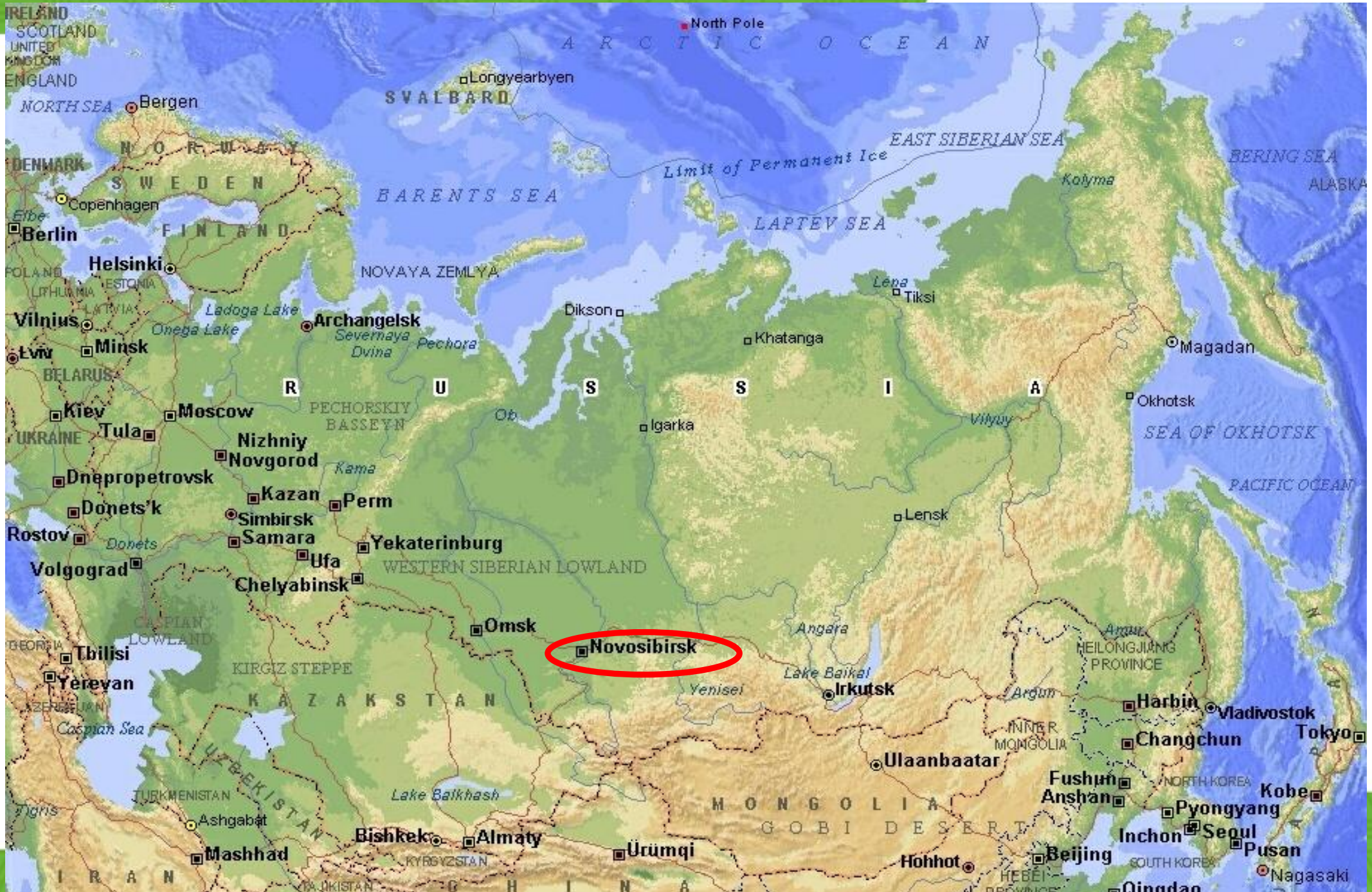


**«Nous ne vous rendrons  
pas plus intelligents, nous  
vous apprendrons  
à réfléchir»**



**N\*** NOVOSIBIRSK  
STATE  
UNIVERSITY  
\*The real science

# Pourquoi Novossibirsk ?





- Troisième ville de la Russie
- 1,5 Millions d'habitants
- 11 universités + 21 autres établissements d'enseignement supérieur
- env. 170.000 étudiants





# La NSU, une université à part





1957 fondation du Département sibérien de l'Académie des Sciences

1959 fondation de la NSU, pour préparer les futurs chercheurs destinés à travailler dans les instituts de recherche du département sibérien.



