

**INTERNATIONAL
NATURAL
SCIENCES
TOURNAMENT**

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Chemistry, Life Science, Physics, Biology,
Pharmaceuticals, Engineering

Yerevan 2024

WHAT IS INST?

International Natural Sciences Tournament (INST)


is an interdisciplinary team competition where students solve applied scientific problems in the fields of chemistry, physics, biology, medicine, and engineering.




The Tournament helps to form collaborations between participants, scientific experts, and industry. The main goal of the competition is to teach students how to apply their knowledge to solve current practical scientific and industrial problems.

HOW DOES THE TOURNAMENT DIFFER FROM THE OLYMPIADS?


Olympiad:

 **Tasks:** Limited to knowledge-testing tasks.
In most cases, there is only one correct answer.

 **Lack of Polemics:**
In the Olympiad format, you cannot defend your ideas as experts evaluate your solutions in isolation from you.

VS

Tournament:

 **Tasks:** Provides a multitude of possibilities within each task. Almost every presented solution to a specific problem could be deemed correct.

 **Defense of Ideas:** The need to adeptly defend solutions before other participants and highly proficient experts.

The Tournament is an idea: to create a science show where ideas can be presented and evaluated from different points of view.

EXAMPLES OF PROBLEMS THAT STUDENTS SOLVE AT THE TOURNAMENT:

Glycol (2015)

CLARIANT^E

Glycols form the base of heat transferring fluids used in food factories for cooling products during the manufacturing process. These coolants have a long, though finite, service life. After some time, due to the deterioration of operational properties, the user is confronted with the problem of utilization. Currently, methods of combustion and microbial decomposition are used for this purpose. Each of them has its own weaknesses and harms the environment.

The volume of the coolant, which has to be recycled simultaneously, depends on the production capacity and typically is tens of tons.

Propose an economically feasible method of disposing glycol-containing heat transferring fluids, which will improve the technology of handling this type of waste and reduce the negative impact on the environment compared to the already known approaches.

Sunken Franken (2020)

The oil tanker “Franken” lies on the bottom of the gulf of Gdansk and the Baltic Sea is in ecological danger due to the fuel on broadside of the tanker. The existing approaches to deal with this problem such as defueling or lifting the ship are rather expensive and technically complicated. Suggest another method and compare it with the existing methods.

The masks (2021)

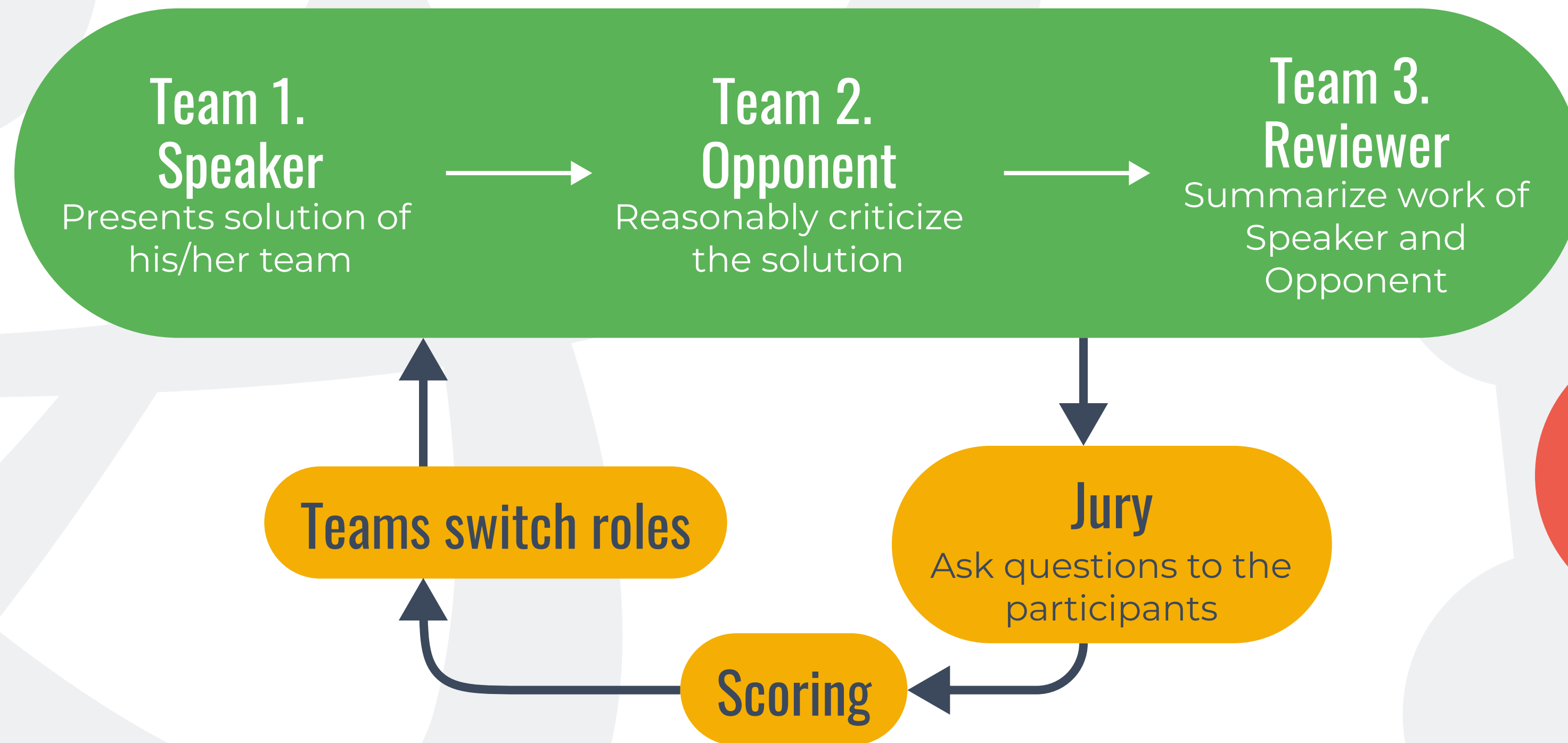
The coronavirus pandemic makes millions of people all around the world wear protective masks. However, the masks are used not only for protection from viruses and bacteria but also from toxins, various types of dust, etc. Suggest a mask model with an indicator that would change any noticeable for anyone characteristic in case of any mask dysfunction. The indicator mask model has to be safe in usage.

