



Catalyzer

Issue №1, July 2006

It is a great honor for us to welcome the participants of the 39th International Chemistry Olympiad!



Young scientists from more than 60 countries will come to Moscow to demonstrate their theoretical knowledge and practical skills and, what is more important, to exchange new ideas in chemistry.

All our life is anyway connected with

chemistry. Chemical industry is one of the leading branches of many national economies, and chemists make an essential contribution to national scientific and technical potential. Chemistry also plays an exclusive role in maintaining vital needs of society. I am confident that thanks to the International Chemistry Olympiad young scientists will discover many new applications of chemistry.

Talented youth is the «gold reserve» of any nation. And the goal of teachers, parents, state organizations is to support clever children and develop their creativity. Every child is talented in his own way, and it is very important to help him in revealing his abilities in proper time, to make him believe in himself. International Science Olympiads contribute a lot to solving these problems.

Hosting International Olympiads is of significant importance for our education system, since such outstanding events promote scientific knowledge both in Russia and all over the world as well as allow talented pupils to show their skills.

Participation in International Chemistry Olympiad is not only a great honor for each of you. It is also a serious responsibility because you represent your country. We hope that while staying in Moscow you will enjoy really friendly and warm atmosphere, find new friends and make significant contribution to the development of education and science!

I wish you every success in the Olympiad and great discoveries in chemistry!

Andrey Fursenko
Minister of Education and Science of Russian Federation

Dear participants, guests and organizers of the 39th International Chemistry Olympiad!



Next year the Olympiad will be held in Moscow, at Chemistry Department of M.V. Lomonosov Moscow State University. It is a significant event for all of us because the founder of our

University, outstanding encyclopedist Mikhail Lomonosov, paid great attention to scientific research in chemistry. His results and discoveries are not widely known abroad, but in Russia we regard him a predecessor of Lavoisier. IChO in Moscow will be an original tribute to the memory of the talented scientist and enlightener.

Thanks to International Chemistry Olympiad, young scientists improve their knowledge, develop decision-making skills, strengthen competitive spirit and express themselves. Olympiad is not just a scientific competition; it is an important stage for young people in becoming personalities capable of changing the world for the better.

Moscow State University has always been a reference point in the educational system of Russia. At the same time,

exceptional importance of collaborative educational and scientific projects should not be forgotten. The International Chemistry Olympiad has proved to be effective for establishing contacts between scientists from different countries.

Science olympiads for secondary school students are an essential part of Russian educational tradition. Such form of competition convincingly proved its efficiency in achieving the main goal of every school: to search for talented pupils capable of thinking creatively and making independent decisions. Furthermore, Olympiads suggest the strategy of education development and prepare best students to studying in many universities.

M.V. Lomonosov Moscow State University is always open for those who care of education and science, for those to whom scientific research has become a guiding star!

We hope you will find many new friends here and enjoy your staying in Moscow!

V.A. Sadovnichy
Rector of M.V. Lomonosov Moscow State University
Professor, Member of Russian Academy of Sciences

Welcome to Moscow!



Next July the International Chemistry Olympiad will be held in Moscow, the capital of Russia. The Olympiad will be hosted by Moscow State University (MSU), the oldest

and most famous University in Russia, and its Chemistry Department, one of the MSU leading education and research centers. The event is supported by Ministry of Education and Science of Russian Federation.

Moscow State University has a long lasting tradition of holding science Olympiads. These efforts enable us to distinguish talented young students interested in research and capable of bringing science to a new level. In this respect, we will prepare motivating problems for the forthcoming IChO, which will help students to reveal their

creativity and make them feel the beauty and variety of ideas of chemistry.

It is a great honor for us to host such an outstanding international event.

We will do our best to provide for fair competition and let all our guests experience the atmosphere of warmth and open-heartedness, as well as to give them an opportunity to make many new friends and enjoy remarkable sights of Moscow.

We look forward to seeing you next summer. Welcome to Moscow, welcome to

MSU Chemistry Department!

Valeriy Lunin
Dean of MSU Chemistry Department
Professor, Member of Russian Academy of Sciences



The Kremlin serves as the official residence and principal workplace of the President of Russian Federation

HISTORY

The first reference to Moscow dates from 1147 when it was an obscure town in a small province. It became the national political capital during the reign (1462-1505) of Grand Duke Ivan III Vasilyevich. The seat of Russian government was removed from Moscow to Saint Petersburg in 1712. In 1812, during the Napoleonic Wars Russian patriots set fire to the city soon after entry of Napoleon; the resultant French withdrawal from Russia led to Napoleon's downfall. In 1918 the new government moved back to Moscow, and in 1922 the city was officially announced the Soviet capital. In 1941, during World War II, powerful Nazi armies were decisively repulsed at the approaches to Moscow. In 1991 the USSR was transformed into a number of independent states, and Moscow became the capital of Russian Federation. Since then, the emergence of market economy in Moscow has produced an explosion of Western-style retailing, architecture, and lifestyles.

Culture and architecture

Moscow and St.Petersburg have for centuries been the sites of the country's internationally known history and culture, and the residences for most of its famous personalities. Moscow was once known as "sorok-sorokov" ("forty-times-forty"), in reference to many Orthodox onion domes making up the city's skyline. The look of the city was changed drastically during Soviet times.



The Red Square, Historical Museum



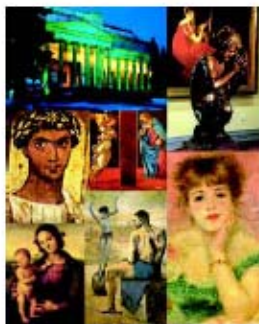
The Cathedral Of Christ The Savior is the tallest Eastern Orthodox church in the world



Main Universal shop (GUM)



Ostankino Tower - the tallest separately standing structure in Europe



Collection of the Pushkin Museum of Fine Arts offers masterpieces of West European painting



The Tretyakov Gallery houses one of the most celebrated collections of Russian art and artifacts in the world



Bolshoi (Big) is the most famous theatre, a centerpiece of Moscow

Arts

There are many museums and galleries in Moscow with collections that can be compared to those of the best museums in the West. Frequent art exhibitions thrive on both the new and the classic, as they once did in pre-Revolutionary times. From their diversity in every branch of arts (painting, photography, sculpture and so on) it would appear that Moscow art world is steeped in many traditions: Russian, Western, Oriental, both old and new.

Two of the most notable art museums in Moscow are the Tretyakov Gallery founded by Paul Tretyakov and the Pushkin Museum of Fine Arts.

Moscow is also the heart of Russian performing arts including ballet.

Education

There are numerous large universities in Moscow, including the renowned M.V. Lomonosov Moscow State University housed in the 240 m high tower on Vorobyovy Gory. Every day the University opens its doors to 50,000 undergraduates and 7,000 postgraduate students. Bauman Moscow State Technical University offers a wide range of technical degrees. Moscow State Institute of International Relations is Russia's best known school of international relations and diplomacy.



M.V. Lomonosov Moscow State University

Business and Trade

A major part of Russia's profits and development is concentrated in Moscow. Many multi-national corporations have branches and offices in the city. Plush offices and lifestyles of a typical corporate employee in Moscow are practically indistinguishable from those in any other Western European city.



Moscow River Side Business Center



Moscow traffic jams



Transport

Moscow Metro which spans almost the whole of the Russian capital is one of the world's most heavily used underground transport systems. It is well known for ornate design of many stations which contain stunningly beautiful examples of socialist realist art.

The Chemistry Department of the MSU



The main organizing bodies of IChO-07 are Ministry of Education and Science of Russia and M.V. Lomonosov Moscow State University (MSU). In 2005 the whole Russia celebrated the 250th anniversary of MSU, country's first University. Many new facilities were passed to the operation to this date, including the new building of University library which will become the venue of some Olympiad events. The Main building of Moscow State University (it is in the center of 2007 logo) is a world recognized architectural monument, one of Moscow symbols. Most guests of our capital can admire it from outside only. And IChO participants will be invited in, since the Opening Ceremony is being planned there.



Both competition exams will be conducted at Chemistry Department, one of the biggest divisions of Moscow State University. Every day more than 1000 undergraduate students, 300 postgraduates and 2000 staff members enter numerous labs, halls and classrooms of Chemistry

Department. Founded more than 75 years ago, the Department contributed a lot to the progress in various fields of chemistry. Now it is the biggest and most rapidly developing center of chemistry education and research in Russia deeply involved in international collaboration. The leading educators of Chemistry Department always pay much attention to intellectual growth of new generations of scientists and search for young talented people in all, even most distant parts of the country. Thus, Chemistry Department has a long lasting friendship with chemistry Olympiads of different levels. A number of nowadays professors are involved in IChO-07 Science Committee. What is more, many former IChO participants from Russia and other countries are students at Chemistry Department now. They are strongly willing to contribute to IChO-07, and most of them will be involved in the work of Science and Organizing Committees.



Chemistry Department is also well-known for its traditions one of which is followed since 1966 when undergraduates of the 4th year (present dean Valery Lunin was among them) decided to make a special holiday uniting everyone: students, post-graduates, professors. They established the Chemist Day (the second Saturday of May) when thousands of students and graduates gather in front of the Department building and enjoy the show devoted to one of the elements of Periodic Table. The first feast in 1966 was devoted to hydrogen and in 2007 to ... (guess, which element).

Valery Lunin: «At home even walls are helpful»



Valery Lunin, Dean of MSU Chemistry Department, Member of the Russian Academy of Sciences, Professor

- Professor Lunin, the first IChO in Russia was held in 1996. What, in your opinion, will be the main difference between that Olympiad and the forthcoming event?

- First of all, the number of participating countries significantly increased. In 1996, 45 countries participated, whereas next year we expect teams from nearly 70 countries. Furthermore, a lot of things have changed in our country during this decade, this being true for education and science as well. Mid-nineties were very difficult time for organizing Olympiads. But strong traditions, team spirit and high potential of Chemistry Department – all these helped to do practically perfect work. Many of those who were with us in 1996 will be involved in preparation of IChO-2007, and we will use all our experience to make the forthcoming Olympiad even better.

- Many people say that theoretical problems at IChO-1996 were extremely difficult. What is being expected for the next year?

- You are not quite right. The problems at IChO-1996 were not so difficult, but they were really creative. This made the students think, draw conclusions and suggest fresh ideas. This time we will also do our best to propose challenging still readily solvable problems. The slogan of the IChO-2007 is "Chemistry – art, science, fun". We will be very happy if while solving problems students feel incomparable beauty of chemistry, apply challenging scientific approaches and enjoy their own creative abilities.

- How many gold medals do you plan to win? Will Russian students feel additional pressure competing in the capital of their country?

- You see, medals and points are not very important for us, ideas of chemistry are above all. Still the forthcoming Olympiad attracts great attention in Russian chemical community. Many secondary school students are willing to participate in it, and I am sure we will have a very strong team. As to additional pressure, I don't think so. Russians have a proverb: 'At home even walls are helpful'.

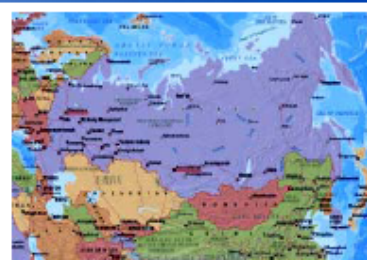
Traditional Chemist Day in the MSU



- Population: 143.2 million
- Capital: Moscow
- Area: 17 million sq km (6.6 million sq miles)
- Major language: Russian
- Main religions: Christianity (mainly Orthodox), Islam, Buddhism
- Political system: Federative republic
- President: Vladimir Putin
- Main exports: Oil and oil products, natural gas, wood, metals, chemicals, weapons
- Currency: 1 ruble (100 rubles = 27 US dollars = 2.9 Euro)
- Temperature in July: about +25°C (in Moscow)
- Climate: moderate continental (in Moscow)
- Time zone (Summer): GMT +3 (Moscow) to +13 (Kamchatka, Far East)
- Internet domain: .ru
- Dialing country code: +7
- Russian cuisine: not spicy, mainly based on flour, potato, vegetables, meat and fish
- Traditional dishes: salty vegetables and mushrooms, herring, caviar, blin (kind of pancake), thick soups (borsch, solyanka, ochi, ukha), pelmeni (meat dumplings)
- Traditional drinks: soft drink kvass, light alcoholic meadovodka (with honey), and vodka (on occasion, allowed to 18+ only)
- Typical traits of character: hospitality, tolerance, collectivism, creativity



In mid-July 2007, 11 years since it last hosted the IChO, Russia will meet again the most talented young chemists from all over the world. There is no doubt that all IChO participants will experience traditional Russian hospitality and friendliness, while organizers will do their best to provide for fair and exciting competition. Most events of the Olympiad will be located in Moscow, the capital of Russia, its biggest political, economic, scientific, educational and cultural center. Moscow changed greatly during the last decade. Those mentors and guests who have attended IChO-96 will have a chance to compare their impressions and see restored historical monuments, modern buildings, business centers and highways,



new green islands which are always so charming inside big city. And those who will visit Moscow for the first time will undoubtedly enjoy unique Russian style which is based on long lasting traditions and readily open to everything new.

