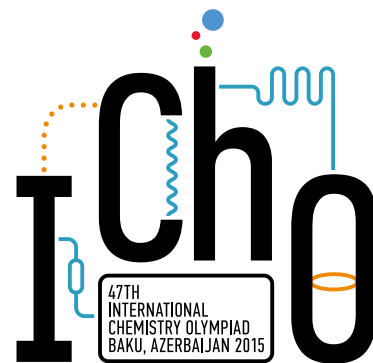


# CATALYZER

No.1, MONDAY, 28 JULY, 2014

LIFE IS A HUGE LAB



## WELCOME SPEECHES



On the occasion of the 47th International Chemistry Olympiad we would like to extend a very warm welcome to all the participants. On behalf of Azerbaijani chemists and myself, I would like to express our support to the colleagues attending the 46th International Chemistry Olympiad in Vietnam. The 47th International Chemistry Olympiad is to take place in Baku and as the rector of the Baku Branch of Lomonosov Moscow State University I am proud that this truly scientific event will take place at our University which ranks high in its status.

Azerbaijani chemists have managed to create a competitive scientific base in their field. This can be seen from the scientific schools and traditions that we have inherited from them. It is therefore our duty to support the continuation of these traditions and the bright youth that have decided to embark on this scientific journey. These young scientists, who chose to set foot on the thorny path of science are the ones to whom we owe our progress in the modern world. Today's doctors who turn into modern-day heroes by saving hundreds of lives every day, use chemicals developed by chemists and together with having an impact on our daily lives, chemistry influences the way world economics works.

Our planet is a small one, dear friends, and at times it resembles a chemical laboratory where we all, albeit in different forms, have the same task – to preserve our world. With future generations in mind we must arm ourselves with science and moral values without which science is dangerous and knowledge is insignificant. With this combination in mind I wish the participants of the 47th Olympiad new scientific discoveries and victories.

The day you arrive to Baku, a sunny city will be awaiting you on the shore of the Caspian Sea. All of you are certainly aiming for victory at this event, however, I hope that what you aim for the most is your eagerness to gain new friends here.

With warm regards and anticipation,

### Professor Nargiz Pashayeva

Rector of the Baku Branch of Lomonosov Moscow State University, Corresponding member of the Azerbaijan National Academy of Sciences, Chairperson of the 47th International Chemistry Olympiad.



It is our utmost pleasure to host the 47th International Chemistry Olympiad in 2015 in Baku, Azerbaijan. This is the first Chemistry contest of this level held in our country, and I am honored to hereby welcome young talents from a variety of countries in the ancient Land of Fire.

Azerbaijan is lavishly endowed with oil, gas and rich mineral resources useful in chemistry, metallurgy, construction, health and a number of other areas. The country is also rich with a broad array of metals, stones, thermal and mineral springs. This inter alia creates enormous potential for chemical research.

I hope the forthcoming Olympiad will become a turning point in further academic endeavors and career growth for a number of its participants.

Best of luck to all of you, and don't forget to enjoy your stay in Azerbaijan.

### Academician Akif Alizadeh

President of the Azerbaijan National Academy of Sciences



# AZERBAIJAN AN INVITING LAND OF FIRE

Abundant with natural resources, known for its centuries-old history and outspoken hospitality, Azerbaijan, a country linking Western Asia to Eastern Europe, has been traditionally playing an important role in the Caspian Basin and the Caucasus.

Washed by the Caspian Sea, Azerbaijan shares borders with five nations. With population over 9 million (estimate of January 2014) and the area of 86.6 thousand square kilometers, this is the largest country in the South Caucasus.

## ONE OF THE WORLD'S OLDEST HUMAN HABITATION HUBS

The Azykh Cave located in Garabagh dates back to pre-Acheulian Era, one of the oldest periods in human history (750 thousand to 1,5 million years ago), whereas impressive rock carvings (petroglyphs) in Gobustan are estimated around 40-10 millennium B.C.

## THE LARGEST COUNTRY IN THE CAUCASUS

Azerbaijan is the largest economy and industrial hub with the highest density of population in the Caucasus.

## A SUNNY COUNTRY

Annual solar time in Azerbaijan varies from 1800 to 2900 hours. The country boasts on 9 out of 13 climatic zones.

Waterfalls, lakes, natural reserves and the wildlife of Azerbaijan are fascinating indeed. Ancient forts, palaces, memorial sites and rock carvings dating back to the Stone Age, as well as the famous Zoroastrian shrine are no less interesting. Places with access to natural fire, sacred for the area's indigenous residents, retained their significance throughout centuries and found their way into the country's very name – Azerbaijan (i.e. the Land of Fire).