- Le centre scientifique de Novossibirsk ***Akademgorodok***
- 38 instituts et clusters de recherche
- 5000 chercheurs dont env. 50 membres de l'Académie









- Technologies de l'information et de la télécommunication;
- Biomédecine et biotechnologies;
- Appareillage à haut niveau technologique;
- Nouveaux matériaux, nanotechnologies, électronique .



**7200**  
STUDENTS

**1400**  
FOREIGN STUDENTS FROM 57 COUNTRIES

**143**

LABORATORIES  
AND SCIENCE  
EDUCATIONAL  
CENTERS

**209**

LEADING RESEARCHERS

H>20



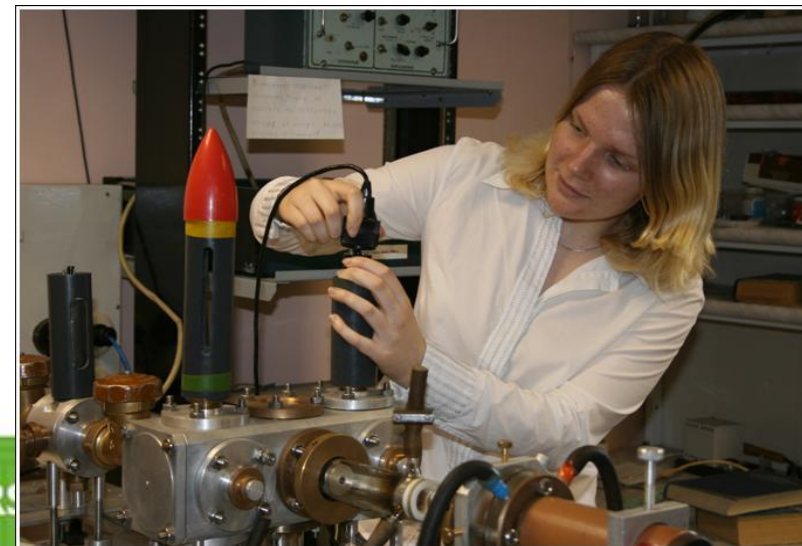
**24**

RESEARCH GRO  
INVOLVED IN  
INTERNATIONAL  
COLLABORATIO

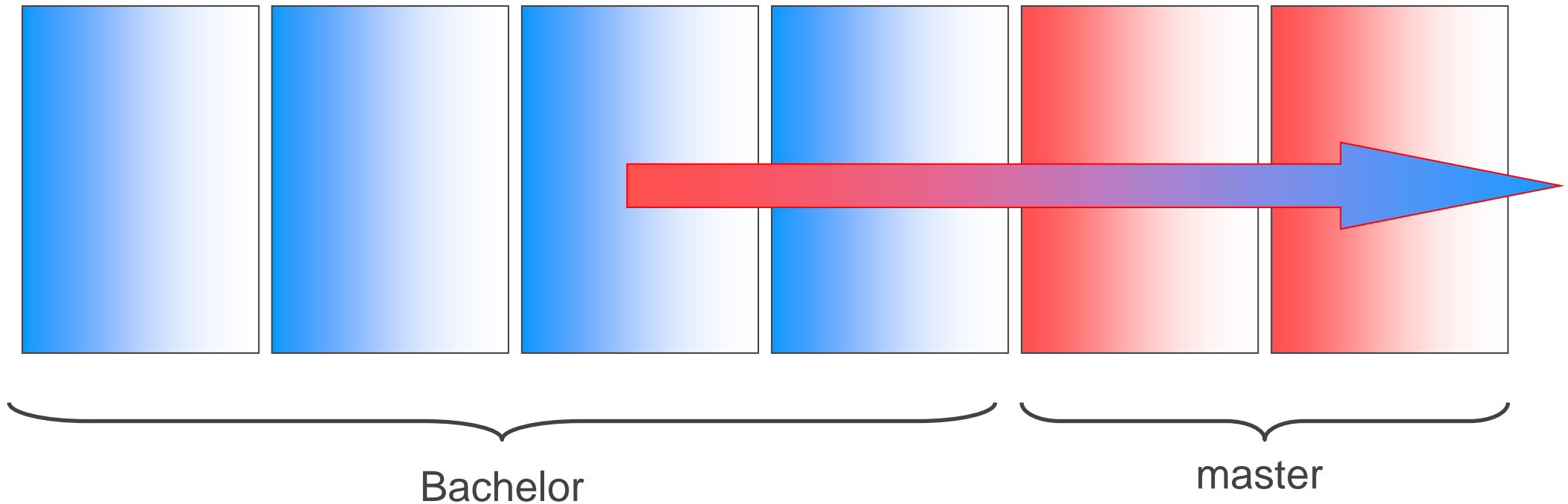


L'enseignement est dispensé par des **chercheurs enseignants**

Les étudiants sont intégrés dans les équipes de recherches des instituts dès la troisième année d'études