Lessons in Russian

Yes – Да [da]
No – Нет [net]
Please – Пожалуйста [pɐʃalujstə]
Thank you! – Спасибо! [spasibo]
Excuse me! – Извините! [izvinite]

Hello! – Здравствуйте! [zdravstvujte]
Good bye! – До свидания! [do svidaniya]
Hi! – Привет! [privet]
See you! – Пока [poka]
Sure! – Конечно! [koneshno]

Tentative program

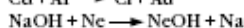
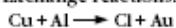
| | Students | Mentors and Observers | Guests |
|---------------------|-----------------------|--|---|
| July 15th Sunday | Whole day | Arrivals | |
| | Evening | Get-together party | |
| July 16th Monday | Morning | Opening Ceremony and Welcome Reception | |
| | Afternoon | Lab safety instruction | Lab inspections |
| | Evening | Recreations | 1st Jury Meeting |
| July 17th Tuesday | Whole day | Excursion | Excursion |
| July 18th Wednesday | Morning | Practical Exam | Excursion |
| | Afternoon and Evening | Free time and Recreations | Discussions on Theoretical Exam, 2nd Jury Meeting |
| July 19th Thursday | Whole day | Excursion | Excursion |
| July 20th Friday | Morning | Theoretical Exam | Excursion |
| | Afternoon | Free time | |
| | Evening | Re-Union Party | |
| July 21st Saturday | Whole day | Whole day Excursion | |
| | Evening | Recreations | 3rd Jury Meeting |
| July 22nd Sunday | Whole day | Excursion | Arbitration in groups |
| | Evening | Recreations | 4th Jury Meeting, Allocation of medals |
| July 23rd Monday | Morning | Free time, shopping | |
| | Afternoon | Closing Ceremony | |
| | Evening | Farewell banquet | |
| July 24th Tuesday | Whole day | Departures | |

Unexpected chemistry (Real samples from MSU entrance exams)

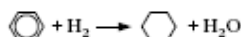


1) Extraordinary reaction equations:

a) Exchange reactions:



b) Hydrogenation of benzene



2) Teacher: How many π -electrons does the aromatic system of benzene contain?

Student 1. Square root of 3 (since $2n^2 = 6$).

Student 2. Six (three beyond the ring, three – below the ring, in positions 2, 4, and 6).

3) Student: Tell me please, where is steel in the Periodic table.

4) Teacher: How can we separate bromoform and iodine?

Student: Add anti-bromoform.

5) Teacher: What is H_2O_2 ?

Student: Distilled water.

6) Teacher: What is the simplest heteronuclear molecule?

Student: Naphthalene.

Sponsors



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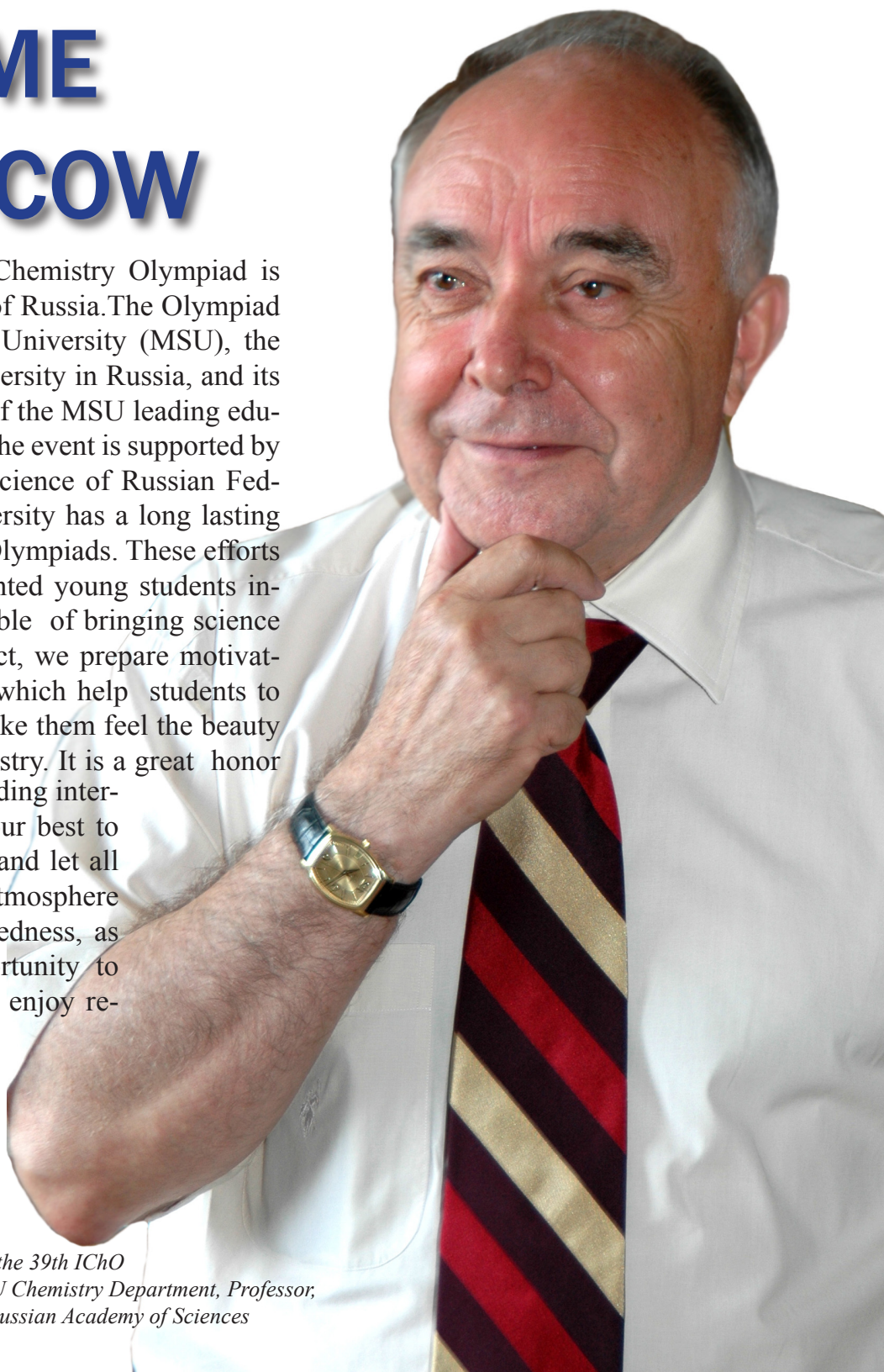
WELCOME TO MOSCOW

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**Welcome to Moscow,
welcome to MSU
Chemistry Department!**

V. Lunin

*President of the 39th IChO
Dean of MSU Chemistry Department, Professor,
Member of Russian Academy of Sciences*



MOSCOW

HISTORY



Moscow is the capital of Russia and the country's economic, financial, educational, and transportation centre. The most populous city in Europe, Moscow has a population of 12.6 million, which constitutes about 7% of the total Russian population. The city is named after the Moskva-River. The origin of the name is unknown, although several theories exist. This word could come from different languages and means "dark" and "turbid", "cow-river" or "bear-river".

The first Russian reference to Moscow dates from 1147 when Yuri Dolgoruki called upon the prince of the Novgorod Republic to "come to me, brother, to Moscow." Nine years later, in 1156, he ordered the construc-



tion of a wooden wall, which had to be rebuilt multiple times, to surround the emerging city.

In 1240 began Tatar control that brought death, war and union of Russian people. Only in 1480, Ivan III had finally broken the Russians free

from Tatar control and relocated the Russian capital to Moscow (previous capitals were Kiev and Vladimir).

The city ceased to be Russia's capital in 1712, after the founding of St. Petersburg by Peter the Great on the Baltic coast in 1703. But all people of the world continued to name Moscow "the heart of Russia". That's why Napoleon, who invaded Russia in 1812, wanted to get the key of



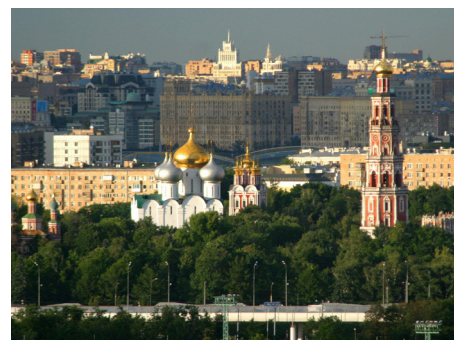
Moscow. But the Muscovites burned the city and evacuated. Napoleon's army, plagued by hunger, cold, and poor supply lines, was forced to retreat and was almost destroyed by Russian military forces.

In November 1941 during the Great Patriotic War German Army Group Centre made plan "Typhoon" which main goal was to occupy Moscow. But German Army was stopped at the outskirts of the city and then driven off in the course of the Battle of Moscow that continued several months.

The collections of the world-famous Moscow's museums and galleries are some of the largest and most important in the world. One of the most notable art museums in Moscow is the Tretyakov Gallery, which was founded by Pavel Tretyakov, a wealthy patron of the arts who donated a large private collection to the city. There are the works of painter Ilya Repin and iconographer

Andrei Rublev. Another art museum is the Pushkin Museum of Fine Arts. Its halls are a cross-section of world civilizations, with many plaster casts of ancient sculptures. However, it also hosts famous paintings from every major Western era of art; works by Claude Monet, Paul Cezanne, and Pablo Picasso are all sampled there. Moscow is also the heart of Russian performing arts, including ballet and film. Among its many theatres and ballet studios are the Bolshoi Theatre and the Malyi Theatre, Vakhtangov Theatre and Moscow Art Theatre.

There are 1696 high schools in Moscow, as well as 91 colleges. Besides these, there are 222 institutions offering higher education in Moscow, including 60 state universities and the Lomonosov Moscow State University, which was founded in 1755. It has over 30,000 undergraduate and 7,000 postgraduate students, who have a choice of twenty-nine faculties and 350 departments for study. Moscow is known as one of the most important science centres in Russia. The headquarters of the Russian Academy of Sciences are located in Moscow as well as numerous research and applied science institutions.



MOSCOW STATE UNIVERSITY NAMED BY M. V. LOMONOSOV CHEMISTRY DEPARTMENT

Moscow University is the oldest Russian institution of higher education. It was established in 1755. On 25 January, St. Tatiana's Day according to the Russian Orthodox Church calendar, Empress Elizaveta Petrovna signed the degree that a university should be founded in Moscow.



The opening ceremony took place on 26 April, when Elizaveta Petrovna's coronation day was celebrated. Since 1755 25 January and 26 April are marked by special events and festivities at Moscow University; the annual conference where students present the results of their research work is traditionally held in April.

In the 18th century, the university had three faculties: the Faculty of Philosophy, The Faculty of Medicine, and the Law Faculty. Now it comprises 29 faculties and over 350 departments, 15 research institutes, 4 museums, the Science Park, the Bo-

tanical Garden, The Library, the University Publishing House and printing shop, a recreational centre and a boarding school for talented children.

The founder of Moscow University, Mikhail Lomonosov, was one of the best chemists in his time. In 1755 he established the Laboratory of Chemistry which later evolved into the Department of Chemistry. The Chemistry Department of Moscow State University is a world-known center for Chemistry education. It includes 17 chairs, 83 laboratories. 1048 students and 283 postgraduates study at the Department. 11 full members of Russian Academy of Sciences, 4 corresponding members and 202 professors



holding PhD and Doctoral Degrees in Chemistry are now preparing students to become high class specialists in modern chemistry. The Department of Chemistry is a world-known center for scientific research. Researches of the Faculty create new semiconductors and high temperature superconductors, synthesize new complex organic and organoelement compounds, develop catalysts for oil refining and nanochemistry, synthesize new medicines, new polymers with liquid crystal properties, develop new biotechnological processes.