STRUCTURE OF INST



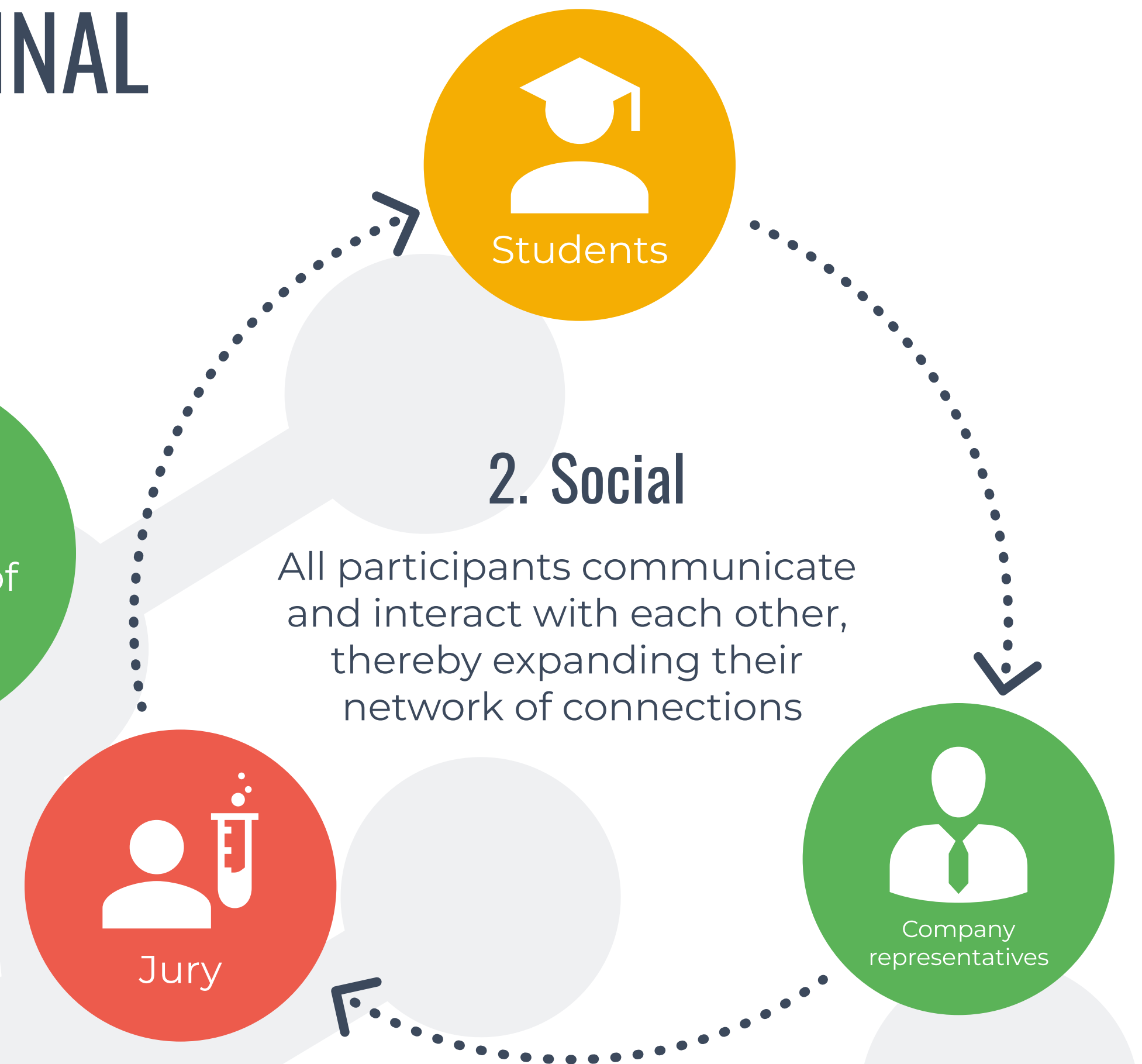
TWO MAIN COMPONENTS OF INST'S GRAND FINAL

