroshima University, Japan

Altogether **100** students and postgraduates, including **14** international ones, took joint double degree programs in KFU in 2016. Within the reporting period **32** Russian and international graduates got diplomas of KFU and partner universities.

Target programs implemented upon request and consultation with international partners are a new format of joint academic programs in KFU. In 2016 we concluded agreements to develop and implement the following higher education and continuing professional education programs of the aforesaid type:

- *Master program in Geology and Petroleum Engineering* for specialists of *Cupet* oil company (Cuba), offered in the Institute of Geology and Petroleum Technologies of KFU (17 people);
- *courses for public and municipal officers of external relations service of Sichuan province*, offered at the Higher School of Public Administration of KFU in collaboration with the Government of the Republic of Tatarstan and the Foreign and Migration Affairs Office of the People's Government of Sichuan Province (China);

- a language training program for Iranian diplomatic servants, offered in the Institute of Philology and Intercultural Communication of KFU in collaboration with the Consulate General of the Islamic Republic of Iran.



3. International Expert Involvement

The increasing share of international experts among KFU academic staff, invited for a long-term (labour-contract based) and short-term work in the University, is considered one of the main indicators of successful internationalization of educational and research activity. International experts come to Kazan Federal University for delivering lectures, developing joint academic programs, conducting research, supervising academic projects, including student projects, participating in scientific events.

Thus **137** international experts from **45** countries were involved in educational and scientific activity as employees in 2016.

Dynamics of international research and academic staff number

2012	2013	2014	2015	2016
7 countries	16 countries	37 countries	51 countries	45 countries
12 students	28 students	121 students	153 students	137 students

The total number of international researchers invited to KFU in 2016 within the framework of academic mobility programs reached **589** specialists from **63** countries, including Germany (86), China (75), USA (45), Japan (41), Great Britain (29), Iran (29), Kazakhstan (26) and France (25).

International student distribution in KFU by main objectives of coming and recruitment regions is given below.

By the aim of visit, persons		By the region of visit, persons	
Events	327	Europe	284
Research	132	Asia	234



4. International Research Activity

In 2016 KFU staff took part in **71 major international research and academic projects** in cooperation with international partners. **18** projects received funding that year. The European Commission, the German Academic Exchange Service (DAAD), the German Research Foundation (DFG), Volkswagen Foundation (Germany), Fundamental Research Funds for the Central Universities of the PRC, Russian Science Foundation, Haldor Topsoe A&S (Denmark), Kraton Polymers LLC (USA), and foreign partner universities acted as grantors for those projects.

Dynamics of International Project Implementation

	2011	2012	2013	2014	2015	2016
Total projects	26	35	45	47	58	70

Thus, the project **“Selective adsorption studies for dimer removal from commercial isoprene”** (2016 – 2018) is being implemented by a research team, supervised by professor A. A. Lamberov from the Institute of Chemistry, KFU, with support of Kraton Polymers LLC (USA), the world’s largest polymer manufacturer. KFU researchers have already gained the experience of developing unique catalysts for oil producing and refining companies. Thus, 2 projects for unique catalyst development have been implemented in collaboration with *Nizhnekamskneftekhim*. The developed catalysts improve the efficiency of hydrocarbon processing and thin out heavy crude. They are based on high-porous cellular structures with improved strength, permeability and much longer life cycle in comparison with traditional ones. It is 20% as efficient as foreign analogues.

The project **“Catalyst development and commercialization in dehydrogenation”** (2016 – 2017) was launched in collaboration with *Haldor Topsoe A/S* (Denmark), the global leader in catalysis.

Its objective is to develop a series of dehydrogenation catalysts, which are among the most important components in the process of elastic gum, rubber and polymer manufacturing. *Haldor Topsoe* is especially interested not only in joint development, but also in the developed catalyst scaling by their pilot testing under industrial conditions, as well as by their commercial manufacture and commercialization. Using the joint efforts of *Haldor Topsoe* research center and KFU laboratories we are planning to create world-class catalysts and bring them to the international market.