CHEMISTRY DEPARTMENT MEETS FRIENDS



Tomorrow program Monday July 16th

8.00-8.30 Breakfast, Olympiets
8.40 Buses depart to the Opening Ceremony, MSU
11.00-13.00 Opening Ceremony, MSU
13.00-15.00 Welcome Reception, MSU
15.00-18.00 Moscow City tour
18.00-19.00 Transfer to Olympiets
19.00-21.00 Dinner, Olympiets
21.00-23.55 Disco

Police - 02

Fire station and ambulance - 911

39th IChO office (for urgent calls only):

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Student support:

Ekaterina Yakubovich +7 (916) 676 - 91 - 00

Guest support:

Alexandra (Shura) Prokhorova +7 (916) 587 - 60-26

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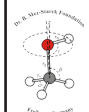
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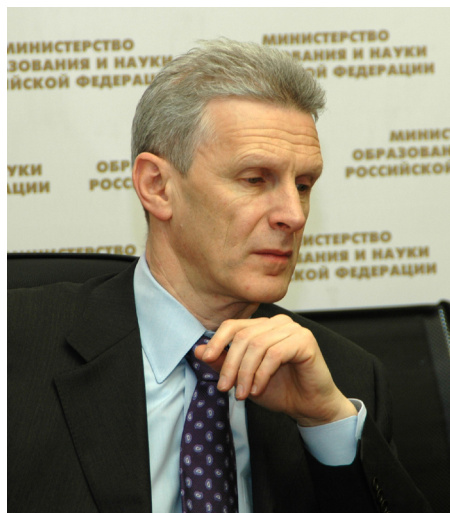
Catalyzer



Journal of the 39th International Chemistry Olympiad Moscow Russia
Issue no.3 Monday 16 July 2007



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his abilities in proper time, to make him believe in himself. International Science Olympiads contribute a lot to solving these problems. Hosting International Olympiads is of significant importance for our education system, since such outstanding events promote scientific knowledge both in Russia and all over the world as well as allow talented pupils to show their skills.

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Andrey Fursenko

*Minister of Education and Science
of Russian Federation*

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ways been a reference point in the educational system of Russia. At the same time, exceptional importance of collaborative educational and scientific projects should not be forgotten. The International Chemistry Olympiad has proved to be effective for establishing contacts between scientists from different countries. M.V. Lomonosov Moscow State University is always open for those who care of education and science, for those to whom scientific research has become a guiding star!

We hope you will find many new friends here and enjoy your staying in Moscow!

V.A. Sadovnichy

*Rector of M.V.Lomonosov Moscow
State University, Professor, Member
of Russian, Academy of Sciences*



«I appreciate your interest in natural science»



Dear friends! I'm glad to greet you in Moscow, in one of the worlds biggest intellectual forum – the 39th International Chemistry Olympiad. As far as I'm concerned the future development of civilization is possible only in conditions of flourishing of science.

I appreciate your interest in natural science, because nowadays world science demands talented and energetic youth. A fas-

cinating world is opened before you, and you are about to learn and improve it. You are to follow the greatest maids of mankind who glorified Russia – M. V. Lomonosov, D. I. Mendeleyev, A. M. Butlerov and others.

I wish you success in the contests and I hope that your future will be closely connected with the field of science.

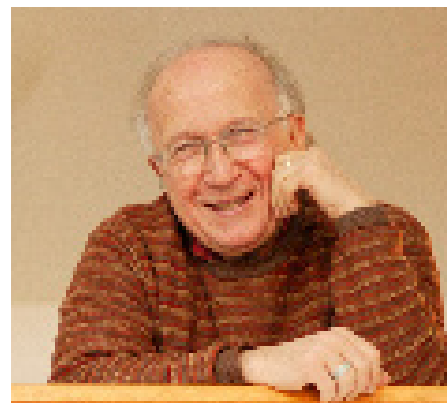
Vitaly Ginsburg

The Nobel Prize laureate in physics, the academic of Russian Academy of Science

«You will demonstrate that chemists are humans and not machines»

Young friends! We are all good in chemistry – you, whose qualities have brought you to Moscow, your mentors, even me. As you face competition, and as chemistry, the science, faces the mixed attitudes toward it of the world at large, it is important that you also have fun. And that you, and chemistry, by relaxing a little, communicate to the world that scientists are human beings, and just enjoy the magic of substances and their transformations. Others will feel your passion.

Part of alchemy was a philosophy, part a pseudoscience. Whatever it was, by placing transformation at its core, alchemy captured the imagination of ordinary people and intellectuals in its time. Modern chemistry has a problem - we are incredibly good at transformation, but people don't feel our magic. Relax, show people that chemistry (and chemists) gives you pleasure, that you can smile around it. In the process you will demonstrate that chemists are humans and not ma-



chines. You will make friends for life, and help chemistry be part of the human condition.

Roald Hoffmann

The Nobel Prize laureate in chemistry

«The whole world will belong to you»

It's a real lucky chance that you participate in the International Chemistry Olympiad in Moscow.



And it is not important, what results you will gain because there are more important things than medals. The main of them is a dialogue between friends. Just imagine that you will have friends from different parts of the world. And all together hand in hand you will develop the science tomorrow. You will change our world for the better, not making harm to nature where the substances exist in amazing harmony. You will find answers

to the questions that worry us today. The whole world will belong to you because you have chosen chemistry - a marvelous science about the world around us, because everything consists of substances. You will have success, because as Louie Paster said «chance and success favour only to trained brains». And your brains are brilliant.

Lubov Strelnikova

The chief editor of «Chemistry & Life» magazine

The great force



Russian team at press-conference

Vasiliy Vorobjev: It was a school Olympiad. My score was twice higher than that of my rival, which really surprised me. I can't say that before this school Olympiad I was keen on chemistry, I was just good in it. My first victory showed me that chemistry is my vocation.

Leonid Romashov: I was born in Moscow suburb and thought, that I had no chances to win in a region Olympiad because I was sure, that there must be a lot of talented children there. But as a result I got two first prizes, because I took part in two Olympiad simultaneously – for the pupils of the 8th and 9th grades.

Why chemistry?

Leonid Romashov: It was in my early childhood. I was greatly impressed by spectacular experiments I watched on TV. And when I grew up, I understood that I wanted to practice the research effort, chemistry as a science indeed. Most of all I like organic chemistry. Chemistry is surely a wonderful science.

Before the Olympiad

Leonid Romashov : Now we mainly prepare ourselves in moral way, work on our practical skills, for instance, solving the tasks in conditions of limited time.

Wishes

Leonid Romashov: For all the members of the 39 International Chemistry Olympiad and for myself personally I wish good luck, because it is the most important point for us now. We have already got all the necessary knowledge, we have learned everything that we could, now it is important not to forget anything and use it practically. Also there is nothing to be afraid of because in our life, as well as in chemistry, everything is possible.

Lessons in Russian

Yes – Да [Da]
No – Нет [Net]
Please – Пожалуйста! [pojaluista]
Thank you! – Спасибо! [spasibo]
Excuse me! – Извините! [izvinite]

Hello! – Здравствуйте! [zdravstvuite]
Good bye! До свидания! [do svidaniya]
Hi! – Привет! [privet]
See you! – Пока [poka]

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Student support:

Ekaterina Yakubovich +7 (916) 676 - 91 - 00

Guest support:

Alexandra (Shura) Prokhorova +7 (916) 587 - 60-26

Tomorrow program Tuesday July 17th

8.00 - 9.00 Breakfast, Olympiets

9.00 Buses depart to the North Shipping Terminal

10.00 - 17.00 Boat trip along Moscow-river, lunch included

17.00 - 18.00 Transfer to Olympiets

19.30 - 21.00 Lab safety instruction in groups

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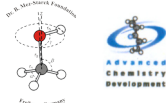
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Catalyzer



Journal of the 39th International Chemistry Olympiad Moscow Russia
Issue no.4 Tuesday 17 July 2007



This day has come!

The 39th International Chemistry Olympiad is opened! 265 students from 68 countries begin the greatest competition in knowledge! During 10 long but exciting days they will live together in a comfortable hotel-complex.

It will help them get acquainted with each other and find new friends from different countries.

The students will visit the most beautiful places of Moscow. Walking along the streets of the Russian capital the students will discuss the tasks of the Olympiad.

It is not important that someone doesn't know foreign languages because the language of science is equal for every person. The best chemists will be found in two tours, but today is only the beginning of this great event. And the main people of the country have come to the MSU to say "good luck"!

Ekaterina Bredina



Smart and clever

Many smart and clever young people got together to celebrate the opening of International Chemistry Olympiad and to greet each other on this beautiful day. The ceremony took place in front of MSU library, so that all the guests could join wonderful Russian summer.



The performance began at 11 o'clock with present-show of teams from different countries. Each team appeared in their own Olympiad uniform waving their national flags. Some guys brought their talismans with them, New Zealanders, for example, carried the kiwi bird.

When everybody took their places and tasted traditional bread and salt, the members of the international organising committee, the Leaders of MSU



and Chemistry Department, representatives of the Education and Research Department of Russia and sponsors congratulated the participants of the 39th International Chemistry Olympiad. They stated that chemistry is one of the most important sciences in modern world. It includes developing branches such as medicine, pharmacology, agriculture, high-tech technol-



ogies, discoveries of new material.

Chemistry - is a 'peaceful' science and all participants should bring to their homes that spirit of friendship and positive cooperation, that always presents on the Olympiad.

After the official congratulation there was a great and joyful show-program with loud orchestra music, tradition, modern dances and bright fireworks.

The representative of Russian command Leonid Romashov put his hand



on the heart, took an oath of the Olympiad to every young chemist.

Everything was just as it has begun a real International Olympic Competitions – the Olympic fire was set, the flag was risen and the 10-day marathon was claimed to be open.

In the end of the ceremony 500 rainbow balloons flew away into the sky!!!

Anastasia Kravtsova



The most exciting

Israel: Itamar Shamai

"The most exciting about the Opening Ceremony was the place which it was held in. The building of the library is astonishing. Everything is so colorful here: trees, flowers and flags of other countries. I also enjoyed Russians – they are so friendly!"

Brazil: Rafael de Cesaris

"It is my second time I taking part in the International Chemistry Olympiad. That is why I enjoyed the Ceremony more than the previous one. I have already have friends from Chinese team and I was surprised and glad at the same time to see them here again".

Peru: Joseph Poma

"The organization of the Opening Ceremony was on the high level. I think that the most important was the friendly atmosphere that you, Russians, have made. Our team has already made friends with guys from Mexico, USA and Canada".

Mexico: Joan Ivan Gomez Peralta

"Most of all about the Opening Ceremony I liked the Russian girls. They are so pretty! The MSU's buildings are also nice, but girls are more beautiful".

Korea Republic: Tae Gon Oh

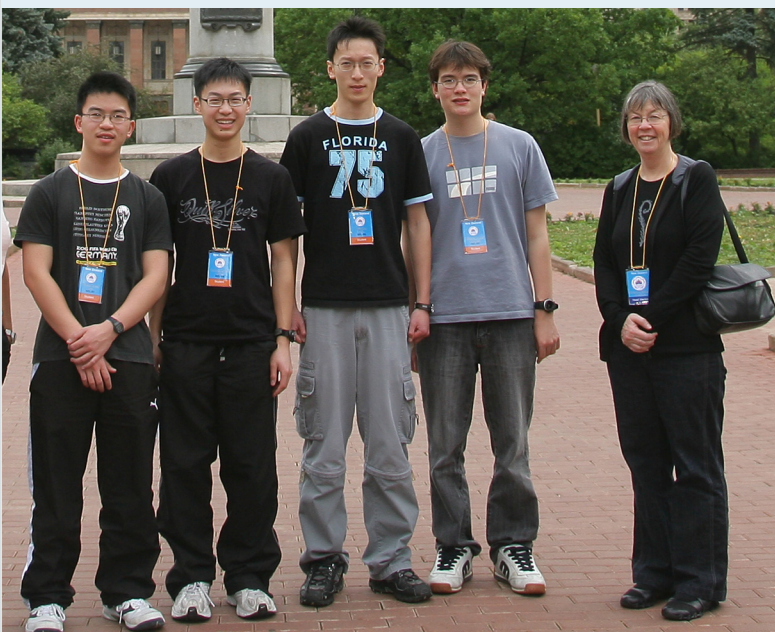
"It is so cool! I especially enjoyed playing on the balalaika. It is very melodic and full of life. I have never heard music like it before".

