

**Dear participants, judges and organizers
of the first inaugural Yakutsk International Science Fair!**

It is with the utmost pleasure that I congratulate you all for taking part in this tremendous event!

This event was a long time coming, it took us more than twenty years since the inception of our own science fair called the "Step into the Future" to organize a science fair of an international dimension. It has been our good luck to rely on the good offices of Professor Jeff Hoyle of Dalhousie University, Halifax, Canada, who with a zeal and industry of a true Yorkshire man orchestrated a worldwide enterprise to get world class experts as judges of the first Yakutsk International Science Fair. Jeff and his partner and colleague Diana Fraser brought to Yakutsk representatives of many countries, a great variety of experiences and expertise. United Kingdom, Singapore, Canada, Jamaica, Hungary, and Poland, to name just a few.



My thanks go to Mr. Reni Barlow, Vice-President of MILSET International for introducing me to professor Jeff Hoyle.

I would like to thank professor Basant Raj Pant of Kathmandu, Nepal, a distinguished neurosurgeon, famed for his pioneering surgery, as well as the Nepalese Siamese twin separation operation in Singapore, for delivering a phenomenal lecture on the application of science in medicine for the benefit of all. It was received with great enthusiasm by all YISF participants. I am confident that the lecture will mark the beginning of some great medical careers.

Most importantly, I would like to thank all our conference organizers for their tremendous efforts, especially Milana Fedotova and Aitalina Timofeeva, as well as our much beloved volunteers. Your sleepless nights will bring great results.

Yakutsk International Science Fair gives you, our best young researchers, a unique opportunity to proudly show the results of your work, to engage in scientific dialogue with the world's most prominent scientists, to discover new cultures, and to meet bright and wonderful friends from all corners of the world.

I hope that YISF will be remembered as a brilliant celebration of science and friendship. I am confident that you have become good friends and have shared many things in common, especially infinite curiosity and love for science.

Let's do science and make friends!

*Yours truly,
Dr. Vasilii Pavlov,
Rector of Sakha Junior Science Academy,
Member of YISG Programme Committee*

REPUBLIC OF SAKHA (YAKUTIA)



The Republic of Sakha (Yakutia) is the largest and one of the most important regions in the Russian Federation. Its area is 3,103,200 sq km – it is 18.2% or one fifth of Russia's territory, or almost two thirds of Western Europe's territory. The people of Yakutia say that the Republic is larger than France, Austria, Germany, Italy, Sweden, England, Finland and Greece combined. There are three time zones in the Republic. The local time is 6, 7 and 8 hours ahead of Moscow time. The capital of the Republic is the City of Yakutsk, which is 8,468 km away from Moscow.

Yakutia is full of natural contrasts. Due to its continental climate, the air temperature fluctuates from 40 degrees above zero in summer to 60 degrees below zero in winter. Oymyakon settlement is considered to be the Pole of Cold, as the coldest ever temperature recorded there was -71.2 C. Sometimes, the clear night skies over Yakutia are illuminated by aurora. In summer, when the sun reaches its highest point, the air is transparent and dry. Then the white nights begin. Almost all of the Republic is covered in permafrost. During summer, the top layer of soil thaws to a depth of only 3.5 m.

Berelyakh is a unique place that is home to a mammoth cemetery, where 150 mammoth bodies were found. Yakutia is also home to the Permafrost Institute, which has an underground laboratory that can be visited by tourists.

There is an absolutely amazing place in Yakutia: the Lena Pillars Nature Park with vertical rock pillars that stretch for over 80 miles along the right bank of the Lena River. The park was established in the mid-1990s and consists of two parts: "The Pillars" and



“Sinsky”. On July 2, 2012, the Lena Pillars Nature Park became a UNESCO World Heritage Site. The Park is 140-200 km to the South-West of Yakutsk. Tectonic shifts that took place 400,000 years ago created a fault in the Lena basin and lifted the whole territory up by 200 meters, forming these unique rocky formations.

YAKUTSK, CAPITAL OF THE REPUBLIC OF SAKHA (YAKUTIA)

There are many theatres and museums in Yakutsk: the Pushkin State Academic Russian Drama Theater, Young Spectator’s Theatre, the Oyunsky Sakha Academic Theatre, the Sivitsev-Suorun Omollon State Theater of Opera and Ballet, Yakutsk State Variety Theatre, the Zverev-Kyyl Uola National Dance Theater, the Theater of Olonkho, Yakutsk National Fine Arts Museum, the Yaroslavsky Yakutsk State Museum of History and Culture of the Peoples of the North, and the world’s only Museum and Centre of Khomus of the Peoples of the World. The Sakha Circus, the northernmost circus in the world, is another must-see.





YISG

Let's Do Science
and Make Friends!

RUSSIA 2018

YAKUTIA INTERNATIONAL SCIENCE GAMES

Yakutia International Science Games is an international youth science forum that aims to establish an international community of highly motivated students, teachers and scientists, members of public organizations and parents who are interested in science and technology, in order to create and develop a continuous communicational and educational platform for the gifted and highly motivated students, engaged in scientific research and projects, to exchange experience and knowledge in the field of the students' scientific research and the projects development, to provide multimedia coverage of the YISG and create an interactive and information web-platform for the YISG.



YAKUTSK INTERNATIONAL SCIENCE FAIR

Yakutsk International Science Fair is an international competition of research works of students from Russia and other countries of the world. It has the format of poster sessions and oral presentations. Each participant team consists of seven students. According to the results of project presentation and personal interviews by the experts, the Expert award 1st, 2nd and 3rd place winners among the best works. The team result is taken into account when calculating points for winning the YISG Grand Cup.