A mega-grant for 90 million RUR was awarded by the Decree of the RF Government No. 220 to a group of researchers from the Department of Physical Chemistry, A.M. Butlerov Institute of Chemistry, KFU, and Prof. Christopher Schick, the University of Rostock (Germany). This mega-grant is allocated for creation of the Laboratory of Ultrafast Calorimetry in KFU and conduction of research by using the method of ultrafast calorimetry with chip-calorimeters. The method permits to study material and process characteristics at their heating and cooling with the rate of up to 1000000 K/sec., which opens broad horizons for studying fast thermal processes and permits to obtain data inaccessible for traditional calorimetry. The results obtained during the research will be used in industry, for instance, in polymer and drug production.

In 2016 the Institute of Social and Philosophical Sciences and Mass Communications and Leo Tolstoy Institute of Philology and Intercultural Communication of KFU were implementing a joint research project within the framework of cooperation between scientists from the Russian Federation, Ukraine and Germany on the topic: **“Bi- and multilingualism: the source of conflict intensification or means of their settlement – ethnolinguistic conflicts, language policy and collaboration in the post-Soviet Ukraine and Russia”** (2016 – 2019). The research is done at the expense of Volkswagen Foundation in collaboration with the University of Giessen (Germany) and the National Academy of Science of Ukraine. The project purposes are to build a typology of bilingual situations in post-Soviet states by the example of Ukraine and the Russian Federation (Tatarstan); analyse the language policy experience within the period from the collapse of the USSR to the present day; determine the degree of impact of bi- and multilingualism on exacerbation or settlement of international conflicts. The project implies holding of social studies of the Tatarstan population, two international conferences and task meetings of scholars from the countries participating in the project.

No	Project title	Funding source	Duration	International partners	KFU participants
1.	Fluvial processes and sediment dynamics of slope channel systems: Impacts of socio economic-and climate change on river system characteristics and related services	7 th Framework Program of the European Commission	2012-2016	University of Tübingen (Germany), University of Stockholm (Sweden), University of Kazimir the Great (Poland),	Institute of Ecology and Nature Management

Alexandru Ioan Cuza
University
(Romania), *Institute
of Ecology and
Geography* of the
Academy of Sciences
of the Republic
of *Moldova* (Moldov
a)

2.	European and International Law Master Programme Development in Eastern Europe 544595-TEMPUS-1-2012-1 HR-TEMPUS-JPHES	Tempus Program, European Commission	2013–2016	University of Zagreb (Croatia), University of Maribor (Slovenia), Higher School of Social Technologies in Riga LLC (Latvia), National University «Odessa Law Academy» (Ukraine), Donetsk National University (Ukraine)	Faculty of Law
3.	Actions of Lifelong Learning addressing Multicultural Education and Tolerance in Russia (544410-TEMPUS-1-2013-1 IT-TEMPUS-JPHES)	Tempus Program, European Commission	2013–2016	University of Bologna (Italy), University of Glasgow (Great Britain), New University of Lisbon (Portugal), European Centre for Valuation of Prior Education (Netherlands)	Naberezhnye Chelny Institute
4.	EU-Russia: Towards Modern and Innovative Higher Education» - AURORA	Erasmus Mundus, European Commission	2012-2017	University of Turku (Finland), University of Bologna (Italy), University of Deusto (Spain), University of Groningen (the Netherlands), Humboldt University Berlin (Germany), University of Latvia (Latvia), Catholic University of Leuven (Belgium), Masaryk University (Czech Republic), University of Tartu (Estonia)	Department of External Affairs (all KFU institutes may participate)