Denmark: Tina Kanstrup

"The greatest part of the Opening Ceremony, in my opinion, was the first part. When all teams were going with flags, I felt happy and proud of all guys from all countries. The atmosphere was as on the Olympic Games. I will remember this moment forever!"

To be continued on the page 4

Dreams, impressions, hobbies, expectations



“MSU is so huge!”

Team of the New Zealand

Expectations: Teacher of the team - Oh, I think that boys are rather well-prepared to the Olympics, but we really don't know what to expect. There are so many children who know chemistry on a very high level so for boys it will be very good and positive.

Boys: we didn't think that MSU is so big. We thought that there are 3 levels max but it is so huge. We were really surprised.

First impression of Moscow: We were also surprised that it is so flat here and there are so many roads. New Zealand is a small country and we don't have so many cars on our roads. Boys and me personally have never been to Moscow. I'm sure that they traveled to the other side of the planet but never to Moscow.

Boys and girls: There are only boys in our team. We were training kids for one week, just after Easter, we have 22 pupils in the camp and among them there were only 3 girls. Girls really prosper in chemistry in New Zealand but they didn't come to the Olympiad. They are not so competitive than boys are.

About Olympics: It is an opportunity for the top chemistry students to take chemistry on the higher level, much higher than it usually was in school. It is very-very challenging for them. But boys have and other interests as well. You know, one of the member of our team is a pianist, he just now took part in a music competitions and now he is here. That is something that doesn't happen very often. And I'm sure that here he will be very good too. And one of the other boys has been to the parliament in New Zealand and represents their school.

“it is a sporting chemistry”

Team of the USA

A girl from the team - Sofia Izmailov: I was in Moscow in the Soviet period but I was too small that time and remember nothing. So now it is like my first time.

Why she is the only one girl in the team: Here is a competition. It isn't a traditional chemistry, it is a sporting chemistry. I like competition very much.

Dreams: getting a medal on the Olympics (laughing). Our biggest dream is to make something that will save somebody's life. Chemistry can really help in it. Chemistry help to understand how the world is built and what life is.

Hobbies: One of us is interested in foreign languages, another does fencing. All of us like music. We also like traveling much. We want to go to different countries, to know more about its culture and nationalities.

Friends: I meet with definite people - my friends - and it is enough for me now.

About chemistry: There are a lot of problems in the world, especially energy presses. When we become adults it will press more and more. Chemistry can solve this global problem.

What they want to achieve: besides the gold medal we want to make good national contacts and make a good friends around the world who have the similar interests.

Future life: We think that all of us see us as chemists in the future. We work hardly enough and the fact that we are here now proves that. We don't really think of making some big discoveries now, we just want to help people. We want to make a research, use chemistry as a tool-theory and we hope that all this can help to save people's lives.

Katya Davydova



The most exciting

Austria: Hubert Kalavs

"I enjoyed the Opening Ceremony. It was really impressed! The greatest part was the fire – show! When all torches were fired simultaneously and the balloons flew away to the sky I was screaming "wow"!"

Switzerland: Lucia Neier

"Best of all I liked the national Russian dance "Kalinka". I think it is really hard to dance it, but I want to learn it!"

Israel: Haleluya Sagit

"I loved the balloons! It was so cool when the crowd let them go into the sky, it was beautiful and colorful. Also, the big balloon in front of the



library made me to understand how huge the competition really is!"

Cyprus: Konstantinos Hadjipetroze

"I really liked the dancers dressed in all white, especially girls. They were so flexible and their movements flowed. Their hair looked cute too!"

Greece: Pana Giotis Palantees

"The speeches were truly inspiring. Except the moments they were a little too quite, but from what I could hear, I felt pride for my country".

Malaysia: Azri Marican

"The fireworks were amazing. It was like a chemical reaction, like a symbol for the Olympics!"

Aysel Agaeva,
Maria Eremina,
Anna Pomerantseva

Russian alphabet

| | | | | | |
|--------|--------|-------|--------|---------------------------------------|---------------------------------------|
| А [a] | Ё [io] | Л [l] | С [s] | Ч [ch] | Ъ [hard symbol] don't read in Russian |
| Б [b] | Ж [zh] | М [m] | Т [t] | Ш [sh] | Э [e] |
| В [v] | З [z] | Н [n] | У [u] | Щ [sch] | Ю [u:] |
| Г [g] | И [i:] | О [o] | Ф [f] | Ы [short i] | Я [ja] |
| Д [d] | Й [ij] | П [p] | Х [x] | Ь [soft symbol] don't read in Russian | |
| Е [ie] | К [k] | Р [r] | Ц [ts] | | |

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Tomorrow program Wednesday July 18th

7.00-7.45 Breakfast, Olympiets

8.00 Buses depart to the Practical Exam, MSU

10.00-15.00 Practical Exam, MSU

15.00-17.00 Lunch, MSU

17.00-18.30 Walk-around MSU Campus & Lenin Hills

19.00-22.00 Circus show

22.00 Transfer to Olympiets, dinner-boxes

The issue is prepared by:

Head of the project: Lukichev Alexander // Project managers: Salynkina Irina, Galieva Alina // Correspondents: Agaeva Aysel, Bredina Ekaterina, Davydova Katya, Eremina Maria, Kravtsova Anastasia, Pomerantseva Anna, Sabanova Alina // Correctors: Anna Berkovich, Sergey Sobolev, Yulia Valeeva // Photographer: Lobus Alexander // Designers: Turin Vadim, Lukichev Ilya // Published and printed by Trace light studio ltd
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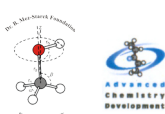
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Journal of the 39th International Chemistry Olympiad Moscow Russia
Issue no.5 Wednesday 18 July 2007

From the past to the future

*Wishes of Dr. Anton Sirota to our
participants (Technical University of
Bratislava, Slovakia)*

Dear participants and Organizing Committee! First of all, I wish all of you success and victory! And as it was said at the Opening: There will be no losers, but only winners. Everybody who came to this Olympiad in chemistry is a winner.

I understand that it's very difficult to arrange everything properly because there are so many countries, so many participants! At first they will come through practical exam and then through theoretical and I do appreciate the tasks because they are really difficult. When I was organizing the Chemistry Olympiad in Bratislava in 1959 for the first time there were only three countries. Since that time the number of countries has been increased. In 1996 there were already 40 countries: the more countries - the higher responsibility and everything was perfect. Now there are 69 countries participating in the Chemistry Olympiad! It's a huge number.

Chemistry is a practical science; you should provide an experiment with all important facilities. Every-



thing should be prepared preliminary: all chemicals, tubes and places to make an experiment, because it's not a theoretical science when you need only a pen.

I'm responsible for the preparations and for regulations from 1994. Everybody should be equal, without any exceptions. The International centre in Bratislava of Olympiad in Chemistry was very active. In 1987 we made a proposal and in 1995 the next one and after 5 years of discussion it was approved without any exceptions. There are items in this regulation that clarify who should be in an Organizing Committee, how to evaluate the results and to honour the winners. My role is to check how these rules are fulfilled

and if there will be some violations I should tell about it. It's the first precondition of these competitions. I'm proud that they trust me.

Here in Moscow everything is perfect and at very high level from my point of view. It's extremely important for such great number of countries. Everybody must feel equal conditions at these competitions. Moscow is a very friendly, hospital and warm city for me even during my last coming in December 2006. In December of 2006 everything has been already prepared.

Best regards and good luck!

Maria Nefedieva



From Butlerov for you

"You should know that the nature chooses the ways that are right, but unhurried. We, sinners, should also study it. The opinion that hurry helps to save the time is absolutely false. Yesterday's laboratory exercises where I was looking after one of you prove these words. This gentleman hurried so much that decided to carry out two experiments at once. As a result he has caught on the test-tube by his sleeve and lost the substance he worked with. As usual the prize of the hurry was the necessity to start everything from the beginning".

Magic ship and friendship



Mendeleev and Art

«From all signs distinguishing genius two are most significant: it is ability to cover and unite wide areas of knowledge and ability to produce unique sharp idea». This statement of the well-known Russian chemist L.Chugaev also concerns to the greatest chemist of the world Dmitry Ivanovich Mendeleev who discovered the Periodic law of chemical elements in 1869.

This law could not be discovered with the knowledge that people had in 19th century. There were too many false facts and gaps. It is insight of the genius the capability to feel the great order in visible chaos of already known properties of substance. Incomprehensible ability of generalization in order, the ability to see universal simplicity of the law in endless variety, the mighty intuition pushing knowledge abroad the limits of known was needed.

But the man of genius is talented in all fields. Mendeleev's interests were not limited to inorganic chemistry. Pedagogy, organic chemistry, petrochemical, metallurgical and coal industry, aeronautics, meteorology and metrology, biology and medical chemistry, agrochemistry and agriculture... Everywhere you can find Mendeleev's ideas. His recommendations still are used in criminalistics. «It's difficult to say what I haven't made during my scientific life, - wrote Mendeleev. - And it was done not bad, I think ».

However, not many people know that D.I. Mendeleev was a member of the Imperial academy of arts. No, he did not draw landscapes and still-lives. He was the center around whom the community of scientists and artists formed. These educated people regularly met on well-known Mendeleev's Wednesdays. Why did Mendeleev spend energy and time on it? He was convinced, that sci-



ence and art are two key approaches to know the world and they are closely correlated. Therefore he considered that the dialogue between scientists and artists was important for development of science and art. In impression of A.I.Kuindzhi's picture « Night above Dnepr » (1880) the unexpected question arose in Mendeleev's mind: Did it accidentally the landscape as a genre of painting and the natural sciences as a science was appeared simultaneously in the beginning of the New time? He answered himself – it wasn't casual. During the Ancient times and Renaissance artists and philosophers studied a person, its soul and dialogue with God. With the starting of New time from Galilee epoch the understanding had come. It is impossible to study a person without relation with Nature. Whereas landscapes are representing Nature, natural sciences are investigating it. Mendeleev had detected close connection of natural sciences and arts. Really, only one year was needed for Michelson's experiments, 15 year for Rontgen's discoveries and 16 for discovery of radioactivity.

Use your brain

Why Rasputin was not poisoned with potassium cyanide?



Question. In 1916 in Saint Petersburg there was a famous murder – somebody shot Gregory Rasputin. But before shooting Prince Felix Jusupov tried to poison Rasputin with potassium cyanide. Poison has been thrust in cakes and port which Rasputin adored. He ate and drunk everything, but...has remained alive. Why so strong poison has not worked? May be Rasputin has used the magic?

Answer. The reason is not in magic. The plausible clue is in sugar. Potassium cyanide has been mixed in sweet cakes and port, containing glucose as an aldehyde adds hydrogen cyanide forming nontoxic cyanohydrine: $\text{RCH=O} + \text{HCN} \rightarrow \text{RCH(OH)CN}$. In other words, Rasputin was given poison together with an antipillbox, and cyanide was immediately inactivated, having entered in reaction with sugar. As you can see, the chemistry interferences not only in cookery, but also in history.

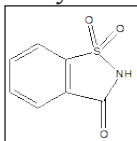
Best of the best

If to arrange a competition in the world of molecules it is possible to find the champions. Who are they, these champions? In each nomination there are leaders. Today we shall talk about sweet champions - about the sweetest substances.

The sweetest

The sweetest of natural sugars is fructose. It is 1.7 times sweeter than saccharose. But it is not the champion. So, from berries *Dioscoreophyllum cumminsii*, found in the jungle of Nigeria, we can find the substance which is 1500 times sweeter than sugar. Even more, 4 000 times, has surpassed saccharose taumatococin fiber which was allocated from fruits of other African plant *Thaumatococcus danielli*. The small slice of taumatococin can replace the whole bag of granulated sugar!

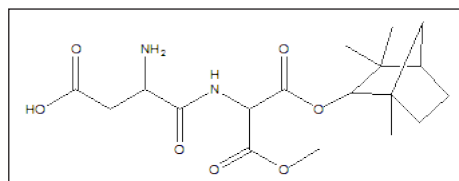
Sweet substances are searched in laboratories of many countries of the world. It is clear, that it is necessary to replace natural sugar with the low-calorie sweet substances that are harmless to diabetics. The first among them was saccharin - ortho-sulfobenzoic acid imide. This substance for the first time was synthesized by Americans A. Remsen and K. Falbergom in 1878,



is approximately 500 times sweeter than sugar. But there is serious lack in saccharin - it tastes bitter.