1. Scientific



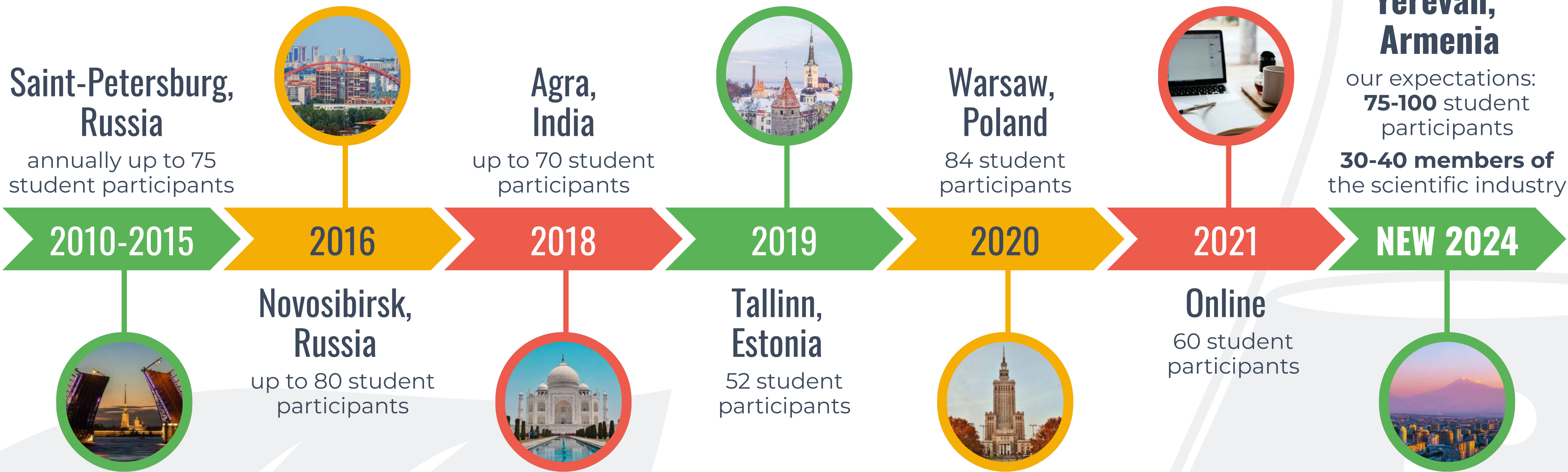
2. Social

All participants communicate and interact with each other, thereby expanding their network of connections



During the competition, students enhance their soft skills, develop scientific discussion abilities, exchange experiences with international students, find like-minded individuals, and integrate into the international scientific community.

HISTORY OF GRAND FINAL



GEOGRAPHY OF THE TOURNAMENT PARTICIPANTS



We reached more than 25 nations over the 13 years of INST

PARTICIPANTS ABOUT INST

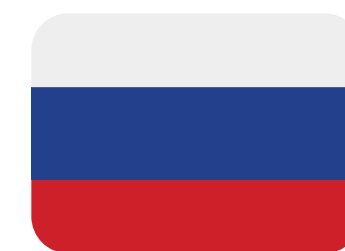
**Mohammed Shabbir Rampurwala,
Erudite (2015 University of Mumbai)**



INST for me it's something more than a science tournament, spreading wings and building relationship across the globe like a family. It's a great platform to showcase your talent and scientific skills in various aspects.