5.	Volga International Centre of Excellence in European Studies VOICES+	Erasmus+, Jean Monnet Activities, European Commission	2015-2018	---	Faculty of Law
6.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2015-2017	University of Leipzig (Germany)	Department of External Affairs (all KFU institutes may participate)
7.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2015-2021	University of Regensburg (Germany)	Department of External Affairs (all KFU institutes may participate)
8.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2015-2017	University of Latvia (Latvia)	Department of External Affairs (all KFU institutes may participate)
9.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2015-2017	University of Presov (Slovak Republic)	Department of External Affairs, Institute of Philology and Intercultural Communication
10.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2015-2021	University of Nicosia (Cyprus)	Department of External Affairs (all KFU institutes may participate)
11.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2015-2020	University of Castilla-La Mancha (Spain)	Department of External Affairs (all KFU institutes may participate)
12.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2015-2017	University of Bologna (Italy)	Department of External Affairs (all KFU institutes may participate)
13.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2015-2017	Masaryk University (Czech Republic)	Department of External Affairs (all KFU institutes may participate)
14.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2014-2020	Tsenov Academy of Economics (Bulgaria)	Department of External Affairs, Institute of Management, Economics and

					Finance
15.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2015-2017	Catholic University of Leuven (Belgium)	Department of External Affairs, Faculty of Law
16.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2016-2017	Birmingham City University (UK)	Department of External Affairs, Higher Institute for Information Technology and Information Systems
17.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2016-2018	University of Tampere (Finland)	Department of External Affairs, Institute of Social and Philosophical Sciences and Mass Communications, Institute of Philology and Intercultural Communication
18.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2016-2020 (21)	Open University of Cyprus (Cyprus)	Department of External Affairs, Institute of Management, Economics and Finance, Institute of Psychology and Education, Institute of Environmental Sciences
19.	Academic mobility support	Erasmus+, International Credit Mobility, European Commission	2016-2020	Wrocław University of Economics (Poland)	Department of External Affairs, Higher School of Public Administration, Institute of Management, Economics and Finance
20.	Academic mobility	Erasmus+,	2016-2018	University of Cadiz	Department of

	support	International Credit Mobility, European Commission		(Spain)	External Affairs, Institute of Social and Philosophical Sciences and Mass Communications
21.	Cultural contact and conflict zones in Eastern Europe (Germany, Belorussia, Kazakhstan, Poland, Russia, Romania)	DAAD	2013–2016	Justus Liebig University Giessen (Germany), University of Lodz (Poland), Universităţii Babeş-Bolyai (Cluj-Napoca, Romania), Abylai-Khan Kazakh University of International Relations and World Languages (Kazakhstan)	Institute of Philology and Intercultural Communication
22.	Volga Federal District as an indicator of the language policy of the multinational Russian Federation	DFG	2014-2016	Justus Liebig University of Giessen (Giessen, Germany), Giessen Centre for Eastern European Studies GiZo (Germany), Bashkir State University, Mari State University	Institute of Philology and Intercultural Communication
23.	Study of Superconductive Spin-Valve Effects in Superconductor/Ferrite Nanolayered Heterostructures	DFG	2014-2017	University of Augsburg (Germany)	Institute of Physics
24.	Climate-environmental deteriorations during greenhouse phases: Causes and consequences of short-term Cretaceous sea-level changes	UNESCO	2013-2017	University of Vienna (Austria), Nanjing University (China), Goethe-Universität Frankfurt (Germany)	Institute of Geology and Petroleum Technologies
25.	Models and Computability	NSF	2015-2017	University of Notre Dame du Lac, The	Institute of Mathematics and