YISF IS NOT ONLY PRESENTATIONS OF SCIENTIFIC WORKS, BUT ALSO AN EXTENSIVE CULTURAL PROGRAM

In between the science, participants of the conference went on a cruise on the Lena River. As soon as everyone was on board, foreign guests continued their master classes, at which they presented interesting reports on the directions of their work. Interesting lectures were given by our judges from Canada Edward Doolittle, Kevin Hewitt, Paula Pylonen and Michael Wood.

In addition to the educational program, the conference also included an amazing cultural program. Professor Edward Doolittle showed the best salsa movements, an improvised "Khomus International" ensemble of participants from different countries demonstrated their skill at playing the *khomus* instrument, delegation from Kazakhstan sang the hymn of their intellectual school. The cultural program ended with Sakha traditional round dance *Osuokhai*.

PROGRAM OF YAKUTSK INTERNATIONAL SCIENCE FAIR

(for participants and team leaders)

Venues:

- 1) Building of Natural Sciences Faculties of the Ammosov North-Eastern Federal University (*KFEN*), 48 Kulakovsky Str.
 - Sections – rooms 349, 351, 353, 355;
 - Master classes, introduction briefings – room 263;
 - Volunteers – rooms 359, 228;
 - Organizers – room 322a.
- 2) *Triumph* Sport Center, 26 Oyunsky Str.
 - Poster session - 2nd floor;
 - Room for the organizers - 206;
 - Room for the volunteers - 203.
- 3) Republican Lyceum & Boarding School (RLI). 37 Oyunsky Str.
- 4) *Yunost* Stadium. 2/1 Pavlik Morozov Str.

Accommodation facilities for YISF participants:

- Participants and team leaders from foreign countries and regions of the Russian Federation will be accommodated in Dormitory 9/1, 46/1 Kulakovsky Str.;
- Participants and team leaders from the Republic of Sakha (Yakutia) will be accommodated in Dormitory 7/1, 42/2 Kulakovsky Str.

Dining facilities for the participants of the science fair:

- Participants and leaders from foreign countries and regions of the Russian Federation - Food complex "*Sergelyakh*", 19 Oyunsky Str.;
- Participants and team leaders from Kazakhstan - Café "*Class*" (Dormitory 9/1);
- Participants and team leaders from the Republic of Sakha (Yakutia) - *KFEN* dining room.

| <i>Time</i> | <i>Event</i> | <i>Place</i> |
|--------------------------|--|-----------------|
| JULY 7 (SATURDAY) | | |
| Scheduled | Arrival of participants from foreign countries and regions of the Russian Federation | Yakutsk Airport |
| Scheduled | Check-in to the dormitory | |
| JULY 8 (SUNDAY) | | |
| Scheduled | Arrival of participants from foreign countries and regions of the Russian Federation | Yakutsk Airport |

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| Scheduled | Check-in to dormitories | |
| 07:30-09:30 | Breakfast | Approved dining facilities |
| 12:00-14:00 | Check-in to the dormitory of participants from the Republic of Sakha | Dormitory 7/1 |
| 10:00-16:00 | Accreditation of delegations from foreign countries and regions of the Russian Federation (only team leaders must be present) | Republican Lyceum (gym) |
| 12:00-15:00 | Lunch | Approved dining facilities |
| 16:00 | An introductory lecture for team leaders and attachés | Republican Lyceum (Assembly Hall) |
| from 17:00 | Accreditation of the participants from the Republic of Sakha (only team leaders must be present) | Republic's lyceum (gym) |
| 18:00-20:00 | Dinner | Approved dining facilities |
| 19:00-21:00 | Introductory meeting | Yunost Stadium |
| JULY 9 (MONDAY) | | |
| 07:30-09:30 | Breakfast | Dining facilities |
| 09:00-13:00 | Sightseeing tours | According to the schedule of the tours |
| 13:00-15:00 | Lunch | Approved dining facilities |
| 16:00-17:00 | Briefing for participants and heads of delegations | KFEN room 263 |
| 17:00-18:00 | Preparation for sectional presentations, downloading of presentations | KFEN room 349, 351, 353, 355 |
| 18:00-20:00 | Dinner | Approved dining facilities |
| 20:00 | YISG Opening Ceremony | Triumph Stadium |
| JULY 10 (TUESDAY) | | |
| 07:30-09:30 | Breakfast | Approved dining facilities |
| 09:30-10:00 | Preparation for sectional presentations, downloading of presentations | KFEN room 349, 351, 353, 355 |
| 10:00-13:00 | Oral presentations* | KFEN |
| | Section "Computer Science and Information Technology" and "Mathematics" | room 349 |
| | Section "Engineering" and "Physics and Astronomy" | room 351 |
| | Section "Chemistry" and "Natural Sciences" | room 353 |