## A WONDERLAND

Azerbaijan is the hotbed to almost half of the world's existing mud volcanoes. This phenomenon is nominated to be among the new wonders of the world.

## A COUNTRY OF YOUNG POPULATION

By July 2013, about half of Azerbaijan's population was below the age of 30.

## THE AZERBAIJANI CULTURE

Azerbaijan is recognized for its deeply-rooted traditions. The country's unique culture manifests itself through music, poetry and architecture. Azerbaijan is home to a number of outstanding intellectuals, scholars, poets and musicians. Musical traditions of Azerbaijan have a very ancient past indeed. Mugham is a true gem of the country's rich musical heritage. The Azerbaijani literature is an integral part and parcel of the world literature with works by Fuzuli and Nizami recognized as masterpieces all over the world



# BAKU A CITY OF WINDS WITH MULTIPLE IMAGES

Azerbaijan's capital city of Baku is the largest urban center not only in the country, but all over the Caucasus and around the Caspian Sea. 28 meters below sea level, the city is in fact the lowest located capital in the world.

Baku's architecture is enormously versatile. Along with the ancient citadel ( the walled city of Icheri Sheher) and centuries-old Maiden Tower, both inscribed on the UNESCO list of World Heritage Sites, Baku features ultra-modern sky-scrappers and cutting-edge constructions like Flame Towers, Crystal Hall, the Heydar Aliyev Center, the SOCAR Tower, the Azerbaijan Tower, just to mention a few. The Baku Bay is particularly remarkable. Legacy of the first Oil Boom of late 19th-early 20th centuries featuring a charming blend of European and Oriental styles is another integral component of local architecture. With all these elements, the image of Baku is strikingly special and unique.

Since ancient times, Baku had been an important Silk Road entrepot due to its very convenient location at the crossroad of trade routes linking China and India with Middle East and Europe. Augmented by favorable climate and stable administration, this turned the town into a popular commercial hub and safe harbor for travelers as of the 1st century A.D.

Baku features a moderate climate, with landscape dominated by semidesert and known for the very peculiar winds of the Peninsula of Absheron. While the north wind, the khazri, cools down the weather in summer and chills it in winter, the southern one known as the ghilavar softens the climate year-round.

Social life in Baku is very vibrant. The city boasts of the whole range of cultural events, both local and international. Baku in recent period succeeded in making itself known as a host to a variety of high-level international undertakings, so the downtown and sea-front are a favourite meeting point of numerous visitors from all over the world.

Nighttime Baku presents an absolutely magic world of its own with both modern and heritage buildings illuminated in a very extraordinary manner.

# THE BAKU BRANCH OF LOMONOSOV MOSCOW STATE UNIVERSITY



The Baku Branch of Lomonosov Moscow State University was established on January 15, 2008. The tuition is based on the curricula of the Moscow State University with innovative technologies and broadly applied know-how. Each year, the students of the Branch actively partake in a variety of scientific events. In the course of its activities, the Branch succeeded in forging ties with leading universities in Israel, Romania, Turkey, Greece, Canada and the US.



The new Campus offers dormitories meeting the highest construction standards. The Campus is furnished with the state-of-the-art equipment, rich library, conference hall, canteen, student center, swimming pool and athletic facility with an overall area of 53,500 square meters. Five departments (faculties) are currently functioning at the Branch.



## THE DEPARTMENT OF CHEMISTRY

The reason for the creation of the department of Chemistry at the Branch is due to the fact that chemistry is one of the most developed sciences in Azerbaijan. A special attention towards chemistry is nurtured both by the specificity of the country's natural resources and the Government's policy aiming at further development of processing capacities.

Since chemistry is highly prone to experimenting, the Branch succeeded in creating the most enabling conditions for developing experimental skills in a variety of chemical studies. *The tools and equipment* offered at the Branch are very helpful not only in training process, but in basic research involving various fields of chemistry.

The number of laboratories is ever-increasing. In 2012, the total of 12 labs were offered for practical training sessions (workshops) in the following areas of concentration:

- inorganic chemistry (2 labs)
- analytic chemistry (2 labs)
- organic, physical, colloid chemistry and high-molecular compounds (2 labs)
- chemical technology (2 labs)
- radiochemistry.

Besides this, the Department of Chemistry has a computer lab offering classes in technology, quantitative methods in chemistry, basic software development, computer technologies in science and education (graduate studies), as well as physical workshop offering studies to first and second year students. Importance of these classes for future chemists shall not be overseen.