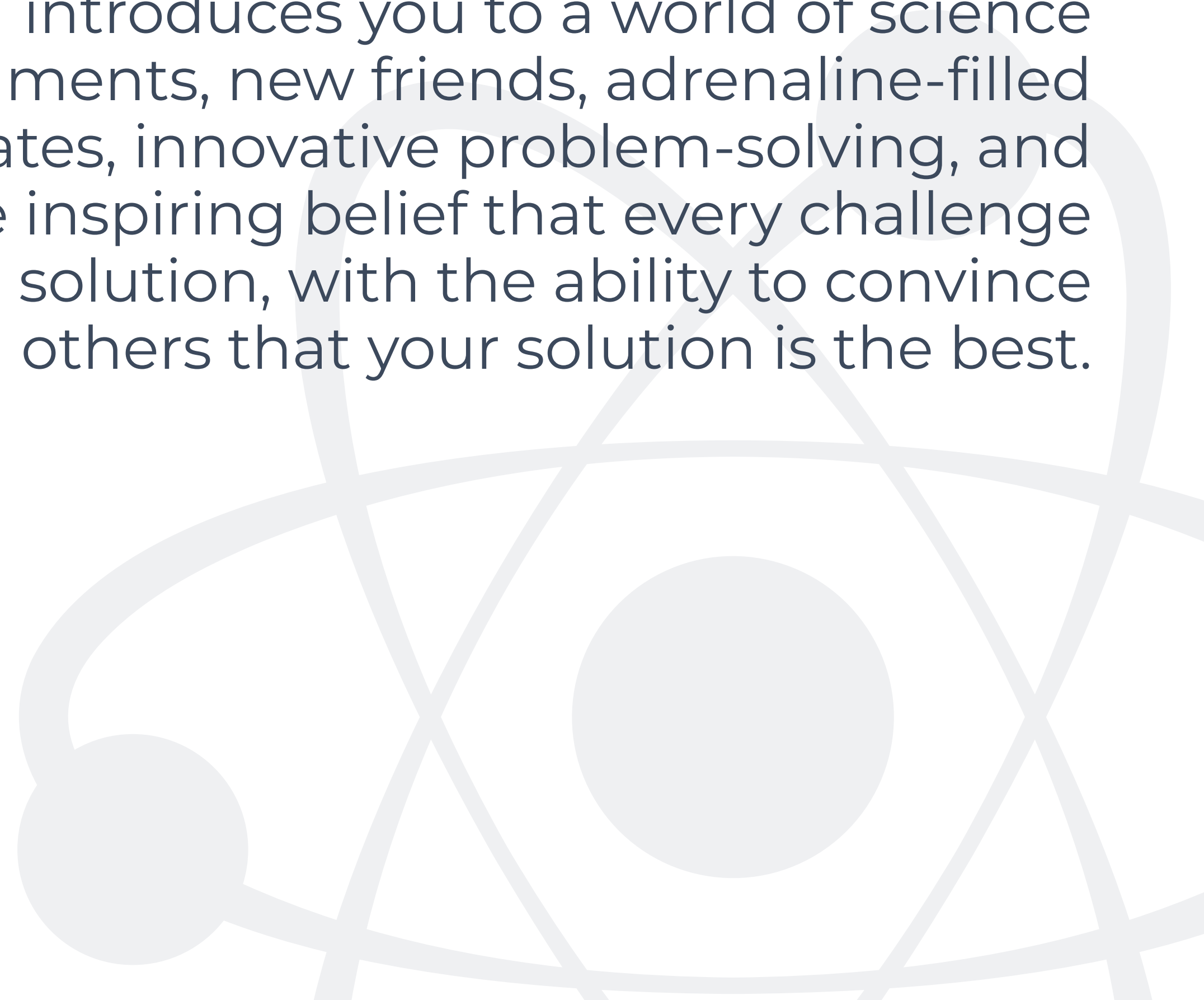


PARTICIPANTS ABOUT INST



**Yuliya Orekhova, Chem Team
(2014, Sain Petersburg State University)**

INST introduces you to a world of science tournaments, new friends, adrenaline-filled debates, innovative problem-solving, and the inspiring belief that every challenge has a solution, with the ability to convince others that your solution is the best.



