

**Boris Lukas Stolz**  
*Switzerland*



When I hear "Russia" I imagine beautiful landscapes. I also know it's pretty cold here in winter and there are a lot of mighty and crazy people. However I really like people here!

**Suàrez Espinoza**  
*Costa Rica*



We thought Russia was very different from Costa Rica. And so it is! We cross the street wherever we want. Here in Moscow we didn't even know how to do it because the streets are so large! Luckily our guide showed us the underpass.

**Kenneth Charles Hoffman**  
*Canada*  
*mentor*



— When I walked in here today and saw the statues of Mendeleev and Butlerov, I suddenly realized how central Russian chemistry really is and how we tend to forget it.

# It's raining men!

**Out of 291 Olympiad participants this year 250 are male.**

Check out the Olympiad statistics with "ICho in figures", page 4 >>



## Dear friends,



Warm welcome to the participants of the 45th International Chemistry Olympiad. For many years this prestigious competition has contributed into popularizing scientific knowledge, helped awaken the interest for research in children and young people, found and supported young talents. We are most pleased to once again host it here, in Russia, in a country of traditionally strong chemical schools and recognized achievements in the field of chemistry. Contest participants gathering at the Moscow State University these days will have to face a tough competition. To win you will need deep knowledge of theoretical and practical principles of modern chemistry, creativity and out-of-box thinking. I'm sure you will succeed with the tests and find the right keys to the problems.

**Sergey Ivanov, Head of the President Administration of the Russian Federation**

## Today is gonna be the day

7.30–8.30  
Breakfast

One of the dishes for breakfast was pancakes, Russian national product. Pancakes are easy to recognize for their round shape because they traditionally symbolize the Sun. Have some sunlight for breakfast!

8.30–9.30  
Transfer from Planernoye to MSU

Yesterday many of you were surprised by the width of Moscow streets. Today it's time for a real impression. After entering the city your bus will for a while go along the Leningradskiy avenue. Look out, it's the broadest street in Moscow (120 m wide).

10.00–12.00  
Opening Ceremony in the Fundamental Library of MSU

The Fundamental Library is the newest building of MSU. It was built in 2005 to celebrate the 250th anniversary of the University and is equipped with electronic reader service.

# On the first day of the Olympiad Catalyzer met delegations in MSU to greet, talk and find out how they see the chemistry world of today

## USA

### Olympiad History

The previous competition was held in Washington, D.C. on July 21 – 30. There were 34 gold, 59 silver and 87 bronze medal winners.

### Nobel Prize Winners

World leader by the number of Nobel Prize winners in Chemistry. Over 60 scientists from the USA were recognised world's most talented chemists. The second in the list is Germany, the UK is the third. Will the next generations be able to repeat the success of ancestors?

## United Kingdom

### Guy Lewy, James Pinder

«British most famous chemist is Peter Wothers... Ok, ok, he's our Observer. We'd say it's Sir Humphry Davy because of his discoveries of alkali, and Michael Faraday of course»

## Poland

### Paulina Mieldzioc

«Every city and town in Poland has a street named after Maria Sklodowska-Curie. We also have a lot named after Louis Pasteur, although he was not our guy. We're also proud of our contribution into graphene studies, you know this new ultra-thin material. In 2010 our chemists together with Chinese and Russian colleagues managed to make a dimensional surface consisting of just a single layer of carbon atoms, that was a real leap!»

## Costa Rica

### Suàrez Espinoza

«I'm sure no one here knows that our country has its own version of periodic system»



## Venezuela

### Ricardo Mathison

«Our country invented the remedy for a chronic infection called Leprosy»

>> from page 1

12.00-13.00 Buffet dinner in MSU	MSU main building has a nice lobby with a huge statue of Ivan Michurin (FYI he was a biologist and selectionist). Those who study Russian may start reading wise sayings on the marble slabs.
13.30-18.00 Moscow city tour	City sites is what your guides will show you. Catalyzer advises you to count the means of transport you come across in Moscow streets. You're likely to see buses, trams, trolley-buses, motorcycles, a monorail road, bikes and scooters – everything but the metro, which is by the way the world's most beautiful Underground.
18.00-19.00 Transfer to Planernoye	Approaching the hotel you might notice that we're staying at a suburb with a weirdly special name. The district is called Khimki which sounds pretty close to "Khimiki" which is a Russian for "chemists". In fact the name has different origins, so it's no more than a consonance – still a good one.
19.00-21.00 Dinner	Have you ever tasted boiled buckwheat? Every now and then we meet foreigners who don't know what it is, although it's very popular in Russia. Hurry up! You might never have a chance to taste it again. Buckwheat is a brown-gray crop rich in phosphorus.
21.00-23.55 Dance party	... and be sure the DJ plays at least one song of Ivan Dorn. He's very popular in Russia and Ukraine and people say the music is really good.



PHOTO

## Finland

**Alisa Taskinen**

«We've invented the AIB standard for food storage, it's the set of rules how to handle food during delivery, storage, processing, distribution to prevent spoilage. Besides, Gadolinium when discovered in 1880, was named after Johan Gadolin, Finnish chemist. We also have streets named after him in several towns of Finland»



## Japan

**Akira Nagasawa, Nobihiro Kihara**

«We can't really say who's the most famous chemist of Japan. We have 7 Nobel Prize winners and they just all deal with different parts of chemistry, from conductive polymers or ionisation methods to green fluorescent protein. All of them are 21st century prizewinners»



## Germany

**Olympiad History**

Last year 22 countries got the gold medals, but the absolute winner was Florian Berger from Germany, who got the maximum rate of 99.83 points.

