Infochemistry Program
the Interdisciplinary Future in the Heart of Saint Petersburg

NOW YOU CAN!

Infochemistry Scientific Center (ISC) of ITMO University invites you to apply now for entering Infochemistry Master Program in English.

Research areas:

✓ Synthetic Cell
✓ Chemical Computer
✓ Origin of Life Chemistry
✓ Nonlinear Chemical Systems
✓ Theory of Solubility
✓ Adaptive Materials
✓ Diagnostic for Life (D4L)
✓ Robotization of Chemistry
✓ Digitalization of Chemistry
Do you want to study at Russia’s «First Non-Classical» ITMO University?

**Why Infochemistry?**

- Education based on research
- Interdisciplinary approach
- Studies in English
- Individual educational courses and module educational system
- Opportunity to attract the partner & Start Up
- Supervisors are researchers with international experience
- Free access to hi-tech equipment and research facilities
- Papers in high-impact journals
- Scientific internships at partner universities around the world
The Infochemistry Master’s program is aimed at training highly qualified specialists with an interdisciplinary understanding of complex systems in chemistry and biology, their experimental research, modeling and prediction, as well as those capable of solving the tasks of personalized medicine and nutrition at a new level of Big Data analysis and understanding analogies and Synergetics.

**Specialization**

- Digitalization of chemical technology
- Basics of molecular organized systems and Infochemistry

Such non-classical research-based study system leads to the ensuing success of our students.
Support for Talented Young Scientists and Students

Master’s students participate in various competitions and receive Awards and Scholarships:

- Increased State Academic Scholarship
- Research grants (“UMNIK”, practice-oriented research at ITMO University, etc.)
- Vladimir Potanin scholarship
- Grants and scholarships of the Government of St. Petersburg
- Russian Presidential Scholarship
- Scholarships for study or internships abroad (Erasmus+, etc.)
- Grants of KNVSH

and many, many others...
A joint laboratory of “Robotization and digitalization of materials science” is opened with Prof. Daria Andreeva-Baeumler and Prof. Konstantin Novoselov (Nobel Prize in Physics).

Scientific articles are published in High Impact Journals with TOP Scientists, e.g. Prof. George Whitesides (Highest Hirsch index rating of all living chemists).

Prof. Jean-Marie Lehn (Nobel Prize in Chemistry) provides any help and supports the development of such an interesting and new field of chemistry as Infochemistry.

He is a Scientific Advisor of ISC ITMO University.

A joint laboratory between Active Materials and Interfaces Laboratory of University of Liverpool (Prof. Dmitry Shchukin), United Kingdom and ISC ITMO University (Prof. Ekaterina Skorb), Russia
Scientific internship at University in Europe, USA, UK, Singapore, Israel – is a great opportunity to improve research skills and knowledge

Symon Koltsov went to Harvard University for an internship in the 1st year of his master’s degree and published a joint article with Prof. George M. Whitesides.

Anna Nikitina went to the National University of Singapore for an internship in the 2nd year of her master’s degree and prepare a joint article with the Nobel Laureate.

International workshop in the UK (University of Liverpool) to build professional links with partner University and gain new skills and knowledge.
What are we doing?
Our scientific life

Daily development and hard-working:

✓ Working in laboratories on projects
✓ Writing scientific articles
✓ Collaboration with the Scientific World, the World of Design, Industrial enterprises, the Media industry
✓ Working with other departments and institutes under Interdisciplinary projects and tasks
✓ Organization and Participation in the meeting, workshops, and conferences

This is all our Infochemistry Scientific Center of ITMO University
Master’s students work on their own research or industrial projects in one of the research groups of the ISC ITMO University and have free access to hi-tech equipment.

**Research groups**

**Infochemistry Group**
- Development of synthetic cell
- Chemical computer
- High-energy chemistry and self-organization

**Chemometrics Group**
- Electrochemical sensors
- Big data processing of multisensory systems
- Machine learning

**Computational Chemistry Group**
- Thermodynamic calculation of intermolecular interactions
- Computational chemistry of macromolecules
- Quantum chemical calculations of complex systems
- Solubility theory

**Digitalization of Food technologies Group**
- Personalized nutrition
- Food Industry Trends
- Functional food

**Biomimetic materials Group**
- New materials for regenerative medicine
- Photochemical modification of materials
- Capsules in medicine and biochemistry
- Metals nanostructuring

**Bioelementology Group**
- New integrative direction of life Sciences
- Assessment of the elemental status of a person
- Personalized correction of metabolic diseases

**IT and Engineering Group**
- Digital transformation in chemistry
- Digital chemical detection devices
- Information theory

The joint Laboratories

**Content of the program**

**Main disciplines**
- Scientific English;
- Data Processing and Analysis;
- Infochemistry;
- Topical areas of colloid chemistry;
- Molecular organized systems;
- System chemistry;
- Analytical chemistry;
- Selected chapters of physical chemistry and electrochemistry;
- Information theory and self-organization

Mathematics of the nonlinear chemical systems;
Non-linear chemical systems & chemical;
Percolation theory;
Robotization of chemistry;
Synchronization of chemical and biological oscillators;
Multimodal sensor systems;
DNA nanomachines for biomedical applications;
Autocatalysis and oscillating reactions.

Professors, Lecturer, TOP-scientists with international experience
High-tech equipment and the results
How to join to Infochemistry educational program in the ITMO University?

Steps to become a Master of ITMO University

1. Learn more about the Infochemistry educational program on the official website of the ITMO University:
   (Russian and English versions)
   https://abit.itmo.ru/program/13372/
   or
   and the website of the ISC ITMO University
   https://infochemistry.ru/

2. Register on the website to apply for entry to the ITMO master’s program in your account.
   Choose an Infochemistry Educational program

3. In your account, you can choose the following ways to entry to ITMO University:
   ✓ Competition of reports within the framework of the Congress of Young Scientists
     https://kmu.itmo.ru/static/scientists/32/1
     ✓ Portfolio Competition
     ✓ Online entrance examination
     ✓ Classic entrance examination

   More details about entrance examinations https://abit.itmo.ru/page/84/

4. Need to submit all the necessary documents to the Admissions office of ITMO University
   (Russia, 197101, St. Petersburg
   Kronverkskiy pr., 49, lit. A)

We recommend You to complete a Research Internship at the ISC (participants receive a recommendation letter that gives an additional points for entrance).

We recommend You to write us a letter (skorb@itmo.ru) before submitting your application form in the ITMO personal account for more detailed instructions.
Career options

The program’s graduates can work in different fields such as petrochemical and biotechnology units; chemical, chemical-technological, and nanoengineering enterprises; major pharmaceutical companies and holdings.

Master’s students may implement their academic career by enrolling in leading Ph.D. programs in chemistry and biotechnology. Our graduates will be in high demand at leading scientific institutions both in Russia and abroad.

Any questions you can write skorb@itmo.ru or Mob +7 (999) 210-39-77
Prof. Dr. Ekaterina V. Skorb – Director of Infochemistry Scientific Center