# L'enseignement par la recherche



Le choix du thème de recherche  
scientifique intervient dès la 3-4 année



According to QS World University Rankings NSU is the best Russian University for scientific research in 2014-2016



QS World University Rankings



The Academic Ranking of World Universities



Times Higher Education World University Rankings



QS University Rankings: Emerging Europe and Central Asia



QS Graduate Employability Rankings



THE World University Rankings. Top 100 universities with the best student-to-staff ratios



QS University Rankings: by Subject area. Natural Sciences



QS University Rankings: by Subject. Petroleum Engineering



QS University Rankings: by Subject. Physics & Astronomy



QS University Rankings: by Subject. Mathematics



QS University Rankings: by Subject area. Natural sciences. Employer Reputation



## FACULTES

**MATHEMATIQUES ET MECANIQUE**

**PHYSIQUE**

**ECONOMIE**

**TECHNOLOGIES DE L'INFORMATION**

**SCIENCES NATURELLES**

**GEOLOGIE ET GEOPHYSIQUE**

## INSTITUTS

**SCIENCES HUMAINES:**

**lettres**

**histoire**

**archéologie**

**journalisme**

**langues étrangères**

**MEDECINE et Psychologie**

**DROIT et Philosophie**



# Les partenariats avec la France (juin 2021)

## **Doubles diplômes :**

**Institut Polytechnique de Paris:** X, ENSTA,  
Télécom

**ParisTech:** Mines PT, Chimie PT, Ponts PT,  
ESPCI, IOGS, Agro PT

**ISAE-Supaéro**

**Université de Cergy-Pontoise**

**Université de Pau**

**Université de Montpellier-3**



## Accords d'échange:

### Universités

Paris-Ouest-Nanterre, Sorbonne Nouvelle, Paris-13

Paris-Est-Créteil, Paris-Saclay

Lille

Savoie-Mont-Blanc

Bourgogne Franche Comté

Bordeaux

Fédérale de Toulouse

Grenoble-Alpes



# Les partenariats avec la France (juin 2021)

## **Erasmus+:**

**CNAM**

## **Cadre**

ESCOM, INP Grenoble, ENSC Lille, Lasalle Lorient,  
CESI

## **Cotutelles de thèse**

Université de Poitiers

Université de Lorraine

PSL,

+2 accords en préparation



- Cours de russe langue étrangère
- Licence en russe
- Master en russe ou **en anglais**
- Semestre ou année d'échange
- Stages pratiques
- **Stages de recherche**
- Thèse (éventuellement en cotutelle)
- Post-doc
- Summer schools



[Oil and Gas Management - EN](#) - Department of Economics

[Financial Management - EN](#) - Department of Economics

[Quantum Technologies and Nanoscience - EN](#) - Department of Physics

[Classics and Philosophy - EN](#) - Institute for the Philosophy and Law

[Materials Science - EN](#) - Department of Natural Sciences

[Pharmaceutical chemistry](#) - Department of Natural Sciences

[Functional anatomy](#) - Department of Natural Sciences

[Paleobiological and Stratigraphic Aspects of Paleobiota Research - EN](#) - Department of Geology and Geophysics