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| | Section "Biology, Medicine and Health" and "Social Sciences" | room 355 |
| 11:15-11:30 | Break | |
| 11:30-13:00 | Oral presentations* | KFEN room 349, 351, 353, 355 |
| 13:00-15:00 | Lunch | Approved dining facilities |
| 14:00-17:00 | Oral presentations* | KFEN room 349, 351, 353, 355 |
| 15:15-15:30 | Break | |
| 15:30-17:00 | Oral presentations* | KFEN room 349, 351, 353, 355 |
| 17:15-18:00 | Conclusion meeting of the 1st day | KFEN |
| 18:00-20:00 | Dinner | Approved dining facilities |
| 19:00 | Cultural evening | Yunost Stadium |
| JULY 11 (WEDNESDAY) | | |
| 07:30-09:30 | Breakfast | Approved dining facilities |
| 09:00-09:45 | Dr. Basanr Raj Pant, PhD, Chairman and Head Department of Neurosurgery, Annapurna Neurological Institute and Allied Science, Nepal. "Re-innovating science to meet your need" | KFEN room 263 |
| 09:50-10:35 | Dr. Morten Lennholm, PhD, Research Scientist, JET Exploitation Unit, Great Britain "Introduction to Nuclear Fusion" | KFEN room 263 |
| 11:00 | Departure to Yakutsk River Port | Near Dormitory 9/1 |
| 12:00 | Embarkation | River Port |
| 13:00 | Departure (Lena River Port) | River Port |
| 13:00-15:00 | Lunch | Boat |
| 15:30-16:30 | Master classes and lectures of invited experts of the conference | On board, Cinema Hall and Reading Room |
| 16:30-19:00 | Free time, master classes dedicated to playing national musical instruments and to national dances | Boat |
| 18:00 | Dinner | Boat |
| 20:00 | Evening of culture and disco party | Boat |
| JULY 12 (THURSDAY) | | |
| 07:00 | Arrival | Boat |
| 07:30-09:30 | Breakfast | Approved dining facilities |

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|---------------------------|---|------------------------------|
| 09:30-13:00 | Free time | |
| 13:00-14:00 | Setting up posters | Triumph, 2nd floor |
| 13:30-15:00 | Lunch | Approved dining facilities |
| 15:00-16:30 | Poster session for experts* | Triumph, 2nd floor |
| 16:30-16:45 | Break | Triumph, 3rd floor, room 329 |
| 16:45-18:00 | Poster session for experts* | Triumph, 2 floor |
| 18:00-20:00 | Dinner | Approved dining facilities |
| 19:00 | Cultural evening | Yunost Stadium |
| JULY 13 (FRIDAY) | | |
| 07:30-09:30 | Breakfast | Approved dining facilities |
| 10:00-13:00 | Poster session for experts* | Triumph, 2 floor |
| 11:30-11:45 | Break | Triumph, floor room 329 |
| 11:45-13:00 | Poster session for experts* | Triumph, 2 floor |
| 13:00-15:00 | Lunch | Approved dining facilities |
| 14:00-16:00 | Poster session for the public / presentation by participants | Triumph, 2 floor |
| 18:00-20:00 | Dinner | Approved dining facilities |
| 19:00 | Award Ceremony | Yunost Stadium |
| JULY 14 (SATURDAY) | | |
| 07:30-09:30 | Breakfast | Approved dining facilities |
| 9:00-13:00 | Excursion program | |
| 12:00-15:00 | Lunch | Approved dining facilities |
| 14:00-18:00 | Free time | |
| 18:00-20:00 | Dinner | Approved dining facilities |
| 20:00 | Closing ceremony of YISG | Triumph |
| JULY 15 (SUNDAY) | | |
| Scheduled | Check-out from the dormitories of delegations from the Republic of Sakha (Yakutia), regions of the Russian Federation and foreign countries | |
| Scheduled | Departure of participants | Yakutsk Airport |

* Team Leaders and attachés are not allowed into Sectional Meetings and Poster Sessions for the experts.

MATHEMATICS

| Country | Region | Given Name | Surname | School | Grade | Project |
|---------|---------|------------|-----------|--|-------|--|
| Russia | Yakutia | Aleksei | Gerasimov | Alexeev Verkneviluiskiy Boarding Gymnasium | 10 | Building of bicentral five argans and their stereometric analogues |
| Russia | Yakutia | Sakhaya | Sidorova | Alexeev Verkneviluiskiy Boarding Gymnasium | 9 | Bicentral quadrangles and their stereometric analogies |
| Russia | Yakutia | Pavel | Vasiliev | Oktyemsk Scientific Educational Center | 11 | Mathematical modelling using cellular automata |

COMPUTER SCIENCE AND INFORMATION TECHNOLOGY

| Country | Region | Given Name | Surname | School | Grade | Project |
|------------|---------|------------|-------------|---|-------|--|
| Russia | Yakutia | Saidam | Gavriliev | The Republic's Lyceum-Boarding School | 6 | Creating an animation by yourself |
| Russia | Yakutia | Danil | Iadreev | Larionov Yakutsk Physical Technical Lyceum | 7 | Weather monitoring on two meteostations on two valleys: Tyimaada and Erkeeni |
| Russia | Yakutia | Arkadii | Iakovlev | Kyllaakhskiy Secondary School | 11 | Augmented Reality Technology in Education |
| Russia | Yakutia | Evgenii | Pavlov | The Republic's Lyceum-Boarding School | 6 | How to develop a computer game |
| Russia | Yakutia | Ilia | Sezko | Varshavsky Information Technology Lyceum 24, Neryungry city | 9 | UAV construction kit |
| Kazakhstan | | Nurdaulet | Taumergenov | Nazarbayev Intellectual Schools | 9 | Clever glove for silent people "GloveSpeaker" |

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|----------|---------|---------|------------|---------------------------------------|----|---|
| Taiwan | | Tung-Yu | Wu | Taipei Municipal JianGuo High School | 11 | NeuralNetworkOptimizationUsingModifiedGradient |
| Slovenia | | Gregor | Kržmanc | Gimnazija Vič | | SmartLock - an electronic locker system |
| | | Luka | Skeledžija | | | |
| Slovenia | | Kalina | Mihelič | Gimnazija Vič | | Smart birdbox |
| Russia | Yakutia | Timur | Vyrdylin | The Republic's Lyceum-Boarding School | 10 | Researching tukulans using GIS technologies and remote sensing data |