Aspartame is rather new synthetic sweet substance. It is dipeptide - N(-L- α -aspartyl)-L-phenylalanine methyl ether. It is 200 times sweeter than sugar and almost the same on taste. Besides it strengthens the taste of saccharose, glucose and saccharin, especially at presence of a citric acid. Small amounts of aspartame completely suppress unpleasant gustatory sensations which are caused by saccharin. In small intestines aspartame splits in two amino acids which it consists of. Harmless aspartame became one of the most popular substitutes of sugar.

The next "masterpiece of sweetness" has been created in 70th years when Japanese researchers synthesized dipeptide, constructed of the rests aspartic acid and aminomalononic acid (the last is taken in the form of a complex ether). Here is the structural formula of the sweetest of known substances, N(-L- α -aspartyl)-L-aminomalononic acid methylphenyl ether. It is 33000 times sweeter than sugar!



Lessons in Russian

How are you? – Как дела? [kak dela]
Fine, thanks. – Спасибо, хорошо. [spasibo horosho]
What is your name? – Как тебя зовут?
[kak tebya zovut]
My name is... - Меня зовут... [menja zovut]
Where are you from? – Откуда ты? [otkuda ti:]

How old are you? – Сколько тебе лет?
[skolko tebe let]
What hobby do you have? – Какое у тебя хобби?
[kakoie u tebya hobi]
To the left – Налево [nalevo]
To the right – Направо [napravo]

Forward – Вперед [vpered]
Back – Назад [nazad]
Up – Вверх [vverh]
Down – Вниз [vniz]
I love you - Я люблю тебя
[ja lu:blu: tebjja]

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Tomorrow program Thursday July 19th

7.45-8.30 Breakfast, Olimpiets
8.30-19.00 Whole-day excursion to Sergiev Posad, lunch included
19.00-21.00 Dinner, Olimpiets

The issue is prepared by:

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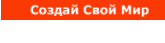
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Journal of the 39th International Chemistry Olympiad Moscow Russia
Issue no.6 Thursday 19 July 2007

Chemistry links everything

Prof. Duckhwan Lee (Director, Science Communication Program, Sogang University, Seoul, Korea)

To begin with I'm sure that practical exam should be (and would be) a great success, because it's organized by a very professional team. I was organizing this Olympiad last time and I know what hard and tiring this job is. It's a difficult task to arrange everything convenient for 256 people, because it's concerned with chemicals and sophisticated equipment.

There are not so many students who study practical chemistry at school. Our Korean students were selected from very specialized schools with special scientific groups (as Moscow Chemical Lyceum, a school Leonid Romashov from - M.N.). And I'm glad that now it's being held at Moscow State University, in this citadel of science built by Stalin and history with old traditions. It's very important (as I usually tell my students) to feel the connection between history and modern times. Even chemistry is a modern science it has its own history as well.

Our government understands the necessity of investigating in science and technology. Chemistry is a science of future: especially nanotechnologies and biochemistry. And we have made a dramatic progress while last 10 years only due to the science, education and innovative technologies. When the society is poor, it doesn't recognize the role of such things, because they don't feed their needs directly. Common people don't understand the importance of high level science and technology. When it becomes rich, it can invest in future and contribute into science



and education, in future development and the science is becoming closer to the majority of people.

I was trained as a theoretical chemist (I don't like experiment personally). Chemistry mostly is a practical and applied science and the role of the experiment should be emphasized. But it can't be done properly without the base of theory. I should say that they are both important and can't be separated.

Chemistry links everything: history and modern times, science and society, theory and practice.

Maria Nefedieva



And where are the planets, the stars and the Moon from? Can it be chemistry?

M. Zoshenko



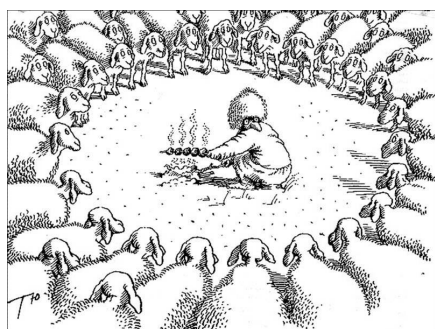
“Get your facts first then you can distort them as you please”. Mark Twain



Use your brain

Why the strawberry became sour?

Question. People in Russia love strawberry and its jam very much. A strawberry is grown up almost in each part of the country. To keep it till winter, a fragrant sweet strawberry is usually frozen, sending in the freezing chamber. In winter it is taken out to regale. But here the trouble is - a strawberry became sour! Why?



Answer: If the strawberry became sour it means that sugar disappeared. What has occurred to it? Sugar has decayed owing to enzymes. But this answer can seem illogical to you - in fact, at low temperature the speed of all reactions are sharply slowed down! It is really so, however in case of a strawberry one more circumstance works. During freezing pure water is being frozen first of all. It means that the part of water is deduced from an endocellular solution, and concentration of other components sharply rises. It means that speed of fermentation processes also increases. Besides, small crystals of ice destroy cellular structures, liberating enzymes thus raising their concentration. In that way sharp growth of concentration of reacting substances wins downturn of temperature. Especially, if cooling is not very strong.



"The are only two tragedies in life: one is not getting what one wants, and other is getting it". Oscar Wilde

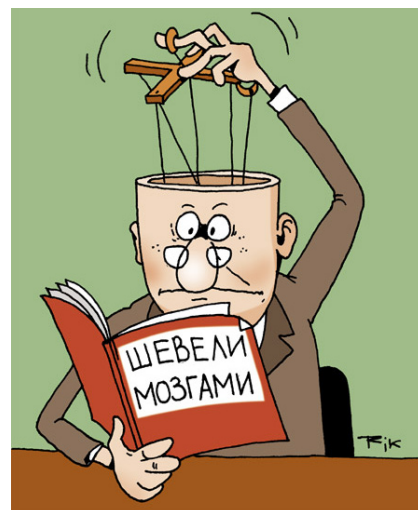


Use your brain

Frog and milk

Question. When refrigerators haven't been invented yet, peasants in the Russian villages stored milk in clay jug and threw a cold, slippery frog in it. And actually, milk remains cool and did not turn sour. Why?

Answer. It paradoxical sounds but frog really was used as an alive refrigerator. The matter is that the skin secret of a frog allocates bacterial poison - enzyme lysozyme. So the frog protects itself from bacteria, and at the same time milk. By the way, lysozyme is in crude eggs, in our tears, and in a radish. But why does milk remain cool? The reason is in the jug. The jugs are made of usual ceramics which is penetrated by the most thin pores. Under the action of capillary forces water from milk filtered through walls and evaporated. And we know, that evaporation is an endothermic process going with absorption of heat. Therefore the filled jug always remains cool.



After the hard day

Andrew Tulloch (Australia):

About the exam: It was really doable, we had to do everything perfectly, but made many mistakes, I think in the first question. It wasn't harder then we have seen before. Everything depended on the emotions.

About yesterday's trip: It was a heavy mix of sport and dancing.

Russian food: It is good, but we haven't eaten much.

MSU: It is rather good university.

I think that here you are able to be creative, intelligent and funny, Chemistry Department is a mixture of chemistry and physics. There is very good nature at the territory of the MSU, buildings are in trees.

Why he chooses chemistry: It is something that I really like to do. It's both science and art. You can be very creative here. Being a chemist you can help to solve world problems and that's why I like it.

Friends: We have made many friendships. There are many in-

teresting people from India, Asian countries, Iceland. We wish them good luck. We hope that Australia will get the first prize, of course. But we think the team of New Zealand – they are our neighbors – will win. We support them.

Freddie Manners (The UK):

About the MSU: I have seen the Moscow State University only on the picture. The building was great. But it's really better than I thought.

Jim Ge (Australia):

I have ruined my equipment and there was a real problem. The exam was rather difficult, nevertheless I coped with it.

Raul Joao de Sousa Pereira (Portugal):

I burned my fingers, because I was in distraction. I didn't follow one of the rules of security: taught the solution. Now I don't feel pain because I was given some medicine. I think it can influence the results of

my exam and can bring a lot of pain in future. But I haven't stopped the exam because I have felt better and decided to make something. I was thinking only about the tasks of the exam. And the place I will take is not very important.

And one boy is a real hero. He took part in the exam with the broken leg. He is from Iran:

Yesterday we were playing volleyball. I fall on the grass and felt the pain in the leg. Than we went to hospital and spent there a lot of time. But I decided to take part in today's exam. It was difficult because I have to get some tubes from the table that was rather far. So I had to stand.

But I've managed everything and I'm happy. Today will celebrate!

*Ekaterina Bredina
Ekaterina Davydova*

Lessons in Russian

Would you like to dance? - Хочешь потанцевать? - [hochesh potansevat]
May I have your adress and telephone number? - Ты можешь мне дать свой адрес и номер телефона? [ti mozhesh mne dat svoj adres i nomer telefona]

I like your smile - Мне нравится твоя улыбка [mne nraivsja tvoja uli:bka]
What is your name? - Как тебя зовут? [kak tebj zavut]
My name is... - Меня зовут... [menja zovut]

Were are you from? - Откуда ты? [otkuda ti:]
I am from... - Я из... [ja iz]
Beautiful! - Красиво! [krasivo]

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Tomorrow program Friday July 20th

7.00 - 7.45 Breakfast, Olympiets

8.00 Busses depart to the Theoretical Exam, MSU

10.00 - 15.00 Theoretical Exam, MSU

15.00 - 17.00 Lunch, MSU

17.00 - 18.00 Walk to "Vorobjovi Gori" berth

18.00 - 22.00 Re-union Party on a boat, dinner included

22.00 Transfer to Olympiets

The issue is prepared by:

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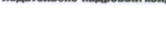
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Journal of the 39th International Chemistry Olympiad Moscow Russia
Issue no.7 Friday 20 July 2007

Best of the best

Today we will talk about substances - champions of the taste. How is it possible to estimate taste digitally? It's very simple! The main criterion is the minimal concentration of substance (bitter, sour, salty, hot) at which our tongue perceives this taste as dominated.

The champions of the taste

Sensitivity of tongue to the different tastes is unequal. In most cases the first place takes bitter substances: the organism as though warns us - spit out this muck immediately! Taste of the most bitter substances - quinine and strychnine - is distinctly perceived in mix 1:100 000 and more (it approximately the teaspoon of substance dissolved in half ton of water).

However in very small concentration bitter taste can be pleasant, therefore in some drinks we add the quinine (usually in the form of sulfuric salt). It is possible to find out quinine in tonic not only to taste, but also to a bright light blue luminescence of a drink under beams of a ultra-violet lamp.

Vanilamide - one of derivatives of vanillin marked as 8-methyl-N-vanillyl-trans-6-nonenamide - has pos-

sibly the most burning taste. It has second name Capsaicinum from the Latin name of capsicum. Capsicum Annum contains the most part of this substance, it is about 0,03 %. If you chew a little bit of this pepper your tongue will be tormented with a burning pain for a long time afterwards. Capsaicinum is known since 1876.

It is difficult to tell, what taste has a grapefruit. But from 100 liters of juice of this exact fruit Swiss chemists E.Demolle, P.Entist and G.Oloff have picked out in 1982 the champion of the taste. It was mercaptan, chemical name is 1-p-menthene-8-thiol. Taste of this substance



can be felt at concentration only 0,02 ng/l. You need to mix only 2 mg of this substance to get such concentration in the huge tanker of 100 000 tons of water!

Use your brain

Why do roofs cover with tile?

Question. Beautiful tile roofs are a visiting card of the European countries. A tile has been exactly used here for a long time for a roof. Why is it exactly a tile?

Answer. It is clear, that a tile was used as a good protection. But from what? From acid rains! When in the Europe almost all woods have been fired people started to heat houses with coal. And local coal contains fair quantity of sulfur. At combustion it formed oxides which were dissolved in drops of water and dropped out on the ground by acid rains. The metal roof quickly would fail. And the tile is acid-proof, therefore in the Europe it serves for centuries. Now in the European countries coal isn't used for heating so often. And air in the European cities became much purer. But the beautiful tradition has remained.



Have you asked the photographs? Here they are, please!