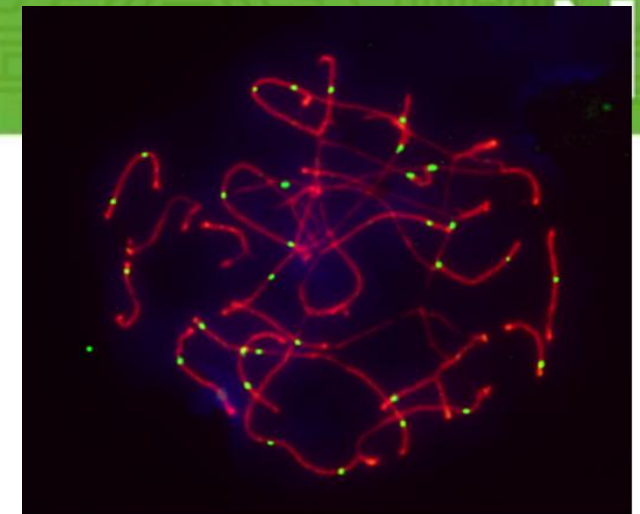
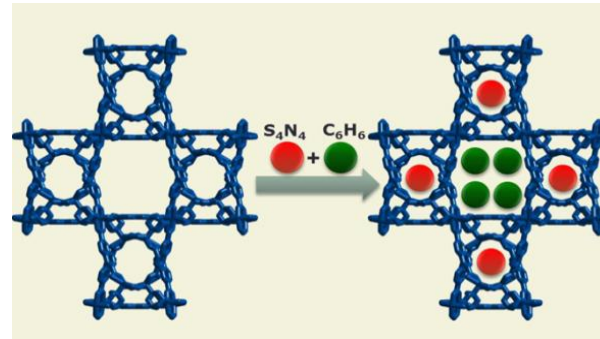
[Fundamental and Applied Geosciences - EN](#) - Department of Geology and Geophysics

