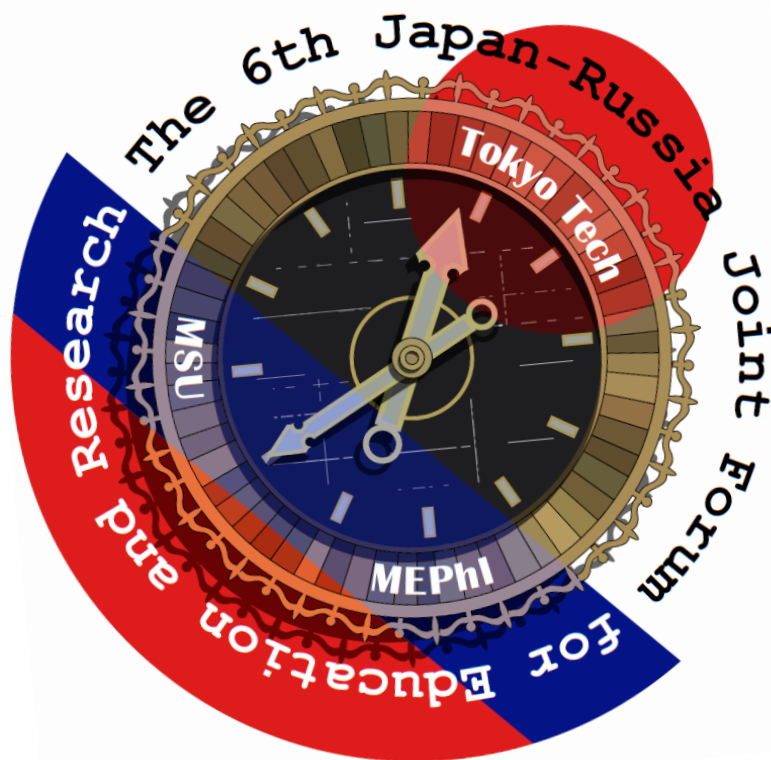


Tokyo Institute of Technology  
Inter-University Exchange Project with Russia

# The 6<sup>th</sup> Japan-Russia Joint Forum for Education and Research



Tokyo Tech

*“Nurturing leader scientists and engineers for Healthcare, medical, nuclear power and energy industries between Japan and Russia.”*

## Schedule

### Students Discussion Session

Date : December 18 (Fri) , 2020

Time : Moscow time 9:30 ~ 12:00

Tokyo time 15:30 ~ 18:00

### Presentation Session

Date : January 28 (Thu), 2021

Time : Moscow time 10:00 ~ 11:30

Tokyo time 16:00 ~ 17:30

The forum is conducted by remote system (Zoom)

This forum will be held as one of the programs of Inter-University Exchange Project with Russia through academic exchange with Tokyo Institute of Technology (Tokyo Tech), Moscow State University (MSU) and National Research Nuclear University, MEPhI (MEPhI).

Normally, the forum is held in conjunction with all three universities in one location. However, this year, due to the influence of COVID-19, the forums will be held separately for Life science and Nuclear Engineering.

This forum in life science field has been held between MSU and Tokyo tech (as the 6th forum) .

# Students Discussion Session (Dec. 18)

(Tokyo) / (Moscow)

15:30 / 9:30      Opening and introduction of the discussion  
                         Specially Appointed Prof. Onishi Norimasa, Tokyo Tech

15:35 / 9:35      Students Group Discussion

18:00 / 12:00     Closing

## 1. Participants

### Tokyo Tech

Name	School year	Affiliation
Kiyota Masaya	Master student 1st	School of Life Science and Technology
Murakami Hiroki	Master student 1st	School of Life Science and Technology
Hamamoto Koji	Master student 1st	School of Life Science and Technology
Nishimura Kai	Master student 1st	School of Life Science and Technology
Takagi Shu	Bachelor 4th	School of Life Science and Technology
Ng Sin Ying	Bachelor 4th	School of Life Science and Technology
Voon Yan Ming	Bachelor 4th	School of Life Science and Technology
Ramamoorthi Sivashankari	PhD student 1st	School of Life Science and Technology
Vibriani Agnia	Master student 2nd	School of Materials of Chemical and Technology

### Moscow State University (MSU)

Name	School year	Affiliation
Ekaterina Guseva	Bachelor 5th	Faculty of bioengineering and bioinformatics
Valeria Zubareva	Bachelor 3th	Faculty of bioengineering and bioinformatics
Elizaveta Korunova	Bachelor 6th	Chemistry Department
Ekaterina Konopkina	Bachelor 6th	Chemistry Department
Maria Kraynova	Bachelor 6th	Chemistry Department
Dmitry Senko	Bachelor 6th	Chemistry Department
Artemiy Sukhanov	Master student 1st	Faculty of Biotechnology
Nikolay Kolzhetsov	Master student 1st	Faculty of Biotechnology

## 2. Teaming up and Topics for discussion

### Team 1

Members: Kiyota Masaya, Vibriani Agnia (Tokyo Tech)  
Guseva Ekaterina, Korunova Elizaveta (MSU)

Topic: Do genetically modified (GM) crops, (and future GM livestock) contribute to global food security? What are the benefits in that case? Also, how can the general acceptability of consumers be achieved?