PHYSICS AND ASTRONOMY

| Country | Region | Given Name | Surname | School | Grade | Project |
|---------|---------|------------|------------|---|-------|--|
| Russia | Yakutia | Olga | Danilova | Suntarskiy Polytechnical Boarding Lyceum | 9 | Research of optical properties of a laser disk with further application in illumination of ice sculptures |
| Russia | Yakutia | Oleg | Godizov | Varshavsky Information Technology Lyceum 24, Neryungry city | 11 | Fractal Wi-fi antenna based on textolite |
| Russia | Yakutia | Nataliia | Grigorieva | Ammosov Specialized Scientific Educational Center | 10 | Development of the Ussing chamber for the study of diffusion potential |
| Russia | Yakutia | Diana | Ivanova | Yakutsk Secondary School № 17 | 9 | Experimental investigation of the dependence of the liquids' evaporation rate and boiling point on the various factors |
| Russia | Yakutia | Zaida | Ivanova | Vilyuskiy gymnasium | 11 | Device for pouring liquid based on photo element |
| Russia | Yakutia | Andrei | Petrov | Larionov Physical Technical Lyceum | 9 | Use of finite state machines for space satellite control |

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|--------|---------|--------|-------------|---|----|--|
| Russia | Yakutia | Kirill | Poltorykhin | Mokhsogollokh Secondary School | 11 | Estimation of X-ray flux intensity of solar flares by VLF radio signals phase variations |
| Russia | Yakutia | Andrei | Savvinov | Yakutsk Secondary School № 17 | 7 | The use of satellite images and unmanned aerial vehicles for monitoring the dumps |
| Russia | Yakutia | Aisen | Svinoboev | Ammosov Specialized Scientific Educational Center | 10 | The Peltier effect |

CHEMISTRY

| Country | Region | Given Name | Surname | School | Grade | Project |
|------------|---------|------------|-----------|---------------------------------------|-------|---|
| Russia | Yakutia | Aleksei | Everstov | Everstov Kobayaskiy Secondary School | 11 | Investigation of the chemical composition of birch sap in the conditions of the village of Kobyai |
| Russia | Yakutia | Naryia | Makarova | The Republic's Lyceum-Boarding School | 11 | Modification of rubber using natural protein substances |
| Russia | Yakutia | Yrii | Markov | Namskiy Secondary School | 5 | The use of natural indicators for rapid determination of soil acidity |
| Kazakhstan | | Karlygash | Nurbergen | Nazarbayev Intellectual Schools | 10 | Study of the effectiveness of destruction of various demulsifiers of water-oil emulsion during commercial preparation of commercial oil |

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|-----------|---------|-------------------------|------------|-------------------------------------|----|---|
| Russia | Yakutia | Marya | Shestakova | Kirenskiy Amginskiy Lyceum | 10 | Physico-chemical indicators of water of various lakes in the Amga river basin |
| Singapore | | Ee En, Ian (Yi'En) | Sim (Shen) | NUS High School of Math and Science | 12 | Green Synthesis of Metallic Nanoparticles using Dried Fruit Peel Extract |
| Singapore | | Clyve Yu Leon (Yuliang) | Yaow (Oiu) | NUS High School of Math and Science | 12 | |
| Singapore | | Kuan Ming, Feldman | Lee | NUS High School of Math and Science | 12 | |

NATURAL SCIENCES

| Country | Region | Given Name | Surname | School | Grade | Project |
|--|---------|---------------|-----------|--|-------|---|
| Bangladesh (BAN)- People's Republic of Bangladesh | | Audri Priyom | Bhowmik | Saint Joseph High and Secondary School | 12 | Efficient removal of cadmium from water through magnetic resonance and algae adsorption |
| Bangladesh (BAN)- People's Republic of Bangladesh | | Mashrur Ahmed | Tusher | Saint Joseph High and Secondary School | 12 | |
| Bangladesh (BAN)- People's Republic of Bangladesh | | Shihab | Sharar | Saint Joseph High and Secondary School | 12 | |
| Russia | Yakutia | Sakhaya | Alekseeva | Osipov Berdigestyakh Secondary School | 9 | Lichens as bio indicators of air pollution |

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|--------|---------|-----------|------------|--|----|---|
| Russia | Moscow | Evgenii | Borisenko | Advanced Educational Scientific Center (faculty) – Kolmogorov's boarding school of Moscow State University | 11 | Extreme properties of critical parallels on the bodies of the solar system |
| Россия | Yakutia | Aiyyna | Filippova | Kirenskiy Amginskiy Lyceum | 9 | Morphometric features of different lakes of Amga river basin |
| Russia | Yakutia | Aleksei | Germogenov | Ammosov Specialized Scientific Educational Center | 10 | Revealing of flammable territories with GIS and remote sensing of Earth (on instance of Central Yakutia) |
| Russia | Yakutia | Kristina | Grigorieva | Larionov Yakutsk Physical Technical Lyceum | 10 | Particular qualities of permafrost thawing in different landscapes of Central Yakutia |
| Russia | Yakutia | Tuiara | Ivanova | Myreev Secondary School, village Bechencha | 10 | Aquatic and semi-aquatic flora of the nature reserve Pilka and Specially protected natural area Argejey in Lenskiy district |
| Russia | Yakutia | Viktoriia | Ivanova | Olekminskiy gymnasium "Eureka" | 8 | Forecast of forest recovery after fire using of the decryption of space imagery |
| Russia | Yakutia | Anatoliy | Lukin | Osipov Berdigestyakh Secondary School | 11 | Expedition of schoolchildren of The Gorny, Nam and Khangalas districts 2016-2017 |
| Russia | Yakutia | Adeliya | Neustroeva | Sofronov Ytyk-Kyiel Secondary School № 1, UNESCO associated school | 11 | Ecological assessment of the waters of the small river Tatta in its upper and middle reaches (Churapcha, Tatta regions) |