**Également possible  
en semestre d'échange**

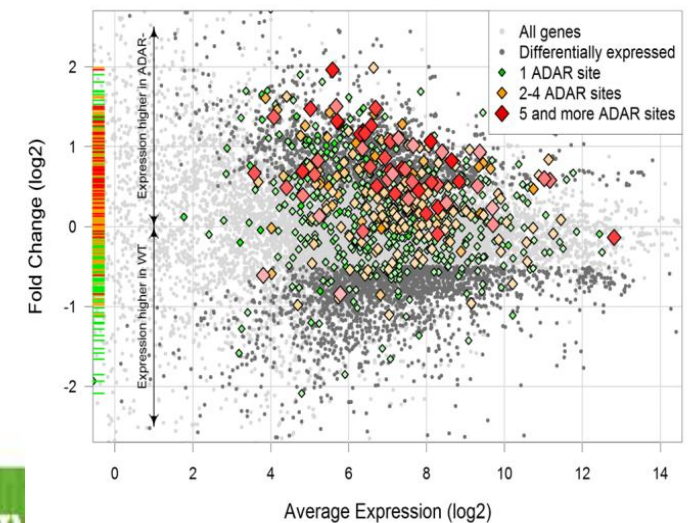
 		 
<p>NOVOSIBIRSK STATE UNIVERSITY</p> <p><b>INTERNSHIP PROPOSITION</b></p> <p><b>RESEARCH FIELD :</b> Catalysis, Nuclear Magnetic Resonance Spectroscopy and Imaging, NMR Signal Enhancement, hyperpolarization</p> <p><b>SUBJECT TITLE :</b> Catalytic approach for a major sensitivity boost in NMR and MRI</p> <p><b>SHORT DESCRIPTION :</b> One of the very hot subjects in modern magnetic resonance is signal enhancement by means of the so-called hyperpolarization. One of such techniques termed parahydrogen-induced polarization (PHIP) is based on the use of parahydrogen in the project involves synthesis, characterization and testing of various heterogeneous catalysts in hydrogenations of with the ultimate goal to establish the nature of active centers that produce PHIP in heterogeneous processes and to optimized catalysts able to provide the ultimate NMR signal enhancements of 3-4 orders of magnitude. In addition development of novel NMR spectroscopy and MRI applications to address model objects and operating reactors is produced with PHIP, with potential in vivo applications in mind.</p>	  <p>NOVOSIBIRSK STATE UNIVERSITY</p> <p><b>INTERNSHIP PROPOSITION</b></p> <p><b>RESEARCH FIELD :</b> Operations Research, Discrete Optimization, Computational Geometry</p> <p><b>SUBJECT TITLE :</b> Wireless Sensor Networks Optimization</p> <p><b>SHORT DESCRIPTION :</b> Modern Wireless Sensor Networks (WSN) consists of intellectual devices – sensors, which can gather data inside an area which is called the coverage zone of the sensor and transmit it hop-by-hop to the base station (BS). Since the sensing energy consumption is proportional to the covered area, the problem of energy consumption minimization is reduced to the classical problem of coverage density minimization.</p>	<p>NOVOSIBIRSK STATE UNIVERSITY</p> <p><b>INTERNSHIP PROPOSITION</b></p> <p><b>RESEARCH FIELD :</b> Biochemistry, molecular biology</p> <p><b>SUBJECT TITLE :</b> Comparative analysis of the base excision repair system in the cells of naked mole-rat (<i>Heterocephalus glaber</i>) and rodents vs human</p> <p><b>SHORT DESCRIPTION :</b> The naked mole-rat (<i>Heterocephalus glaber</i>), also known as the desert mole rat has a biological traits that distinguish this organism from rodents. It is also remarkable for its extended resistance to cancer and its longevity. The DNA repair systems safeguard the integrity of the genome to prevent development of cancer and age-related diseases. The base excision repair (BER) is the main strategy to remove the most common lesions – altered bases (alkylated, oxidized, and others) – from genomic DNA. Status of the BER systems in the aforementioned cells will be studied at the levels of protein expression and functionality. The protein expression will be analyzed by real time PCR and immunochemistry. The functionality will be determined by specific tests of proteins in the cell extracts with chemically reactive analogs of the BER DNA affinity labelling technique.</p>
 <p>Figure 1. Journal covers of recently published papers:</p> <p>a) K.V. Kovtunov, D.A. Barsky, O.G. Salnikov, D.B. Burueva, A.K. Khudorozhkov, A.V. Bukhtiyarov, I.P. Prosvirin, E.Y. Bukhtiyarov, I.V. Koptiyug. Strong metal-support interactions for palladium supported on TiO catalysts in the heterogeneous hydrogenation with parahydrogen. <i>ChemCatChem</i>, 7, 2581-2584 (2015).</p> <p>b) Z.A. Corma, O.G. Salnikov, D.A. Barsky, K.V. Kovtunov, I.V. Koptiyug. Single-atom gold catalysis in the context of parahydrogen-induced polarization. <i>Chem. Eur. J.</i>, 21, 7012-7015 (2015).</p> <p>c) K.V. Kovtunov, D.A. Barsky, A.M. Coffey, M.L. Truong, O.G. Salnikov, A.K. Khudorozhkov, E.A. Inozemtseva, I.P. Prosvirin, Zhivonitko, I.V. Skopin, I.V. Koptiyug. Strong <sup>31</sup>P nuclear spin hyperpolarization produced via reversible chemical exchange of parahydrogen. <i>Chem. Commun.</i>, 51, 2506-2509 (2015).</p> <p>d) Bukhtiyarov, K.W. Waddell, E.Y. Chekmenev, I.V. Koptiyug. High-resolution 3D proton MRI of hyperpolarized gas and Rh/TiO<sub>2</sub> heterogeneous catalyst. <i>Chem. Eur. J.</i>, 20, 11636-11639 (2014).</p> <p><b>ADDRESS OF INTERNSHIP WHEN DIFFERENT FROM THE HOST INSTITUTION:</b> International Tomography Center, SB RAS, Novosibirsk, 630090, Russia</p> <p><b>INTERNSHIP SUPERVISOR:</b> Igor V. Koptiyug, Dr.Sci (habilit.)/Prof., Head of Laboratory of Magnetic Resonance Microtomography Center, SB RAS, and Chief Research Scientist (part time), Novosibirsk State University</p> <p><b>LANGUAGE:</b> English</p> <p><b>Duration:</b> 3-4 months</p> <p><b>REQUIREMENTS:</b> skills in magnetic resonance and chemical synthesis, creativity, communicability</p>	 <p>Collected by the sensors data must be delivered to the BS consuming the minimal communication energy which is proportional to the transmission distance. So, another problem is the synthesis of a communication spanning tree which consumes the minimal communication energy. This is a well known strongly NP-hard problem, and the approximate polynomial algorithms are desirable.</p> <p>Another problem, which arises in the context of WSN optimization, is conflict-free data aggregation which is strongly NP-hard problem too. If communication tree is known, then we don't know the complexity status of the problem.</p>	 <p><i>Heterocephalus glaber</i></p> <p>Activity of the species normalized by kilogram of body weight (years): naked mole-rat – 670, mouse – 70, rat – 7, human – 1.</p>  <p>Laboratory of Bioorganic Chemistry of Enzymes</p> <p>Mikhail Kutzov is marked by red oval</p>

<https://english.nsu.ru/admission/programs/internships/>

- Mathematics
- Physics
- IT
- Chemistry
- Biology
- Bioinformatics
- Earth Sciences
- Economics
- Archeology