*Undergraduate studies (Bachelor degree) at the Department of Chemistry comprise 4 years.*

Three optional specialties, such as *petrochemistry, organic chemistry and physical chemistry*, are offered during the 4th year. Students undergo two practical training courses, i.e. the introductory session (the 1st year), and the production chemistry and technology session (the 4th year).

Graduate studies (Master Programs) in chemistry were launched in 2012 to train experts in the following three areas with highest demand in Azerbaijan: *petrochemistry, organic chemistry and physical chemistry*.

*Production cycle-related subjects* are given the highest priority in the curriculum of the Department of Chemistry. Better understanding of the role of chemistry, creative approach to chemical studies, basic skills in the synthesis of organic and inorganic compounds, capacities in studying various objects' properties, selection techniques in analytic methods and their further application are among the major objectives of the Department.

# TENTATIVE PROGRAM

| DATE        |           | STUDENTS  | MENTORS, OBSERVERS                         | GUESTS    |
|-------------|-----------|---|--|-----------|
| July 20 Mon | Whole day | Arrivals and Registration                                 |  |           |
| July 21 Tue | Morning   | Opening Ceremony  |  |           |
|             | Afternoon | Recreation/Excursion                                      | Lab Inspections                            | Excursion |
|             | Evening   | Free time   | 1 <sup>st</sup> Jury Meeting               | Free time |
| July 22 Wed | Whole day | Excursion / Lab Safety Instruction                        | Translation - Practical Exam               | Excursion |
| July 23 Thu | Morning   | Practical Exam  | Excursion                                  | Excursion |
|             | Afternoon |   |  |           |
|             | Evening   | Free time   | 2 <sup>nd</sup> Jury Meeting               |           |
| July 24 Fri | Whole day | Excursion   | Translation - Theoretical Exam             | Excursion |
| July 25 Sat | Morning   | Theoretical Exam  | Excursion                                  |           |
|             | Afternoon |   |  |           |
|             | Evening   | Reunion Party   |  |           |
| July 26 Sun | Morning   | Free time   | Score Marking                              | Excursion |
|             | Afternoon |   | 3 <sup>rd</sup> Jury Meeting               | Free time |
|             | Evening   |   |  |           |
| July 27 Mon | Whole day | Excursion   | Arbitration / 4 <sup>th</sup> Jury Meeting | Free time |
| July 28 Tue | Morning   | Free time<br>Closing Ceremony<br>Banquet - Farewell Party |  |           |
|             | Afternoon |   |  |           |
|             | Evening   |   |  |           |
| July 29 Wed | Whole day | Departures  |  |           |



## YUSIF MAMMADALIYEV (1905-1961)

The founding father of petrochemical studies in Azerbaijan is recognized for his new techniques of hydrocarbon chlorination and bromination involving catalysts. One of Y.Mammadaliyev's major accomplishments is the production of carbon tetrachloride, chloromethane, dichloromethane by means of chlorination of methane, initially in stationary catalyst, and then in hot layer.



## IZZET ORUJOVA (1909-1983)

The first woman in the Soviet Union conferred the PhD degree in oil processing technologies. The major area of her research was bound with lubricants production techniques, as well as production and application of their additives. A highly recognized expert in lubricants manufacture and upgrade, I.Orujova left a significant legacy of scientific works dedicated to this very important issue in modern petrochemistry.



## ALFRED NOBEL (1833-1896)

Swedish chemist, engineer, inventor of dynamite and a number of cutting-edge technical novices of the day. Shortly prior to his death, A.Nobel bequeathed his fortune to establish the famous Nobel Prize awarded as of 1901. About 12 percent of the funds allocated for the Prize came from the Nobel Brothers Naphtha Production Company Ltd., a business founded in Baku, Azerbaijan, in 1879 with Alfred Nobel as a shareholder.

|                          |  |
|--------------------------|--|
| Capital and largest city | Baku                                       |
| Official language        | Azerbaijani                                |
| Area                     |  |
| Total                    | 86,600 km <sup>2</sup>                     |
| Water (%)                | 1.6  |
| Population               |  |
| In 2014                  | 9 494 600 (89th)                           |
| Density                  | 105.8/km <sup>2</sup> (103)<br>274.1/sq mi |
| Currency                 | Manat (AZN)                                |
| Time zone                | AZT (UTC+04)                               |
|                          | Summer (DST)                               |



Weather information  
**30°C / 35°C**



Sponsors

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