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| Russia | Yakutia | Nurgun | Nogovitsyn | Oyskiy Secondary School | 8 | Archeocyats. Search, finds and preparation of the found petrified copies to the exposition of collections of paleontological museums of the World |
| Россия | Yakutia | German | Okhlopkov | Alexeev Myuryunskiy Youth Gymnasium | 8 | The state of Veronica Incapa population in Ust Aldan District of Yakutia |
| Russia | Yakutia | Nikita | Pasechnik | Nizhiy-Bestyakh Secondary School № 1 | 8 | "Monitoring of the Eryuuspring (Forwarding the route of homeland)" |
| Россия | Yakutia | Ignat | Protopopov | Everstov Kobyaskiy Secondary School | 9 | Dynamics of productivity and structure of pasture vegetation |
| Russia | Yakutia | Irina | Sleptsova | Yakutsk National Polytechnical School 2 | 6 | Anthills of Yakutsk city park |
| Russia | Yakutia | Ivan | Tarskii | The Republic's Lyceum-Boarding School | 11 | Analysing the state and dynamics of agricultural fields using GIS and Earth remote sensing data nearby Yakutsk Urban District |
| Россия | Yakutia | Aiyyna | Tereshkina | Yakutsk Secondary School № 1 | 10 | Dynamics of observation of respiratory activity the cryogenic of soils in the condition of the Central Yakutia |
| Kazakhstan | | Alikhan | Turash | Nazarbayev Intellectual Schools | 9 | Lizegang rings on the playgrounds of Astana |

BIOLOGY, MEDICINE AND HEALTH

| Country | Region | Given Name | Surname | School | Grade | Project |
|---------|---------|------------|---------|---|-------|--|
| Russia | Yakutia | Diana | Azarova | Alexeev Kho-mustaakh secondary school № 1 | 10 | Insects - wreckers of seeds and cones of the Siberian fir-tree (<i>Picea obovata</i> Ledeb) |

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| Russia | Moscow | Natalia | Budkina | Advanced Educational Scientific Center (faculty) – Kolmogorov’s boarding school of Moscow State University | 10 | Effect of ozone processing on the surface microstructure and sorption properties of the flour particles |
| Russia | Yakutia | Nikita | Grigoriev | Makarov Churapchinsky gymnasium | 11 | “The role of neuro-research on enhancement concentration and attention among adolescents of 11-15 years old” |
| Singapore | | Pin Hui | Ho | NUS High School of Math and Science | 12 | Cloning and Expression of Functionally Active Recombinant Non-Structural 1(NS1) Protein of Zika Virus in Modified Baculovirus Surface Displayed Technology and its Potential Use |
| Russia | Yakutia | Anastasiya | Izbekova | Alexeev Khomustaakh secondary school № 1 | 9 | Morphological and genetic variability of Betula species in the Kobysky District, Yakutia |
| Singapore | | Kia Hui (Jiahui) | Lim (Lin) | NUS High School of Math and Science | 12 | Cross-talk between Cell Mechanics and Biochemical Signaling Pathways Via Modulation of Nucleo-Cytoplasmic Shuttling of Transcription Factors: A Novel Approach to Study Fibroblasts in Breast Cancer Cell Environments |
| Russia | Yakutia | Milana | Rozhina | Larionov Mayin-skiy Secondary School | 9 | Bisphenol A as a factor of oncological diseases |

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|------------|---------|---------------------|---------------|--|----|--|
| Kazakhstan | | Zariat | Shatkenova | Nazarbayev Intellectual Schools | 11 | Determination of differences in the level of expression of the genes of healthy and cancerous cells of the mammary gland |
| Russia | Yakutia | Ilya | Tretyakov | Yakutsk City Lyceum | 8 | The influence of wood bison on forest vegetation in the bisonarium "Ust-Buotoma" |
| Turkey | | Ada | Ünal | OKSEF (Oğuzhan Özkaya Education Karademir Science Energy Engineering Fair) | 11 | Obtaining of collagen additive nanofiber to improve cartilage tissue scaffold with electrospinning method |
| Russia | Yakutia | Milena | Vasilieva | Ammosov Specialized Scientific Educational Center | 11 | Identifying the Size of Erythrocytes in Blood Using Laser |
| Singapore | | Madhumitha Ayyappan | | NUS High School of Math and Science | 12 | Germination Triggers of Clostridium Septicum Spores Suggest A Role in Gastrointestinal Colonization |
| Russia | Yakutia | Anastasiya | Nikaeva | Yakutsk City Classical Gymnasium | 10 | Comparative characteristics of the efficiency of collagen hydrolysate from the swimming bladders of the northern species of fish for the healing of wounds |
| Russia | Yakutia | Ezhena | Starodubtseva | Yakutsk City Classical Gymnasium | 10 | |
| Russia | Moscow | Ekaterina | Aleksandrova | Advanced Educational Scientific Center (faculty) – Kolmogorov's boarding school of Moscow State University | 10 | An ecological and genetic study of hymenopterous parasitoids of the viburnum leaf beetle (Pyrrhalta viburni) using chromosomal analysis |