"A happy scientist is the one who searches for a needle in a haystack, and finds a daughter of a farmer". Edmond Fisher

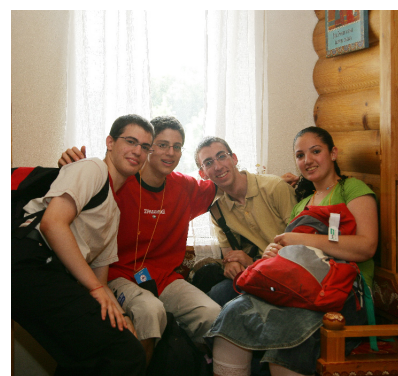


"The more I live, the more I am confirmed of the idea that in the Solar system the Earth plays a role of a madhouse". George Bernard





***"Life does not have the sense that could be opened.
It has the sense that we give to it". K. Nilsen***



***"Put off till tomorrow what you can not think about today".
Haruki Murakami***

Entertaining Statistics

We asked the participants of the Olympiad to fill questionnaires for the statistics. Here are preliminary results.

The questionnaires were filled by 58 students, most of them are boys – 47 smart chemists, and 11 nice girls.

Almost everybody want to connect their future life with science. Here are branches of science they want to work in.

- 1) Organic chemistry – 13 students.
- 2) Medicine – 12 students.
- 3) Biochemistry – 6 students.
- 4) Physics – 5 students.
- 5) Engineering - 4 students.
- 6) Researching work – 4 student.
- 7) Nanotechnology – 4 students.
- 8) Mathematics – 2 students.

And this is the list of the most urgent problems for the humanity.

- 1) Pollution – 9 students.
- 2) Global warming – 9 students
- 3) Energy crisis – 7 students.
- 4) Poverty – 5 students.
- 5) Human rights – 3 students.
- 6) A.I.D.S. – 3 students.
- 7) War – 2 students.
- 8) Unemployment – 1 student.
- 9) G.W.B. – 1 student.



The majority of the students were fascinated by Moscow. But, of course, there are several things they disliked.

- 1) Traffic jams – 11 students.
- 2) Food – 6 students.
- 3) Unfriendly people – 5 students.
- 4) Expensive city – 4 students.
- 5) Airport – 4 students.
- 6) Mosquitoes – 2 students.
- 7) Noise – 2 students.
- 8) Weather – 2 students.
- 9) Smoking – 1 student.

Dear Friends, we are waiting for your questionnaires!

Alina Sabanova

Lessons in Russian

It's a nice day today – Сегодня прекрасный день – [sevodnja prekrasnij den]
I want to eat (to drink) – Я хочу есть (пить) – [ja hochu est(pit)]
I have a good mood – У меня хорошее настроение – [u menja horoshee nastroyenie]
I'm tired – Я устал [ja ustal]
I need your help – Мне нужна ваша помощь – [mne nuzhna va-

sha pomosch]

Let's photograph together – Давайте сфотографируемся – [davajte sfotografiruemsja].

I would like to get to know you better – Я хочу узнать тебя лучше – [ja hochu uznat tebja poluchshe]

Good night – Спокойной ночи – [spokojnoj nochi]

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Tomorrow program Saturday July 21th

8.00 – 8.30 Breakfast, Olympiets

8.40 – Buses depart to the excursions

10.00 – 13.30 Excursion in groups: Kremlin

13.30 – 19.00 Lunch at "Manezh" café

15.00 – 19.00 Excursion to the Moscow Zoo

19.00 – 20.00 Transfer to Olympiets

20.00 – 21.30 Dinner, Olympiets

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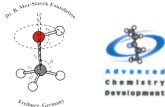
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Journal of the 39th International Chemistry Olympiad Moscow Russia
Issue no.8 Saturday 21 July 2007

“If young people talk to each other they will never fight against”

*Manfred Kerschbaumer (Austria), President of
the Steering Committee of the IChO*

All exams finished yesterday. Nothing can be changed. But I hope that everyone coped with tasks, showed all the knowledge they had and did their best. I hope everything was smooth and you will always be the best, the fastest and will always win!

– *Why does the theoretical tour go after practical?*
In many cases, the order is reversed.

– You are right – usually, the theoretical exam is the first part. But there is a historical explanation! In 1990 in Paris we had very difficult and long theoretical competition. The students were disappointed, frustrated and didn't like Chemistry Olympiad at all! So the main argument is to save the interest! The second argument is timetable. On the first day we had an Opening Ceremony and a Lab inspection. After that we discussed the practical part and next day translated it. And when translation of theoretical part began, nobody went to sleep the whole night! Practical part is shorter, so the International Jury has changed the order of parts. Some changes we had in 2002 in the Netherlands: mentors discussed theory and practice at once and then they had the whole day for translation. But the system when the practical exam is at the head works and I think we will save it for years.

– *Are you satisfied with the level of tasks?*

– The level of practical part is OK. The level of theoretical one is rather high. There are a lot of interesting but difficult tasks. However, this is the International Olympiad and the level of theoretical questions should be comparable with practical ones. If to look at previous Olympiads that were 10-15 years ago the level has been changed, especially in the field of practical competition. These changes have appeared because of modern methods we invented in chemistry. The theory has also been changed - first of all in the volume of the texts. 20 years ago the whole set of theoretical tasks concluded 10 pages with 5000 characters, now we have 25 000 characters!



– *What is the main goal of such an event for you?*

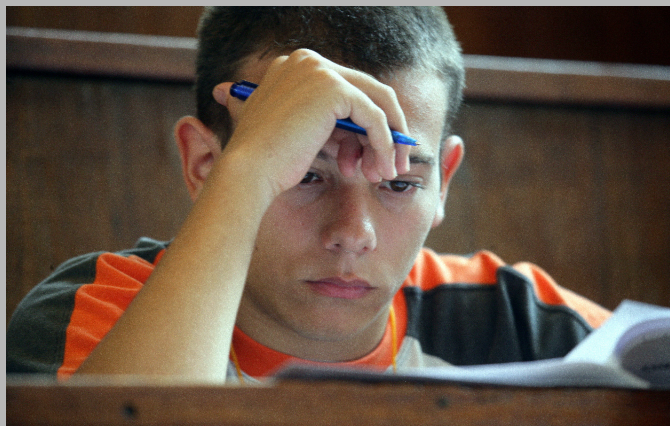
– A lot of young people get together. We connect them with each other. We help them to communicate with people of other cultures and languages. They have one thing in common, one thing they can easily talk about – chemistry. It will help them to learn how to develop and change a subject. And if young people talk to each other they will never fight against. I think it is the main goal of such an event.

– *What is the main function of Steering Committee?*

– The International Steering Committee was founded in 1992 because the number of countries-participants was so big that it was impossible to discuss problems with such amount of people and find a solution. Furthermore, the majority of mentors aren't native English speaking persons, and our communication is in English. So today we have a small group of 14 members from different countries: Russia, Austria, Denmark, Hungary, Germany, Slovakia, Ireland, Australia, United Kingdom, Korea, China. They know English and we can prepare proposals to Jury (for all the mentors) for voting and decision. May be, we will also help to solve financial problems in the future.

to be continued on the page 3

Hard work has done. Congratulations!



***Everybody knew that it was not allowed. Only one didn't.
And he was the one who made a discovery. A. Einstein***



Dialogue with mentors

Diana Piano, Portugal

-What are the difficulties you are facing while translation?

-Yes, there are some of them, because we are Spanish-speaking country, but we are in a close touch with the team from Spain and they help us.

-What are your functions as mentors?

-We translate the tasks and the works, check them and if there are different views on the result, we discuss it with mentors of Russian team and usually come to the compromise. If everything is the same, that's no problem.

-Do the parents call you often, because their children can't ring them?

-No, really not so often. On the one hand, they were prepared to this situation that the mobile phones would be taken. On the other hand, they trust us and they are sure that their children are safe and happy.

Noorsaadan Abd. Rahman, Malaysia

-Was it difficult to translate the tasks for you or not?

-No, personally for me it wasn't. The only difficulty is that I'm not an expert in all branches of chemistry (I'm teaching organic synthesis and drug design), so sometimes I took advice of some more experienced people in this area.

-Are the parents worrying about their children, because they are so far away from home?

-Yes, of course, they are worrying in the case of such competitions, it's



very important to get a moral support from your relatives. About the safety of their children - no, they aren't.

Galina Shevtsova, Peru

-Galina, your name sounds quite Russian for us.

-Yes, I'm originally from Russia. I graduated Moscow State University in 1970, we were the classmates with Valery Vasilyevich Lunin, then, at the same department (Petroleum Chemistry and Organic Catalysis) we graduated the post-graduated scholarship. I got my PhD in 1973 and Valery Vasilyevich, I don't know exactly.

-How many years are you in Peru?

-About 30 years.

-Did Moscow changed from your last visit to Russia?

-Yes, certainly Moscow has changed a lot for recent time: new buildings, good roads, luxurious hotels and restaurants. But I'm an often guest in Moscow, I come here about twice a year.

John Kotz, USA

-Do you have any difficulties with the translation?

-Oh, no. We are speaking American English, it differs in some ways, but not so much. The only difficulty is that the tasks are very difficult. But for us it's not a problem.

-Are you satisfied with the level of the tasks?

-We are satisfied with the level of the tasks and the level of our team.

Maria Nefedieva

-Do you like Moscow? What has changed since your last visit?

-I like Moscow! I was here in 1996 as a Mentor of 28th IChO for the first time and twice this year: in December – with other members of Organizing Committee for Jury Meeting of 39th IChO and now – when 39th IChO has been opened. For these 10 years the city has changed greatly. The number of cars, traffic jams and people on streets have increased. But I like it. The first day after translation work I went to the Red Square by metro. My biggest impression is the Kremlin and Diamond Hall where I was this

December. Basket full of diamonds! 10 kilos of diamonds! I have never seen anything like that! And I would like to go to St. Petersburg, I have never been there. Also I like Russian cuisine – vodka, “borsch” – I have tasted it! As for Russian people – it is a big difference between the new generation and elderly people. I think it is very difficult for them to start, to find a place in the new time. I know these people personally, they are very good people, and Mr. Lunin of course! I'm glad to get together this year in Moscow!

Maria Kokhanova

Best of the best

The nose of chemist, who works in a big laboratory, runs the danger of serious trials. Because, some of the matters even in a negligible proportions can turn people out of the room. Which matters are the most disgusting for our nose and which disturb it more than other chemical substances?

Well, it is a real stinker!

Thiols or mercaptans R-SH (the second name of these compounds tells on their opportunity to join the mercury) have one of the most disgusting smells. To the natural gas, which usually burns in the stove on our kitchens, it is accepted to add small quantity of the substance with very strong smell, for example, isoamilmercaptan $(CH_3)_2CH-CH_2-CH_2-SH$, to identify the gas escape at home. Indeed, people can feel the smell of this compound in the quantity of two trillionth part of gramme!

Mercaptans add a smell to the extremely stinking secretion of skunks, which are named stinker. But there are smells even worse...

In the Guinness Records Book it is proclaimed the most stinking substances – ethylmercaptan C_4H_9SH and buthylselenmercaptan C_4H_9SeH . Their smells

remind “aroma” combination of rotting cabbage, garlic, onion and sewage at one time. In the book of the famous Russian scientist-chemist A. Chichibabin “The base principles of the organic chemistry” it is said that the smell of mercaptans – is one of the most disgusting and strong smells, that can be met among organic matters...

Nevertheless, the record of sensitiveness belongs to the compound with pleasant smell. This substance – vanillin, its presence in the air can be felt with the concentration 10^{-11} gramme in a liter. However, this record has been beat lately. The new recordsman – so-called vinous lactone, that as the Swiss chemist H. Gut showed in 1996, gives to red and white wines the sweetish coco aroma. Our nose is able to feel this substance with the concentration 0,01 picogram in a litre of air.



Lessons in Russian

Boy – мальчик [malchik]
Girl – девочка [devochka]
Beautiful – красивый [krasivi:j]
Ugly – ужасный [uzgasni:j]
Stupid – глупый [glupi:j]
Clever – умный [umni:j]
Funny – забавный [zabavni:j]

Sleep – спать [spat]
Together – вместе [vmeste]
Speak – говорить [govorit]
Tasty – вкусный [vkusni:j]
Tea – чай [chaj]
Juice – сок [sok]
Water – вода [voda]

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Tomorrow program Sunday July 22th

8.00 – 8.45 Breakfast, Olympiets

9.00 – 13.00 Paintball and “Adventurer” game

13.00 – 14.00 Lunch, Olympiets

14.00 – 18.00 Free time, sports activities

18.00 – 19.30 Dinner, Olympiets

21.00 – 23.55 Disco

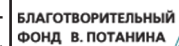
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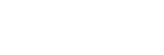
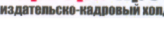


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Your words, your thoughts...