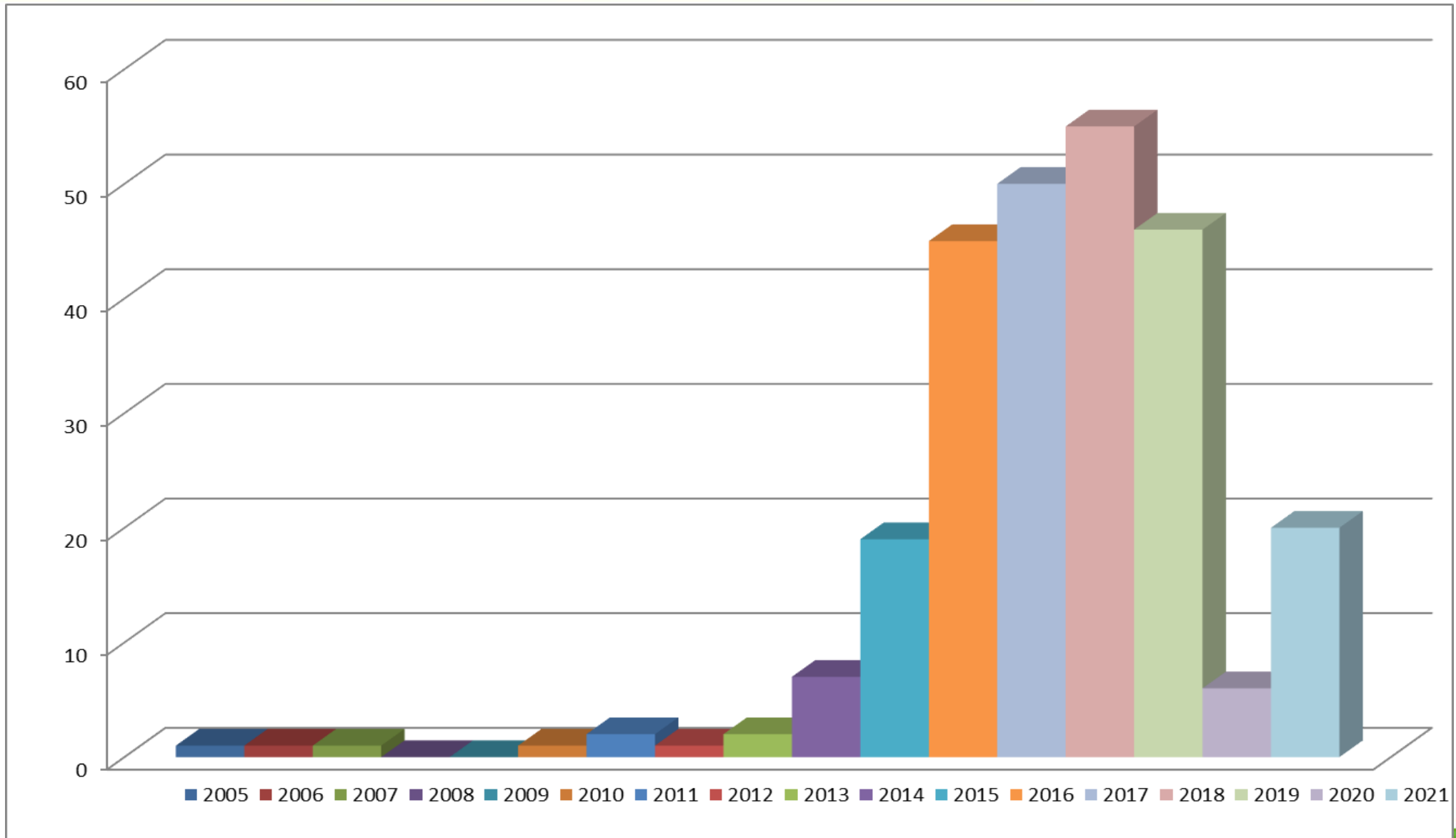


**A-to-I editing globally regulates expression levels of edited mRNAs.**



# Statistique des stages de recherche

N\*



de 45 établissements français





# CFSFR

CENTRE FRANCO-SIBERIEN  
DE FORMATION ET DE RECHERCHE



2012-2016





**2007 – 2020**



12-15 novembre 2019

# Salon de l'enseignement supérieur (sibérien) régional

Avec le soutien de Rossotroudnitchestvo  
et sous l'égide du « Dialogue de Trianon »



## Le(s) Salon(s)

N\* Новосибирский  
государственный  
университет  
\*НАСТОЯЩАЯ НАУКА

## II Сибирско- французский Салон высшего образования

22-23 сентября 2020 г.  
Мероприятие пройдет онлайн



# III Salon franco-sibérien de l'enseignement supérieur et de la recherche

**13-14 octobre 2021**



**Site en préparation**