ENGINEERING

| Country | Region | Given Name | Surname | School | Grade | Project |
|------------|---------|------------|-------------|--|-------|---|
| Kazakhstan | | Roman | Gol | Nazarbayev Intellectual Schools | 10 | Innovative architectural structure "HelixTower" |
| Russia | Yakutia | Ilya | Klimov | Yakutsk City Classical Gymnasium | 10 | Modeling of the energy efficient building using the Arduino software platform |
| Russia | Yakutia | Igor | Myarikyanov | Yakutsk City Classical Gymnasium | 9 | Production of three-layer wall panels using heavy-duty concrete with carbon single-walled nanotubes |
| Kazakhstan | | Äsem | Mylytkbai | Nazarbayev Intellectual Schools | 9 | Bomber jacket W+S |
| Russia | Yakutia | Nikolai | Nikiforov | Suntarskiy Polytechnical Boarding Lyceum | 10 | Use of a gas-generator furnace for utilization of solid municipal waste in rural areas |
| Kazakhstan | | Yerasyl | Turarov | Nazarbayev Intellectual Schools | 10 | Designing an innovative, energy-efficient playground for children with disabilities |

SOCIAL SCIENCES

| Country | Region | Given Name | Surname | School | Grade | Project |
|---------|---------|------------|-----------|---|-------|--|
| Russia | Yakutia | Valeriia | Andreeva | Chusovskoi Nyurbinskiy Technical Lyceum | 10 | The strategy "Blue ocean": marketing analysis of an entrepreneurship in the Nyurbinsky district, Yakutia |
| Russia | Yakutia | Luiza | Barieva | Ust-Mayskiy Secondary School | 8 | Study of runic inscriptions in Syargalakh area |
| Russia | Yakutia | Aleksandr | Permyakov | Ust-Mayskiy Secondary School | 7 | |
| Russia | Yakutia | Aitalina | Ivanova | Chusovskoi Nyurbinskiy Technical Lyceum | 10 | Cyberbullying as a communicative problem in virtual communication of adolescents |

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|--------|---------|------------|---------------|---|----|--|
| Russia | Yakutia | Maria | Ivanova | Chusovskoi Nyurbinskiy Technical Lyceum | 10 | The mystery of the silk robe from The Museum of "Friendship of peoples" K. D. Utkin Nyurba district. |
| Russia | Yakutia | Anastasiia | Ivanova | Karimova Neryungri gymnasium № 1 | 10 | Types of Transformations in Translation of Poems about Neryungri into Yakut and English |
| Russia | Yakutia | Uliana | Krivoshapkina | Yakutsk National Polytechnical School № 2 | 9 | Etymology of Tungus hydronyms of the Olekminsky District |
| Russia | Yakutia | Liya | Kuraeva | Yakutsk Secondary School № 5 | 10 | The mechanisms of knowledge management in the digital space |
| Russia | Yakutia | Aitalina | Shestakova | Larionov Physical Technical Lyceum | 10 | Interactive lexical reference book as a tool for English RNE preparation |
| Russia | Yakutia | Viktorina | Solomeina | Yakutsk Secondary School № 21 | 9 | School astronomy education: the present and the future |
| Russia | Yakutia | Zhanna | Ivanova | Yakutsk Secondary School № 21 | 9 | |
| Russia | Yakutia | Valeriia | Starkova | Legoyskiy Secondary School | 9 | Shops and trade in Yakutsk at the beginning of 20th century (from periodicals) |
| Russia | Yakutia | Yurianna | Timofeeva | The Republic's Lyceum-Boarding School | 10 | Linguistic Exoticisms of the Yakut language in Russian |



JUDGES

| # | Country | Region | Given Name | Surname | Organization | Position | Category |
|---|---------|--------|--------------------------|---------------|------------------------------------|---|--|
| 1 | Canada | | Edward Jon | Doolittle | First Nations University of Canada | PhD in Mathematics, Associate Professor | CSIT and Mathematics |
| 2 | Canada | | Dianne-Marie | Fraser-Forbes | Hants East Rural High School | Vice Principal | |
| 3 | Canada | | Kevin Cecil | Hewitt | Dalhousie University | PhD, Professor of Physics | Engineering and Physics and Atmospheric Sciences |
| 4 | Canada | | Jeffrey | Hoyle | Dalhousie University | PhD, Professor | Chemistry and Earth and Environmental Sciences |
| 5 | Canada | | Pierre-Philippe Alphonse | Ouimet | University of Regina | PhD, Professor | Engineering and Physics and Atmospheric Sciences |
| 6 | Canada | | Paula Christine | Piilonen | Canadian Museum of Nature | PhD, Research Scientist & Section Head | Chemistry and Earth and Environmental Sciences |
| 7 | Canada | | Judith Alice | Soon | University of British Columbia | PhD, Assistant Professor | Social Sciences, Biology and Medical Sciences |
| 8 | Canada | | Tara Kirsten | Welbourn | Alithya | Software Developer | Engineering and Physics and Atmospheric Sciences |
| 9 | Canada | | Gervase Michael Reynolds | Wood | Mount Saint Vincent University | Associate Professor | Social Sciences, Biology and Medical Sciences |