	(Algorithmic information theory)			University of Wisconsin–Madison, CUNY, University of Chicago (USA), Nazarbayev University (Kazakhstan)	Mechanics
26.	World Digital Mathematics Library	Alfred P. Sloan Foundation, Wolfram Foundation	2016	The Fields Institute for Research in Mathematical Sciences (Canada)	Higher Institute for Information Technology and Information Systems
27.	Development of new approaches to storage of biomaterials for medical and agricultural purposes	Russian Federal Targeted Program “Research and development”, National Institute of Agrobiological Sciences (Tsukuba, Japan)	2014-2016	National Institute of Agrobiological Sciences (Tsukuba, Japan)	Institute of Fundamental Medicine and Biology
28.	Regulation mechanisms of stress response to dehydration in Chironomids P. vanderplanki cells and tissues	Russian Science Foundation	2014-2016	National Institute of Agrobiological Sciences (Tsukuba, Japan, RIKEN (Japan)	Institute of Fundamental Medicine and Biology
29.	Modelling of organic and metabolic reactions by cheminformatics methods: from the empirical to the predictive chemistry	Russian Science Foundation	2014-2016	Foreign scientists: Prof. A. Varnek (France), Dr. A. Tropsha (USA), Prof. I. Tetko (Germany), P. Polischuk (Ukraine), Prof. O. Klimchuk (France)	Institute of Chemistry
30.	Mathematical modelling of nonlinear processes of interaction of fields in Inhomogeneous spaces	Russian Foundation for Basic Research (RFBR)	2014-2016	University of Princeton (USA)	Institute of Computational Mathematics and Information Technologies
31.	Functional photonic programmable materials for biomedical and info-communication applications	Kazan Federal University	2014-2019	National Hellenic Research Foundation (Greece), Belarusian National Technical University (Belarus), Moldova State University (Moldova)	Institute of Physics
32.	Molecular and cell interactions in autoimmune pathology	Kazan Federal University, University of Pennsylvania (UPenn) (USA)	2014-2016	University of Pennsylvania, Children's Hospital of Philadelphia (USA)	Institute of Fundamental Medicine and Biology

33.	Molecular and cell mechanisms of haemostasis and thrombosis	Kazan Federal University, University of Pennsylvania (UPenn) (USA)	2014-2016	University of Pennsylvania (USA)	Institute of Fundamental Medicine and Biology
34.	Rehabilitation in Movement Disorders	Kazan Federal University, University of California, Los Angeles (USA)	2016-2017	University of California, Los Angeles (USA)	Institute of Fundamental Medicine and Biology
35.	Pasture digression in the prairies of the northern part of Central Mongolia	Mongolian Academy of Sciences, Institute of Botany (Mongolia)	2015-2016	Mongolian Academy of Sciences, Shiriyev-Adya Institute of Geography (Mongolia)	Institute of Fundamental Medicine and Biology
36.	Integrated Reporting and Sustainability Reporting: An Exploratory Study of High Performance Companies	DePaul University (USA)	2015-2016	DePaul University, Northwestern University (USA)	Institute of Management, Economics and Finance
37.	Russian-U.S. Summer School "Biodiversity, Protected Areas and Bioresources Management"	Fulbright Program	2015-2016	Evergreen State College (USA)	Institute of Ecology and Nature Management
38.	Implementation of the methodology of problem teaching of clinical pharmacology and rational pharmacotherapy and evaluation of its effectiveness for public health service	World Health Organization	Continuing cooperation	World Health Organization: European Bureau, Copenhagen (Denmark), Free University of Amsterdam (VU Amsterdam, The Netherlands)	Institute of Fundamental Medicine and Biology
39.	Implementation of the evaluation methodology for rational use of medicines	World Health Organization	Continuing cooperation	WHO Expert Committee on Specifications for Pharmaceutical Preparations, World Health Organization, Headquarters (Genève, Switzerland)	Institute of Fundamental Medicine and Biology
40.	E-lek (E-drug) - an electronic forum on essential medicines	World Health Organization	Continuing cooperation	World Health Organization, Headquarters (Genève, Switzerland), and Information and Technology Centre for Healthcare, Watertown, USA, affiliated with	Institute of Fundamental Medicine and Biology