Here are the most interesting answers from your questionnaires. Read, laugh and think...

Giah Hung Lee, Malaysia. I would like to visit London and to go to the match at Wimbledon. It is my dream.

Aminatul Munirah Kasim, Malaysia. Unity, education are the most important problems of the world. I want to take part in improving of the world's education because I feel it is the way of solving all the problems.

Zamirbek Akimbekov, Kyrgyzstan. I really like football and history. I have been a fan of Spartak Moscow FC (Russian football team) for 8 years.

Argurola Lavi, Greece. Solving problems offers you the ability to be an active member of the society and I want to be an active member of the society. One of the problems of my country is unemployment and I don't think I am able to help.

Karolis Leonavicius, Lithuania. I began to study chemistry thanks to pyrotechnic textbooks. The events like the Olympiad teach tolerance. I would like to visit Novosibirsk (the city of Russia) because it's probably the most peaceful place I know.

Pablo Gustavo Levrand, Argentina. I understood that chemistry was interesting for me when I felt that I was able to produce chemical reactions and interpret properties. It was a very nice surprise for me to know that famous

people such as Markovnikov were the members of MSU. It makes me think that MSU is one of the most important places of chemistry research in the world.

Shaina Khan, Pakistan. In my opinion, poverty is the most urgent problem because poverty is the root of many evils. I want to help in solving healthcare problems in my country. Perhaps, I will join an agency or organisation providing free healthcare facilities.

Boris Fackovich, Slovakia. The Olympiad helps to work under stress and manage the stress. We aren't allowed to see Lenin.

Krzysztof Kosinski, Poland. Three years ago my chemistry teacher allowed me to carry out arbitrary experiments during the class. I tried to figure out how to make black powder and this got me hooked.

I would like to see AN – 225 "Mriya" (the biggest airplane in the world).

Sabyrbek Zheentaev, Kyrgyzstan. The main problem of the world is coldness of people.

Joaquin Grassi, Uruguay. I would like to go to Chernobyl because of the disaster that was there.

In yesterday's number, on the third page we've made an awful mistake. We have written that Portugal is Spanish-speaking country. Of course, it is Portuguese-speaking country. Please, take our official apologize. **Maria Nefedieva**

Lessons in Russian

Friend – друг [drug]
Friendship – дружба [druzhba]
Victory – победа [pobeda]
Game – игра [igra]
Kiss – поцелуй [potseluj]

Flowers – цветы [tsveti:]
Weather – погода [pogoda]
Sun – солнце [sontse]
Moon – луна [luna]
Rain – дождь [dozhd]

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Tomorrow program Monday July 23th

7.00 – 9.00 Breakfast, Olympiets
9.00 – 12.00 Free time
12.00 – 12.30 Lunch, Olympiets
12.40 – Buses depart to the Closing Ceremony
15.00 – 17.00 Closing Ceremony
17.00 – 18.30 Walk-around MSU Campus
18.30 – Buses depart to the Farewell Banquet
19.00 – 23.00 Farewell Banquet, Russian Academy of Sciences
23.00 Transfer to Olympiets

The issue is prepared by:

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Catalyzer



Journal of the 39th International Chemistry Olympiad Moscow Russia
Issue no.9 Sunday 22 July 2007

Matryoshka

Is it easy to paint matryoshka?

Lucie, Switzerland. No, not really. You have to paint exactly and look that the color is everywhere the same. That's a very good idea to make such an event.

Hubert, Austria. The way I'm doing it is quite easy but if you want to make it really perfect it is rather difficult.

Max, Switzerland. It needs a lot of patience to paint these matryoshkas. I'm not so patient, but I like to do it.

Ivana, Croatia. I like it a lot. I like drawing anytime. It is difficult to draw matroshka but I actually like it because it is difficult. And when I will finish it I'm going to be very happy.

About Russian symbol – matryoshka

Miha, Slovenia. It is something that represents Russian life. It is very important symbol.

Ivana, Croatia. It is excellent. I like it and it is nice that a big one contains the little one, the little one and the little one... There can be fifty pieces and even more and that is really cool.

Christian Olvin, Netherlands. It is a first time I see a matryoshka and the first time I paint it. It is very interesting for me. I have painted a lot before with markers, but it is really hard to paint matryoshka.

About the trip to Sergiev Posad and the greatest



impressions

Ian, Croatia. Today it was really interesting. I like painting matryoshkas the most, because we could express yourself. Sergiev Posad I found absolutely amazing because of the monastery and the nature.

Ivan, Croatia. I enjoy trip to Serfiev Posad very much, I enjoy painting babushkas (matryoshkas – edit.), the monastery is absolutely wonderful. I'm really-really impressed. The churches are also very beautiful and interesting. And I like local food very much.

Ivana, Croatia. I like restaurant very much. It was decorated nicely. It is really Russian. Waitresses in the national dresses are really nice. I like it.

Lucie, Switzerland. It was quite interesting to see. Monastery is very amazing. It is different religion and it is always interesting.

About souvenirs that they have bought

In the end of the trip students had free time and all of them rushed to buy souvenirs. The most popular souvenir was, of course, matryoshka. Also they bought a lot of wood whistles. A Greece team was very interesting in fur winter hats, they were trying it on very long time and finally bought it. Is it very interesting whether they will have a chance to wear hat in their country? But may be they purchased because they wanted to come back in Moscow again and saw a real Russian winter!

Katya Davydova

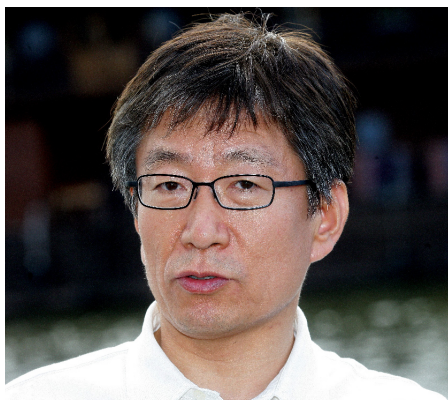


A few words from mentors



Maurice Cosandey,
Mentor, Switzerland

It's the twentieth time I'm taking part in this Olympiad. It is one of the best organized conferences in response to the schedule: we always have enough time for everything. It is remarkably scheduled - even if we don't have more time than we need, we always have enough. The most difficult was the translation day. The level of the tasks is too high, from my viewpoint.



Jung Hag Park
Head mentor, Korea Republic

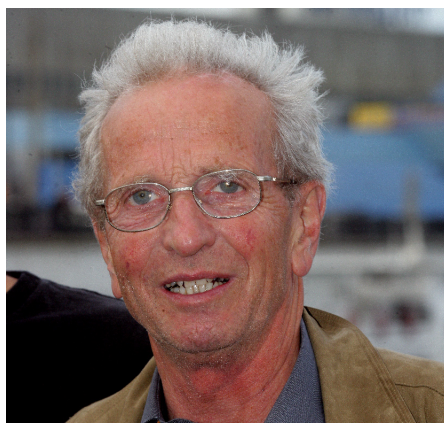
Hopefully we'll get four gold medals and will show the better results than last year (3 gold and one silver)! This year we had very good tasks – practical and theoretical – may be a little bit difficult for students. But we were training our students very hard during two weeks, selecting four best students from 5000 participants of National Olympiad. Here - in Moscow – they are a little bit tired after a long distance, but they are cheerful and enjoy this competition!



Kurt B. Nielsen
Head mentor, Denmark

I hope we'll get some medals, but I'm not sure - the level of chemistry in my country is not very high. It was a very long competition – lots of theoretical questions: 60 questions for only 5 hours! Lots of things to do in practice.. But it was a straight fight. Very good students have taken part. And on Monday we will see who is the best this year. But this competition is not only for medals. You also meet new people, new friends, get together, learn new things about chemistry.

And I really like Moscow. I was here in 1996 for IChO and in December last year as a Member of Steering Committee. I am a fan of old town: Kremlin, Diamond Room – I find them wonderful! Nice hotel, nice food, everything is good!



German Wolfgang Hample
Mentor, Germany

I see some problems with the tasks: they were very long and ambitious. It's too difficult to solve such number of theoretical problems in such short time (5 minutes per question). Practical tasks seem to be OK. No one can give you the answer who the winner is – Monday will.



Moris S. Eisen
Mentor, Israel

It's a wonderful opportunity for me and for kids learning chemistry to be among the best kids in the world. The practical part was a little more difficult than theoretical. We had no time to give them our experience. And I like Moscow, I like Sergiev Posad with beautiful monastery that we have seen today.



Darko Dolenc
Head Mentor, Slovenia

Everything was organized OK. The level of tasks is very high. Our students didn't do practical tasks well - it required other skills than our students have. But the main goal is to get together. We know each other very well for a long time, we meet our friends, and we see new countries, new cities. This year we are in Moscow. I like this city - 10 years ago it was a dark, now it is alive!

Maria Kokhanova,
Maria Nefedieva

Relax!



Use your brain

The hedgehog and an apple

Question. Probably, you remember a picture from the first children's books on which the hedgehog bearing apple on the needles is drawn. And here is the question – why does the hedgehog need an apple? Why does it bear it?

Answer. The hedgehog with an apple is not an imagination of the artist. It is the fact noticed in nature. Usually this question is answered in that way: the hedgehog bears an apple to a hole to eat and make preparations for winter. But then there are other questions: how does it remove this apple? What for does it need preparation for winter if it runs into hibernation? And the main thing - the hedgehog is a predator, apples are not its meal. So what for does the hedgehog bear an apple on needles? The answer to this question was found by biologists from the Moscow State University many years ago. The apple for the hedgehog is all the same that soap for us. Organic acids and liquid products of rotting of an apple that smell sharply, expel from a leather of the hedgehog different parasites, ticks for example. In fact the hedgehog cannot lick itself, as cat can.



Catalyzer



Journal of the 39th International Chemistry Olympiad Moscow Russia
Issue no.10 Monday 23 July 2007

Minister A.A.Fursenko takes part in the Olympiad

Sunday. 20.00 pm. Holiday Inn. 220 people – professors, teachers, sponsors - are waiting in a big hall for Minister of Education and Science of Russian Federation A. A. Fursenko.

He came in the hall on time and Academician V. V. Lunin began the meeting. First of all, Minister spoke about the Olympiads. He said that such events are very important for many countries, especially for Russia. They help to find gifted children and to make science more popular among young people. Sciences are our future and chemistry plays the main role among them because it influences economy. Russian Federation understands it, so there are a lot of projects that help science and education. Olympiads, for example, are only a small part of national project "Education". Mr. Fursenko thanked the sponsors - Tokyo Boeki, Lykoil, Base Element, Potanin's Charity Fond - for their help in holding the 39th International Chemical Olympiad. Minister also added it was really great that big chemistry companies are interesting in young educated people and ready to cooperate with the Government in preparing specialists in chemistry. The 39th International Chemistry Olympiad united business and science. At the end Mr. Fursenko asked everyone about organization and waited for the wishes how to make next Olympiads better.

Then came the turn of Manfred Kerschbaumer. He noticed that the level of the Olympiad was very high. It is easy to explain. Russian Chemistry Education takes leading place in the world.

Sponsors also couldn't keep silence. Representatives from Tokyo Boeki and Lukoil, Mr Uchida and Mrs Safanova, said pair words about school, university, company and about the conference between MSU and Asian countries.

Questions to Minister and last but not the least - the meeting of the International Jury where the judges have decided how many gold, silver and bronze medals would be given to students. Fursenko, of course, took part in this exciting event.

What they have decided you will see today, at the Closing Ceremony.....

Ekaterina Bredina



And who are the judges?



Aleksander Gladilin

Co-Chairman of Scientific Committee, Prof. of Chemistry Department, Doctor of Chemistry, 42, MSU, Chemistry Department, Chemical Enzymology, Enzymes in non-standart media, 12 times as a member of Organizing or Scientific Committee of the International Olympiad.