| | | | | | | | |
|----|---------------|---------|-------------------|---------------------------|---|---|--|
| 10 | Canada | | Anna | Zajakina | "Cancer Gene Therapy group Latvian Biomedical Research and Study Centre" | PhD, Senior Researcher, Principal Investigator | Social Sciences, Biology and Medical Sciences |
| 11 | Denmark | | Victoria Margaux | Bloodworth | Siemens Gamesa Renewable Energy A/S | PhD, Blade Engineer | Engineering and Physics and Atmospheric Sciences |
| 12 | Great Britain | | Morten | Lennholm | JET Exploitation Unit | PhD, Research Scientist | CSIT and Mathematics |
| 13 | Hungary | | Attila | Dr. Borics | Biological Research Centre of the Hungarian Academy of Sciences | PhD, Senior Research Associate | Chemistry and Earth and Environmental Sciences |
| 14 | Jamaica | | Dawn Marie Yvonne | Barrett Adams nee Barrett | The University Council of Jamaica | Accreditation Officer | Chemistry and Earth and Environmental Sciences |
| 15 | Malta | | Maria | Cordina | University of Malta | PhD, Associate Professor | Social Sciences, Biology and Medical Sciences |
| 16 | Poland | | Zuzanna Katarzyna | Szymanska | Interdisciplinary Centre for Mathematical and Computational Modelling University of Warsaw | Assistant Professor | CSIT and Mathematics |
| 17 | Russia | Yakutia | Valerii | Lepov | Joint Institute of Physical-Technical problems of the North, Russian Academy of Sciences | Dr.Sc.(Eng.), Deputy Director for Science | Engineering and Physics and Atmospheric Sciences |

| | | | | | | | |
|----|--------|---------|-----------|-----------|--|--|--|
| 18 | Russia | Yakutia | Albert | Grigoriev | Joint Institute of Physical-Technical problems of the North, Russian Academy of Sciences | Cand.Sc.(Eng.), Researcher | Engineering and Physics and Atmospheric Sciences |
| 19 | Russia | Yakutia | Evgenii | Lukin | Joint Institute of Physical-Technical problems of the North, Russian Academy of Sciences | Cand.Sc.(Eng.), Senior Researcher | CSIT and Mathematics |
| 20 | Russia | Yakutia | Izabella | Ivanova | Institute of Natural Sciences, Ammosov North-Eastern Federal University | Cand.Sc.(Chem.), Leading Researcher, Associate Professor | Chemistry and Earth and Environmental Sciences |
| 21 | Russia | Yakutia | Aleksandr | Kononov | Institute for Biological Problems of Cryolithozone, Russian Academy of Sciences | Cand.Sc.(Bio.), Senior Researcher | Chemistry and Earth and Environmental Sciences |
| 22 | Russia | Yakutia | Milana | Petrova | Medical Institute, Ammosov North-Eastern Federal University | Cand.Sc.(Med.), Associate Professor | Social Sciences, Biology and Medical Sciences |
| 23 | Russia | Yakutia | Aiaal | Timofeev | The Institute of Physics and Technologies, Ammosov North-Eastern Federal University | Dr.Sc.(Phys.- Math.), Professor | Engineering and Physics and Atmospheric Sciences |

| | | | | | | | |
|----|--------|-------------|-----------|--------------|---|--|--|
| 24 | Russia | Yakutia | Marina | Fedotova | The Institute of Physics and Technologies, Ammosov North-Eastern Federal University | Cand.Sc.(Eng.), Associate Professor | Chemistry and Earth and Environmental Sciences |
| 25 | Russia | Yakutia | Mikhail | Antonov | "Institute of Mathematics and Information Sciences, Ammosov North-Eastern Federal University" | Cand.Sc.(Phys.-Math.), Associate Professor, Researcher | CSIT and Mathematics |
| 26 | Russia | Yakutia | Olga | Popova | Russian Academy of Sciences | Cand.Sc.(Econ.), Leading Researcher | Social Sciences, Biology and Medical Sciences |
| 27 | Russia | Yakutia | Tuskul | Soloviev | Institute of Oil and Gas of the Siberian Branch of the Russian Academy of Sciences | Doctorate Student | Engineering |
| 28 | Russia | Yakutia | Rozalia | Sevostianova | Institute of Oil and Gas of the Siberian Branch of the Russian Academy of Sciences | Doctorate Student | Chemistry |
| 29 | Russia | Novosibirsk | Aleksandr | Kozhanov | Sobolev Institute of Mathematics of the Siberian Branch of the Russian Academy of Sciences | Dr.Sc. (Phys.-Math.), Professor, Principal Scientific Researcher | CSIT and Mathematics |

| | | | | | | | |
|------------------|----------|-------------|--------------|-----------|--|--|--|
| 30 | Russia | Novosibirsk | Sergei | Pyatkov | Sobolev Institute of Mathematics of the Siberian Branch of the Russian Academy of Sciences | Dr.Sc. (Phys.-Math.), Leading Scientific Researcher, Professor | CSIT and Mathematics |
| 31 | Russia | Yakutsk | Maria | Osipova | | | Social Sciences, Biology and Medical Sciences |
| 32 | Russia | Yakutsk | Raisa | Platonova | | | Chemistry and Earth and Environmental Sciences |
| 33 | Russia | Yakutsk | Viktor | Petrov | | | Engineering and Physics and Atmospheric Sciences |
| 34 | Russia | Yakutsk | Egor | Fedotov | | | CSIT and Mathematics |
| Observers | | | | | | | |
| 1 | Thailand | | Miss Narumon | Changstri | Khon Kaen University | Ph.D, Assistant Professor | |
| 2 | Thailand | | Miss Jitlada | Jaikla | Khon Kaen University | PhD | |





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Natalia Budkina
Evgenii Borisenko
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Aisen Svinoboyev
Natalia Grigoriyeva