				Harvard Medical School (Boston, USA)	
41.	Program for rational use of medicines, pharmaceutical advertising, ethical aspects of drug promotion and pricing	Health Action International	Continuing cooperation	Health Action International, Headquarters, Amsterdam (Netherlands)	Institute of Fundamental Medicine and Biology
42.	Effective health care – providing the best available evidences for the public health service efficiency	Cochrane Collaboration	Continuing cooperation	Liverpool School of Tropical Medicine, University of Liverpool, Liverpool, Great Britain, supervisor: Prof. Paul Garner, Cochrane Collaboration, Great Britain and Denmark – Northern Cochrane Centre: Cochrane Infectious Diseases Group and Cochrane Stroke Group	Institute of Fundamental Medicine and Biology
43.	Study of Arctic ecosystems under the influence of current climate changes in the region	Norwegian-Russian Programme of the Barents Sea ecosystem survey, European program for Arctic ecosystem monitoring, INAMON	2015-2016	Institute of Marine Research, Norway Greenland Institute of natural resources, Greenland (Denmark)	Institute of Fundamental Medicine and Biology
44.	Enhancers for local drug delivery in inner ear tissues based on oxy-alkylated polymers	Russian Foundation for Basic Research (RFBR), Royal Society	2016-2017	University of Brighton (UK)	Institute of Fundamental Medicine and Biology
45.	Search of new markers of resistance to the EGFR inhibitors	The US-Russia University Partnership Program (UPP)	2015-2016	Rutgers University (USA)	Institute of Fundamental Medicine and Biology
46.	Molecular and Biochemical Bases of Pathogenesis and Therapy of Cancer Diseases	Fox Chase Cancer Center (USA)	2015-2016	Fox Chase Cancer Center (USA)	Institute of Fundamental Medicine and Biology
47.	Development of systematic reviews, dissemination of the	Cochrane Collaboration	Continuing cooperation	Cochrane Collaboration, Great Britain and Denmark – Northern Cochrane	Institute of Fundamental Medicine and Biology

	new knowledge from systematic reviews and training			Centre: Cochrane Infectious Diseases Group and Cochrane Stroke Group	
48.	Language and culture of Russian Germans in immigration: the problems of self-presentation and self-identification	Russian Foundation for Humanities (RGNF)	2015-2017	International Council for Multilingualism and Intercultural Communication, Educational Centre “ИК@PYC” (Germany)	Elabuga Institute
49.	Introduction of technology of problem-oriented education in educational process of high school and school	Ministry of Education and Science of the Republic of Tatarstan	2016-2017	Center for Contemporary Pedagogics (Montreal, Canada), III Institute for intellectual integrations (Vienna, Austria)	Elabuga Institute
50.	Improvement of the tax system of oil production in the Russian Federation	British Petroleum	2016-2017	British Petroleum	Institute of Computational Mathematics and Information Technologies
51.	1000 talents (The Recruitment Program for Innovative Talents)	Chinese Government Program	2016-2018	Tianjin University of Finance and Economics (China)	Institute of Computational Mathematics and Information Technologies
52.	Topological and geometrical properties of Banach spaces and operator Algebras	Grant Agency of the Czech Republic	2012-2017	Czech Technical University in Prague, Charles University in Prague (Czech Republic)	Institute of Computational Mathematics and Information Technologies
53.	Carbo-Perm	German Federal Ministry of Science and Education (BMBF)	2015-2016	Alfred Wegener Institute of Polar and Marine Research, University of Potsdam (Germany)	Institute of Geology and Petroleum Technologies
54.	Climatic and environmental conditions changing in the New East Siberian Islands and in the Laptev Sea coast, based on the data of pollen and cladoceran analyses	German Federal Ministry of Science and Education (BMBF)	2015-2016	Alfred Wegener Institute of Polar and Marine Research, University of Potsdam (Germany)	Institute of Geology and Petroleum Technologies
55.	Arctic Ecological Network: Modern	German Federal Ministry of Science	2014-2016	Free University of	Institute of Geology and