## Korea

**Olympiad History**

Korea was the leader in the amount of gold medals in 2012. Four(!) students from this asian country brought the gold to their home.

## Czech Republic, Slovakia

**Olympiad History**

Prague, the capital of former Czechoslovakia, was the first country to host the International Chemistry Olympiade in 1968.

## New Zealand

**Andrew Rogers, Owen Curnow**

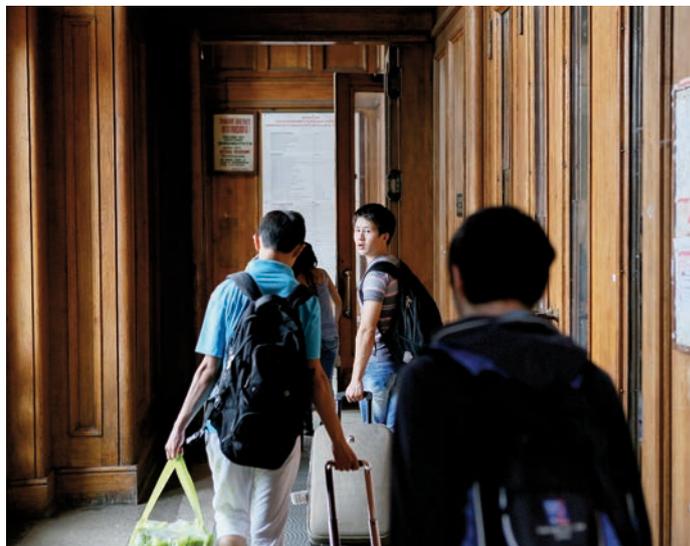
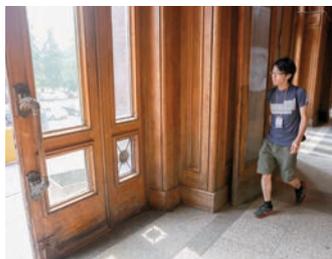
«Our main strength is proteins, especially extracting value from milk and wool. By the way our country supplies 20 thousand tons of butter to Russia annually»



## Switzerland

**Boris Lukas Stolz**

«The modern quantum Chemistry and the 1st law of thermodynamics were invented in our country»



## IChO in figures

**45** times the International Chemistry Olympiad has been held since 1968

**3** countries: Czechoslovakia, Poland and Hungary, have taken part in the very first Olympiad in 1968

**7** is the maximal amount of the Absolute Winners a country has ever had at IChO in the Third Millennium (since 2001), and the country was China. The second on the list is Russia, it has had two absolute winners within these twelve years.

**27** countries have hosted the Olympiad through 45 years of its history

**77** countries are taking part in the 45th IChO.

**5** times IChO was held in Russia, which is the maximal amount of Olympiads held in one and the same country. Two times out of five took place in the USSR period. The Olympiad was also held 4 times in Hungary, 4 times in Germany / GDR, 3 times in former Czechoslovakia.

**6270** school students have taken part in IChO over time.

Note, that the amount of participants doubles every decade. There were 350 students who took part in the first ten Olympiads, events number 11-20 altogether hosted 760 people, events 21-30 had 1480, then it went up to 2300 participants at the 31st - 40th Olympiads. The 41st to 45th events already had 1380 people.

**3** countries are new to IChO this year: Uzbekistan, El Salvador and FYR of Macedonia.

**291** students are taking part in the IChO this year.

**40** of them are girls.

## Meet Russian Chemists



**Alexander Butlerov**  
(1828-1886)

### First steps in chemistry

As an undergraduate of a boarding school along with his friends got some black powder and detonated it. Was punished by teachers for three days: had to stand in the corner of the dining room while everyone was enjoying the lunch, with a ridiculous sign on his neck «A Great Chemist.»

### Contribution to chemistry

A co-founder of the Theory of Organic Compounds Structure (1861). Explained the phenomenon of isomerism (1864). Discovered the principles of reversible isomerization (1862), laying down the foundations of tautomerism.

Was the first to study polymerization mechanisms in theory. Performed a number of important organic syntheses such as hexamine and formaldehyde polymer. He has also which ethyl alcohol from ethylene, that was the first total synthesis of an artificial sweetener.

### Interests

Teaching: founded the first Russian school for Chemists.

Experiments in gardening, floriculture and agriculture.

Insects. Had one of the world's best butterfly collection. Has published a book about bees.

*Quote: "A good chemist should be able to make complicated glass devices by his own hands"*

## What we thought it would be and what it really is

Catalyzer interviewed 34 IChO newcomers about what they thought and knew about Russia before coming and whether the reality met their expectations.

### What Russian word can you say?

нет / no – 7 answers

да / yes – 6

привет / hey – 6

здравствуйте / hello – 5

разрешите мне передать горячий, горячий привет / let me send a warm, warm regard – 1

до свидания / good bye – 2

спасибо / thank you – 4

пожалуйста / please – 4

ванна / a bath – 1

я немного говорю по-русски / I speak Russian a little – 1



150 Years  
Science For A Better Life



### Contacts

45th IChO web-site:

[www.icho2013.chem.msu.ru](http://www.icho2013.chem.msu.ru)

45th IChO secretariat:

[info@icho2013.chem.msu.ru](mailto:info@icho2013.chem.msu.ru)

### Catalyzer team

Lyudmila Levina

Vladimir Golovner

Ivan Afanasyev

Lena Brandt

Anastasia Grigorieva

Lena Yudina