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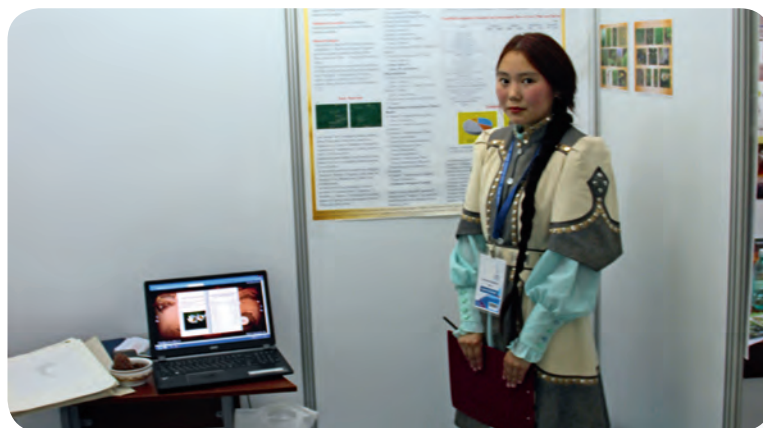
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Tuyaara Ivanova



**Namskiy
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Madhumitha Ayyappan
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Pavel Vasylyev



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**Oyskiy
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Nurgun Nogovitsyn



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**Turkey OKSEF
(Oğuzhan Özkaya Education
Karademir Science Energy
Engineering Fair)**

Ada Ünal





Ust-Mayskiy Secondary School

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Verkhneviluiskii Lyceum

Sakhaia Alexeyeva
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**Vilyuskiy
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Zaida Ivanova



**Yakutsk City
Classical Gymnasium**

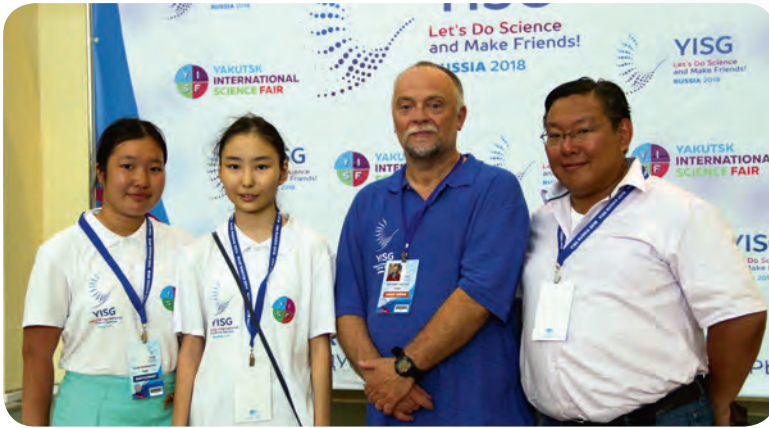
Anastasiya Nikayeva
Ezhena Starodubceva
Ilya Klimov
Igor Myarekianov



Yakutsk City Lyceum

Ilya Tretyakov





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Irina Sleptsova



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Zhanna Ivanova
Viktoria Solomeina



YISF STATISTICS

85 students

77 projects

7 countries

8 sections:

- Mathematics
- Computer Science & Information technologies
- Physics and Astronomy
- Chemistry
- Earth and Environmental Sciences
- Biology and Medical Sciences
- Engineering
- Social Sciences.

12 team leaders

28 judges

9 countries

6 shadow judges

2 observers

7 organizers

27 volunteers

6 interpreters

July 8-15, 2018:

8 days

192 hours

11520 minutes

691200 seconds with YISF!

Yakutsk, Russia

62°02'N 129°44'E

- Building of Natural Science Faculties of North-Eastern Federal University (KFEN)
- Triumph Sport Center
- Republican Lyceum-Boarding School
- Yunost Stadium
- *Demian Bedny* Cruise Ship



Dear Participants,

It has been a great pleasure to be a part of the inaugural Yakutia International Science Fair. During this week, I have seen you grow in confidence as you have skillfully presented your scientific work to experts from many parts of the world. We have been impressed by your dedication, enthusiasm and ingenuity and also your ability to explain and share, with us, your forays into many aspects of science. Thank you!

I encourage you all to continue your work as you move along the continuum from fledgling scientists to full research scholars. You are all already experts in one small aspect of science; your perseverance will allow you to become the scientists of the next generation.

On behalf of all the experts from this year's judging panel I wish you all the best.



Dr. Jeff Hoyle, Chief Judge, YISF



"This is my first visit to Yakutia, Russia and Asia in general. I am from mohawk nation and a little bit familiar with your nationalities. I am very fascinated by project presentations of participants and find their works interesting and talented."

Edward Jon Doolittle, Canada

"Some works stand out in my mind, but i am unable to pick just one. Participants are real enthusiasts. Even if they are still children, their works can be considered quite adult."



The ship had a friendly atmosphere, the cabins were comfortable and clean. It was very cool and fun. This is probably one of the best memories of the summer.

Victoria Ivanova, 14 years old, Olekminsk, Eureka Gymnasium



Morten Lennholm, England (Oxford)

Science Fair is truly the most important event of the year, since it unites people from different countries who are interested in knowing various aspects of life. I was happy to be in the company of such curious and clever researchers. SF has a lot of advantages. For example, communication with native speakers, discussions with benevolent experts, an atmosphere of diligence.

Ezhena Starodubtseva, Yakutsk, City Classical Grammar School



ORGANIZERS



INTERPRETERS



VOLUNTEERS



SCIENCE FAIR BRAND