	and fossil bioindicators in the (sub-) Arctic (Arc-EcoNet)	and Education (BMBF)		Berlin (Germany)	Petroleum Technologies	
56.	Global Carboniferous and Permian Non-Marine - Marine Correlation	International Subcommission on Permian Stratigraphy (SPS)	2015-2016	International Subcommission on Permian Stratigraphy (SPS)	Institute of Geology and Petroleum Technologies	
57.	Searching for common signatures in deep time: bio-correlation of Permo-Triassic continental sedimentary successions with tetrapods from Russia and South Africa (No. 14-05-93964)	Russian Foundation for Basic Research (RFBR), South Africa National Foundation	2015-2016	University of Pretoria (South Africa)	Institute of Geology and Petroleum Technologies	
58.	Multistratigraphic framework for continental Permian Triassic boundary sections of northern Pangaea: a key to a better understanding of the ecological consequences of the end-Permian crisis in the terrestrial realm	DFG	2015-2016	International Subcommission on Permian Stratigraphy (SPS)	Institute of Geology and Petroleum Technologies	
59.	Pilot study of evolution of Late Palaeozoic insects of the Souss basin, Morocco	DFG	2015-2016	International Subcommission on Permian Stratigraphy (SPS)	Institute of Geology and Petroleum Technologies	
60.	Revision of the basal sphenacodonts (Haptodontinae): systematic and evolutionary implications	DFG	2015-2016	International Subcommission on Permian Stratigraphy (SPS)	Institute of Geology and Petroleum Technologies	
61.	Development of adhesion additives and polyfunctional modifiers for the creation of polymer bitumen and asphalt concrete of a new generation	M.Auezov Kazakhstan University (Shymkent, Kazakhstan)	South-State	2015-2018	M.Auezov South-Kazakhstan State University (Shymkent, Kazakhstan)	Institute of Geology and Petroleum Technologies
62.	Associative, evaluative and conceptual	DAAD, Ministry of Education and Science of the	2016-2017	University of Hildesheim (Germany)	Institute of International Relations, History and Oriental	

	components of mental representations of mental states	Republic of Tatarstan (“Evgeni Zavoisky Program”)			Studies
63.	Learning to Teach: Building Global Research Capacity for Evidence-Based Decision Making	Kazan Federal University, University of Oxford (UK)	2016	Oxford University (UK)	Institute of Psychology and Education
64.	Bi- and multilingualism between conflict intensification and conflict resolution. Ethno-linguistic conflicts, language politics and contact situations in post-Soviet Ukraine and Russia	Volkswagen Foundation	2016-2019	University of Giessen (Germany), National Academy of Ukraine (Ukraine)	Institute of Social and Philosophical Sciences and Mass Communication, Institute of Philology and Intercultural Communication
65.	Missing Fe ²⁺ in microbial synthesis of nanoparticles HC/2443 (ID18)	European Synchrotron Radiation Facility (ESRF)	2016	European Synchrotron Radiation Facility (ESRF)	Institute of Physics
66.	Comparative study of Russian and Chinese languages in terms of language typology	Fundamental Research Funds for the Central Universities (China), Education Humanities and Social Sciences Research Youth Foundation under the Ministry of Education of the PRC	2016	School of Foreign Languages, Shaanxi Normal University (China)	Institute of Philology and Intercultural Communication
67.	Developmental Aspects in the Russian Language and Russian Language Environment in Relation to the Social Changes in Russia in the Last Century	VEGA Scientific Grant Agency, Ministry of Education, Science, Research and Sport of the Slovak Republic	2015-2016	University of Presov (Slovak Republic)	Institute of Philology and Intercultural Communication
68.	Selective adsorption studies for separation of dimers from commercial isoprene	Kraton Polymers LLC	2016-2018	Kraton Polymers LLC	Institute of Chemistry
69.	Development and industrial application of catalysts in	Haldor Topsoe A/S (Denmark)	2016-2017	Haldor Topsoe A/S (Denmark)	Institute of Chemistry

dehydrogenation					
70.	Spectrum-Roentgen-Gamma mission	Max Planck Institute for Astrophysics (Germany)	2016-2025	Max Planck Institute for Astrophysics, Institute for Space Astrophysics (Germany)	Institute of Physics
71.	Development of ultrafast calorimetry methods for the study of polymers, composite and bio-materials	Research Mega-grant by the Russian Government (Order №220)	2016-2020	Rostok University (Germany)	Institute of Chemistry

The following research, research and education centers and laboratories were opened in KFU divisions in collaboration with foreign partners in 2016:

- Center for Migration Pedagogy and Cross-Cultural Psychology, in collaboration with the University of Miami (USA) and the University of Glasgow (Great Britain), the director is prof. Diana Birman (USA);
- Laboratory of Ultrafast Calorimetry within the Mega-grant (Decree of the Government of the RF No. 220), in collaboration with the University of Rostock (Germany), the director is Prof. Christopher Schick;
- Research and Education Center “KFU-Rohde&Schwarz”, in collaboration with *Rohde&Schwarz*, Germany;
- Research and Education Center for Evidence-Based Medicine “Cochrane Russia”, in collaboration with the Central Executive Team, *Cochrane*, Great Britain, and the Service Centre, *Cochrane*, Denmark;
- Laboratory “Perspective systems of orientation, navigation, communication”, in collaboration with *Monash University* (Australia), *Royal Imperial College* (Canada), *Cisco* (USA);
- Research and Education Center “Kayyum Nasiri Institute” in Azerbaijan;
- Center of Korean Studies in collaboration with the Academy of Korean Studies (the Republic of Korea);
- Resource Center of the French Language in collaboration with the Embassy of France;
- KFU – RIKEN joint laboratory “Functional and Applied Genomics”.



Scientists of SIM research laboratory, “Virtual and Simulation Technologies in Biomedicine” project (Higher School of Information Technologies and Information Systems, KFU) have developed a rehabilitative game for people with neurological diseases (with disordered motor function after the stroke). The development has been successfully tested and is currently introduced in health care institutions of Spain.

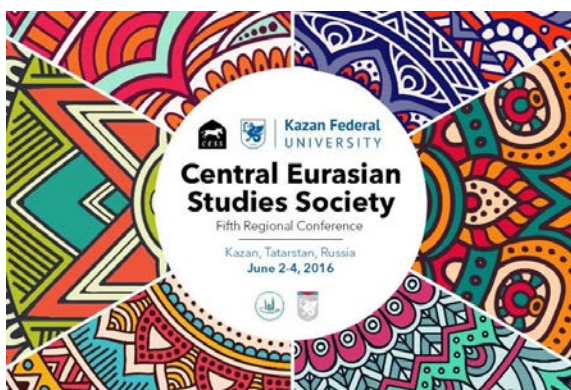
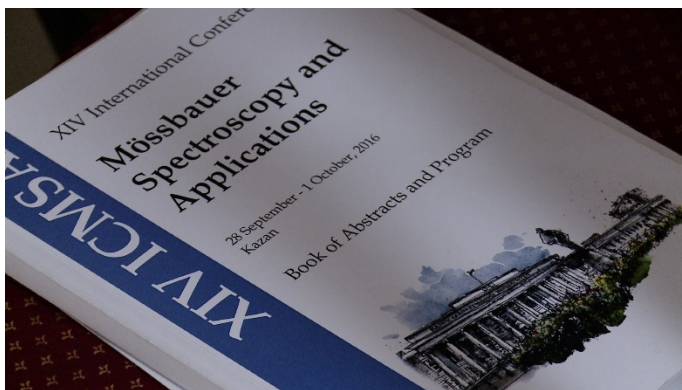
Within the reporting period KFU staff members participated in more than **60** international scientific events, such as symposia, conferences, and seminars held abroad, and presented plenary papers and made poster presentations there, including such prestigious events as:

- The 100th anniversary conference of the American Educational Research Association, AERA (Washington, USA, April 08 – 12, 2016);
- European Conference on Educational Research. KFU was an organizer of this event together with its colleagues from Germany and Ireland (Dublin, Ireland, August 22 – 26, 2016);
- Semantic Representation of Mathematical Knowledge Workshop (Toronto, Canada, February 03 – 05, 2016), devoted to creation of new language for representation of mathematical knowledge and creation of the World Digital Mathematics Library, WDML;
- Astronautical Congress in Pasadena (Pasadena, USA, October 16 – 21, 2016) and others.



KFU hosted **162** international scientific events in 2016. The following events can be mentioned among the largest and most representative, including by the number of international participants:

- V Regional Conference of the Central Eurasian Studies Society (CESS) (June 2 – 4, 2016), held in Russia for the first time;
- XXI International Conference on Phosphorus Chemistry (ICPC 2016) (June 6 – 8, 2016);
- International Olympiad in Informatics for secondary school students (IOI) (August 12 – 19, 2016), held in Russia for the first time;
- II International Scientific Conference “Science of the Future” (September 20 – 23, 2016);
- International Forum “Preserving Humanity as an Imperative for Sustainable Development” (September 14 – 16, 2016), held under the aegis of UNESCO and others.