Vadim Eremin

Co-Chairman of Scientific Committee, Prof. of Chemistry Department, Doctor of Physics and Mathematics, 45, MSU, Chemistry Department, Physical Chemistry, Kinetics and Thermodynamics, Quantum-chemical calculations, 8 times as a member of Organizing or Scientific Committee of the International Olympiad.



Igor Trushkov

Member of Scientific Committee, Assistant professor, Ph.D in Chemistry, 42, MSU, Chemistry Department, Organic chemistry, Mechanisms of Chemical reactions, Quantum-chemical calculations, Chemistry of Fullerenes, first time as a member of Scientific Committee.



Andrey Garmash

Member of Scientific Committee, Assistant professor, Ph.D in Chemistry, 52, MSU, Chemistry Department, Analytical Chemistry, Chemometrics, second time as a member of Scientific Committee, first time was in 1996.

Mikhail Korobov

Member of Scientific Committee, Prof. of Chemistry Department, Doctor of Chemistry, 57, MSU, Chemistry Department, Physical Chemistry, Nanotechnology, first time as a member of Scientific Committee of the International Olympiad.



Marina Reshetova

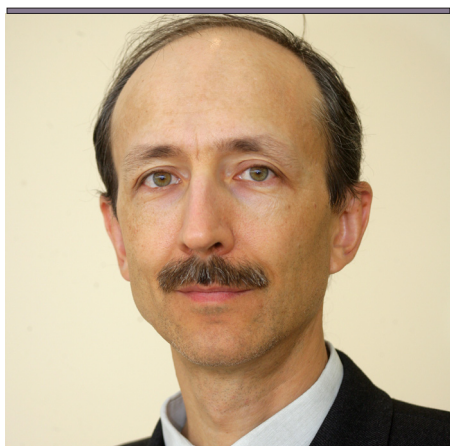
Member of Scientific Committee, Assistant professor, Ph.D in Chemistry, MSU, Chemistry Department, 68, Organic chemistry, Metalloorganic Chemistry and chemistry of complex compounds, first time as a member of Scientific Committee of the International Olympiad.

"I was organizing so many Olympiads, so it will be better if I give you a list: from the 1969 leads Mendeleev' Olympiad, All-Russian Olympiad, Olympiad for colleges (22 times) and 3 times Soros' Olympiads".



Valeriy Putlyaev

Member of Scientific Committee, Assistant professor, Ph.D in Chemistry, 45, MSU, Chemistry Department, Inorganic Chemistry, Inorganics and biomaterials, first time as a member of Scientific Committee of the International Olympiad.



Mikhail Beklemishev

Member of Scientific Committee, Ph.D in Chemistry, 46, MSU, Chemistry Department, Analytical Chemistry, Kinetic methods in analytical chemistry, second time as a member of Scientific committee of the International Olympiad, first time was in 1996.



Anna Bacheva

Member of Scientific Committee, Assistant professor, Ph.D in Chemistry, 32, MSU, Chemistry Department, Chemistry of Natural Compounds, Chemistry of Proteins, first time as a member of Scientific Committee of the International Olympiad.



Andrey Cheprakov

Member of Scientific Committee, Assistant professor, Ph.D in Chemistry, 46, MSU, Chemistry Department, Organic Chemistry, Synthesis of porphyrins and Catalysis, second time in Scientific Committee of the International Olympiad, first time was in 1996, a silver medalist of International Olympiad in 1978, Poland.



Anna Berkovich

Member of Scientific Committee, Engineer at Department Chemistry of high-molecular compounds, 25, MSU, Chemistry Department, Chemistry of high-molecular compounds, High-molecular compounds for medicine, first time as a member of Scientific Committee of the International Olympiad.



Bulat Garifullin

Member of Scientific Committee, BSMU (Bashkirskiy State Medical University), attending physician of the II year, 25, Ufa, Medical department, Pharmacology, golden medalist in 1998 Australia, first time in Scientific Committee of the International Olympiad.



Julia Valeeva

Member of Scientific Committee, Post-graduate student of the II year, 25, from Samara, MSU, Chemistry Department, Chemistry of high-molecular compounds, first time in Scientific Committee of International Olympiad.



Evgeniy Karpushkin

Member of Scientific Committee, Post-graduate student of the III year, 25, MSU, Chemistry Department, Chemistry of high-molecular compounds, Polyelectrolytes and biopolymers for medicine, first time as a member of Organizing or Scientific Committee of the International Olympiad, a winner in Mendeleev' Olympiad and All-Russian Olympiads.



Sergey Seryakov

Member of Scientific Committee, MSU, Chemistry department, post-graduate student of the II year, from Murom, 23, Inorganic Chemistry, technology, an organizer and participant of Mendeleev' Olympiad.



Igor' Sedov

Member of Scientific Committee, KSU (Kazanskiy State University), Chemistry Department, Kazan', 22, Physical Chemistry, Chemistry of solutions, Chemical Thermodynamics, twice was a golden-winner of International Olympiads in 2001 (India) and in 2002 (Netherlands).



Ilya Glebov

Member of Scientific Committee, MSU, Chemistry Department, Barnaul, 22, Department of Physical Chemistry, Quantum-mechanical calculation, 2007, in 2002 a bronze-winner of International Olympiad in 2002 (Netherlands).

Your words, your thoughts...

Mathus de Jong, Netherlands. The main problem today is lack-of-water problem in Africa. I would like to go there to help people, especially children.

Matias Gomee Elias, Argentina. Poverty and pollution seem to be the most urgent problems in the world. In my country, I think, it is so because lack of education. As a chemist, I would be grateful if I can solve everyday problems (for instance, diseases).

Philipp Steiniger, Germany. I would like to visit East Africa, as it is the cradle of the human race in a evolutionary sense and Greece since the Western philosophy and democracy can be traced back to its culture.

I would like getting involved in biochemistry and medicine since I want to contribute into research of diseases and development of new and more efficient therapies.

David Van Cauwenberge, Belgium. I have heard Moscow had great nightlife and the finest women in the world.

Christian Oberender, Germany. I knew a lot about Russian history and politics, the Kremlin.

I can add that Moscow is a city in which construction works are everywhere. It was important experience to visit Russia. Moscow seems to be quite chaotic in some places.

We are very grateful to all the authors and all other people helping, preparing, checking the tasks and assisting in the laboratories. We do appreciate it! These people are:

*Marina Rosova,
Aleksander Kisin,
Ivan Babkin,
Konstantin Yablozkiy,
Svetlana Bendrysheva,
Nikolay Melik-Kubarov,
Peter Sazonov,
Sergey Kubyshev,
Elena Mishukova
and many others.*

Varen Loodts, Belgium. I don't like Russian food. It's very different from Belgium. For example, in Belgium for breakfast we eat a piece of bread with jam or chocolate or bakery...

Stephan Pusch, Germany. Most of all, I want to visit Alyaska.

Zegi Yang, Singapore. Two years ago I understood that chemistry was interesting for me from chatting with friends and reading on the Internet.

Sofia Izmailov, USA. The most urgent problem in the world is providing everyone with sufficient food to survive. Also very big problem is pollution and I'll try to solve it.

Jan Kogoj, Slovenia. I like to talk to my friends about everything except chemistry.

Sotiros Christodovloo, Greece. In my belief, a severe problem that our planet encounters is energy problem. Greece is lack of energy sources. Especially in my country it is obliged to import energy sources like petrol because we don't have any.

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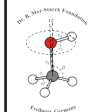
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Catalyzer



Journal of the 39th International Chemistry Olympiad Moscow Russia
Issue no.11 Tuesday 24 July 2007

See you in Hungary!

Difficult theoretical and practical tasks, excursions around Moscow, sport, sleepless nights and funny parties, broken leg and burnt finger - everything will turn into a history tomorrow. And it is time to figure up medals, last time to speak with foreign friends, to sit in the bus and produce in the memory the most exciting moments of these short days.

Let's remember together yesterday's meetings. A lot of representatives from different countries came that day to take part in Closing Ceremony. Ambassador from Iran the whole week phoned to know the results of the Olympiad and finally decided to visit the main hall of MSU. Two representatives from Cuba and Korea also found time to hear the names of the winners! So this event was nervous not only for the students. Vice-Premier of Russian Federation Medvedev noticed the importance of such events, sat down on his chair, but could not sit long and came again to the microphone. "The most important is to participate and not to win, - he said. But then added. - I know some results..."

Red faces of students, teddy-dog of Austrian guys against teddy-rabbit of the Netherlands team. New warm words that members of Organizing and Science Committee said. The fight is only on paper but not in the hearts. We all are the winners because

we have chosen chemistry. We lived together ten days: went in for sports, danced, laughed, travelled. First time we were sick and tired of Russian cuisine and traffic jams, we looked suspicious at the foreign students. But today we are one big family and the name of this family is science. Has everyone taken friend's phone number?

Ekaterina Bredina



Gold



Lei Xu, China
 Yuan Fang, China
 Leonid Romashov, Russian Federation
 Vasiliy Vorobyev, Russian Federation
 Zi-yang Zhang, China
 Ying Yu Ho, Chinese Taipei
 Dimitry Ur'evic Loutchko, Germany
 Jae Soo Kim, Korea Republic
 Simon Gourdin-Bertin, France
 Tae Gon Oh, Korea Republic
 Wei-Lun Huang, Chinese Taipei
 Dawid Grzegorz Lichosyt, Poland
 Krzysztof Cezary Kosinski, Poland
 Le Yang, China

Stanislav Terehov, Russian Federation
 Philipp Albert Steininger, Germany
 Bavorn Hongsrichinda, Thailand
 Eugeny Nekhoroshev, Russian Federation
 Wojciech Dominik Magon, Poland
 Chang Ho Lee, Korea Republic
 Hande Boyaci, Turkey
 Sumit Somani, India
 Soham Mehta, India
 Martin Lukacisin, Slovakia
 Gyula Palfy, Hungary
 Karolis Leonavicius, Lithuania
 Minh Nguyen Thi Ngoc, Vietnam
 Aurimas Vysniauskas, Lithuania
 Bae Hyeonjin, Canada
 Przemyslaw Krzysztof Tredak, Poland
 Ehsan Shabani, Iran

Silver



Kai-Jui Chang, Chinese Taipei
 Tanatorn Khotavivattana, Thailand
 Samvel Bardakhchyan, Armenia
 Erik Andris, Slovakia
 Andres Laan, Estonia
 Dzianis Hramazdou, Belarus
 Frank Meng Lin, Chinese Taipei
 Ostap Chervak, Ukraine
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 Ctirad Cervinka, Czech Republic
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 Vikas Prajapati, India
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 Jan Bitenc, Slovenia
 Benjamin Chen, Singapore
 Matias Daniel Gomez Elias, Argentina
 Oscar Carl Gunnar Granberg, Sweden
 Techin Chuladesa, Thailand



Bronze

Gabriel Eduardo Sanoja Lopez, Venezuela
Mihails Arhangeliskis, Latvia
Christian Marboe, Denmark
Derek Steven Hung-Che Chan, United Kingdom
Takashi Hiroi, Japan
Ayana Badrakova, Kazakhstan
Volodymyr Tkachenko, Ukraine
Rafael de Cesaris Araujo Tavares, Brazil
Shabnam Sharifzadeh, Iran
Florian Langmann, Austria
Raoul Rosenthal, Netherlands
Ahmet Selim Han, Turkey
Naru Tanaka, Japan
Vincentius Jeremy Suhardi, Indonesia
Jun Yan Goh, Malaysia

Shotaro Tsunoda, Japan
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Kazuki Yamaguchi, Japan
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Max Hafliger, Switzerland
Sofia Izmailov, United States
Mathijs de Jong, Netherlands
Luciano Hector Di Stefano, Argentina
Itamar Avraham David Shamai, Israel
Cristiana Fanciullo, Italy
Muradov Nurmhammet, Turkmenistan
Pablo Gustavo Levrant, Argentina

Honorable Mentions

Sergio Fonseca Chitica, Mexico
Roberta Poceviciute, Lithuania
Quentin Lefebvre, France
Andreas Frutiger, Switzerland
Manh Le Dinh, Vietnam
Amirhady Kamkaramoli, Iran

Geir Haakon Beckstroem, Norway
Javzansuren Norvanchig, Mongolia
Umed Boltaev, Tajikistan
Sabyrbek Bolotbekovich Zheentaev, Kyrgyzstan

Certificate of participation

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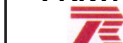
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