### Team 2

Members: Murakami Hiroki, Hamamoto Koji (Tokyo Tech)  
Zubareva Valeria, Kraynova Maria (MSU)

Topic: What are the solutions to the increased costs of health care (especially pharmaceutical costs)?

### Team 3

Members: Nishimira Kai, Takagi Shu, Ng Sin Ying (Tokyo Tech)  
Konopkina Ekaterina, Sukhanov Artemiy (MSU)

Topic: What are the medical and ethical issues about gene modification (Including genome editing) in humans? Is there a solution to that?

### Team 4

Members: Ramamoorthi Sivashankari, Voon Yan Ming (Tokyo Tech)  
Senko Dmitry, Kolzhetsov Nikolay (MSU)

Topic: What should the world do to prepare for future epidemics of emerging infectious diseases?

### 3. Background of each topic

- (1) Do genetically modified (GM) crops, (and future GM livestock) contribute to global food security? What are the benefits in that case? Also, how can the general acceptability of consumers be achieved?

As of 2018, genetically modified (GM) crops were grown on a total of more than 190 million hectares of farmland in 26 countries around the world. They are grown on a particularly large scale in North and South American countries, with soybean, maize, cotton and oilseed rape being the major GM crops, with herbicide-tolerant and pest-resistant varieties being the most used. These GM crops are said to offer benefits to consumers as well as benefits to producers. On the other hand, although all the "reports of safety concerns" have been scientifically denied, consumers are still concerned that GM crops may be harmful to their bodies.

- (2) What are the solutions to the increased costs of health care (especially pharmaceutical costs)?

Due to the development of medical technology and drugs, human life expectancy is increasing and the number of elderly people is increasing. Since the elderly are more susceptible to diseases, the total cost of medical care increases even if the cost of medical care for each person is the same. In addition, the diseases that are treated are also changing, and they are not acute diseases such as infectious diseases, but chronic diseases such as cancer and lifestyle-related diseases, which require expensive medicines and last for a long period of time.

- (3) What are the medical and ethical issues about gene modification (including genome editing) in humans? Is there a solution to that?

The 2020 Nobel Prize in Chemistry has gone to Emmanuelle Charpentier and Jennifer A. Doudna "for the development of a method for genome editing." Applying the technology to crop and livestock breeding (breed improvement) is expected to dramatically improve breeding efficiency and accelerate the development of useful crop and livestock breeds for consumers and producers. In addition, it has already been used in the development of new treatments for cancer and research on new coronaviruses in humans. On the other hand, the problem of off-target gene disruption has been pointed out. Furthermore, in its announcement, the Royal Academy of Sciences said that although the technology could bring great benefits to humanity,

"humanity will face new ethical challenges" because it can also be used to rewrite the genetic information of an unborn child.

- (4) What should the world do to prepare for future epidemics of emerging infectious diseases?

Humans have experienced many infectious diseases since the beginning of time, such as the "Black Death" (also known as the Pestilence), which is estimated to have killed around 85 million people worldwide, or around 20-30 million people, or one-third to two-thirds of the European population at the time. There is also the Spanish Flu, which is considered a type of bird flu. The Spanish Flu began to spread among U.S. soldiers in 1918 and became the first flu pandemic humans ever encountered, infecting 600 million people and eventually killing 40 to 50 million. Although we are now in COVID-19, we can assume that there will be more global epidemics of new infections in the future.

## **Presentation Session (Jan. 28 2021)**

(Tokyo) / (Moscow)

- 16:00 / 10:00    Opening address  
                    Prof. Nakamura Hiroyuki, Tokyo Tech
- 16:35 / 10:35    Report of student workshop discussion  
                    (Three teams, 15 min. including Q/A for one team)
- 16:35 / 10:35    Team 1
- 16:50 / 10:50    Team 2
- 17:05 / 11:05    Team 3
- 17:20 / 11:20    Team 4
- 17:40 / 11:40    Closing address  
                    Prof. Feniouk Boris, MSU