5. Academic Mobility

The development of academic mobility of staff and students is considered the key factor of international cooperation in KFU.

Totally **326** KFU students and postgraduates participated in student exchange programs in 2016, including participation in exchange programs for the minimum period of 1 semester – 245 persons; participation in short-term academic mobility programs (not more than 3 months) – 81 persons. The largest grant sources for the short-term education were: Confucius Institute, PRC Government grant (38 grants), “Algarysh” program offered by the Government of the Republic of Tatarstan (24 grants); academic mobility program “Erasmus+ Credit Mobility” (16 grants). During the reporting period the most intensive student exchange developed between KFU and universities of **Germany, China, Republic of Korea, and Czech Republic.**



In 2016 **507** KFU staff members visited foreign educational and scientific organisations in **59** countries within the framework of academic mobility events. Most of KFU staff member visits were organized to the following countries: Germany (86 people), USA (40 people), Italy (33 people), China (32 people), Spain (28 people), Great Britain (25 people), France (22 people), Kazakhstan (18 people). The United Arab Emirates, Colombia, Ecuador have become new regions for visits within the international academic mobility.

Academic mobility of KFU staff by aims and regions of visits

By the aim of visit, persons	By the region of visit, persons
Events – 278	Europe – 341
Internships, research – 169	Asia – 113
Lectureship – 19	North America – 42
Other – 41	Africa – 7
	Latin America – 3
	Australia and Oceania – 1



6. Official Visits

Over **100** international delegations visited KFU in 2016, including: government delegations (Venezuela, China, Finland), representatives of diplomatic corps of foreign countries (Austria, Norway, Syria, Portugal, Great Britain, New Zealand), university delegations (China, Germany, Japan, Kazakhstan), representatives of international companies and educational institutions (France, India, Czech Republic, USA).

Within the reporting period KFU delegations headed by the Rector Ilshat R. Gafurov made **3** official visits abroad to Japan and Germany. Some of these delegations were included in official delegations of the Republic of Tatarstan. The conducted negotiations helped to create a foundation for expanding KFU's international cooperation in different activity areas.



7. KFU in Rankings

An important measure of success is KFU promotion in international university rankings. According to the results of 2016, Kazan University occupies the following positions in **QS World University Rankings**:

🚩 QS (university) rankings – 501-550

- ❖ QS (BRICS countries) – 74
- ❖ QS (Emerging Europe and Central Asia) – 52
- ❖ QS subject rankings: *Linguistics* – 101-150; *Archaeology, Information Sciences and Journalism* – 151-200; *English Language and Literature, Education* – 251-300; *Economics and Econometrics* – 301-350; *Physics and Astronomy* – 351-400; *Chemistry* – 401-450.

Furthermore, according to the results of 2016, KFU was among 23 world universities awarded “4 stars” by QS Stars.

Positions in the international ranking **Times Higher Education World University Rankings** 2016/2017:

🚩 THE (university) rankings – 401-450



8. International Achievements of KFU Staff and Students

- February, 2016 – the head of the Department of Organic Chemistry, prof. **I. A. Antipin**, was conferred the title of *Commander of the Order of Academic Palms (France)* for contribution to strengthening scientific cooperation between Russia and France;
- May, 2016 – students of **the Faculty of Law, KFU**, took the 3rd place at the contest “*Model International Criminal Court — 2016*” (Russian version) in the Hague, Netherlands;
- August, 2016 – students of the Institute of Chemistry, KFU, **Ruslan Lukin and Dmitry Bolmatenkov**, won golden and silver medals at the *IX International Chemistry Olympiad* in Teheran, Iran;
- October, 2016 – a student of the Institute of Fundamental Medicine and Biology, KFU, **Anton Zaytsev**, won a gold medal at the VII World University Boxing Championship, Chiang Mai, Thailand.