PARTICIPANTS ABOUT INST

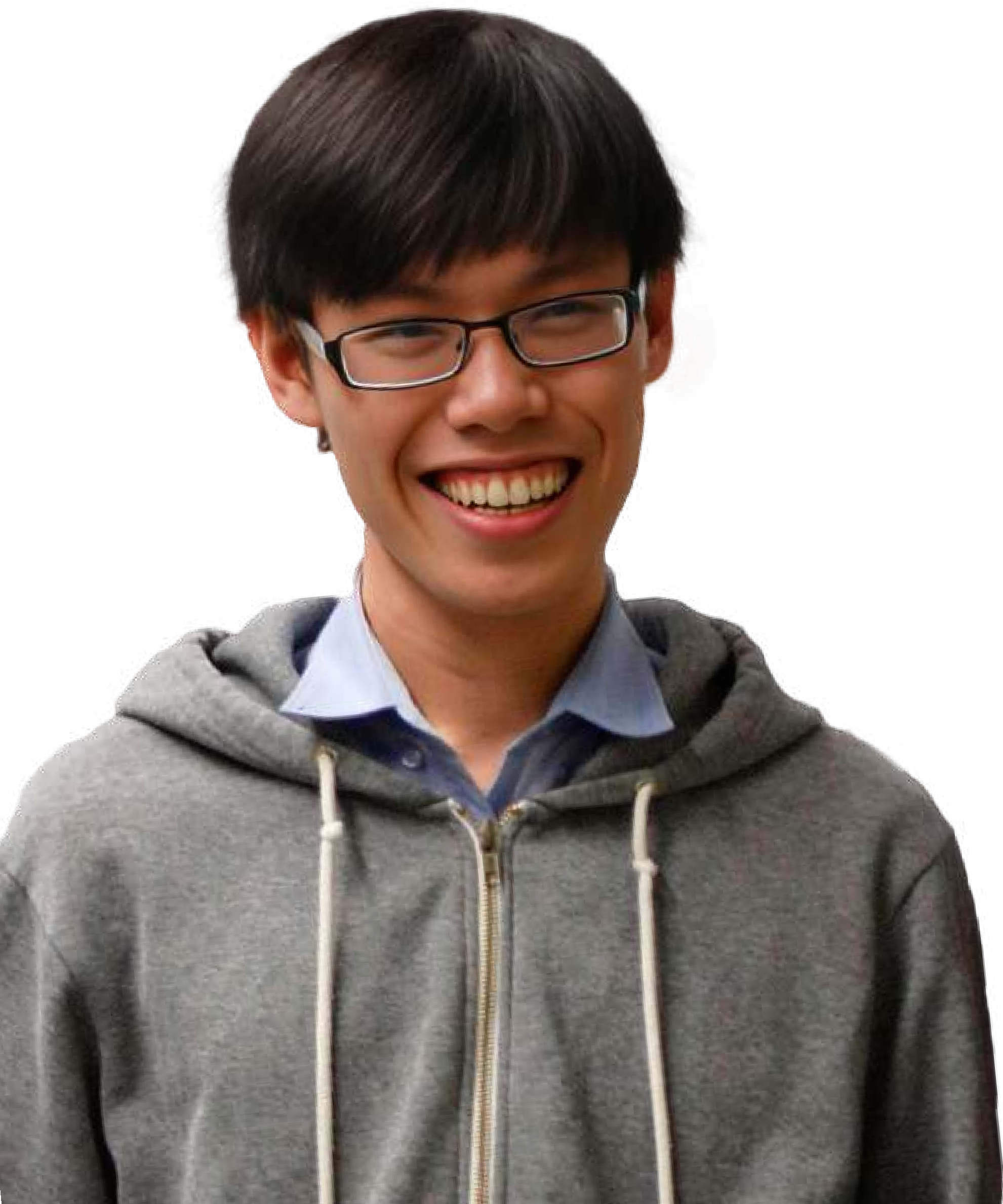
Chantelle Booysen, UFS
(2019, University of the Free State)



My team thoroughly enjoyed participating and applying our knowledge in the various INST challenges. INST provides an open platform to share and counter-argue ideas scientifically and constructively while connecting with fellow scientists across the globe. The tournament promotes critical thinking, creativity, problem identification and communication - four skills that can advance the career of a young academic.



PARTICIPANTS ABOUT INST



**Gabriel Kam Mao Quan, KiasuNUSPS
(2016, National University of Singapore)**

During the tournament, I picked up new scientific knowledge (especially from the other disciplines) while reviewing my own. INST has boosted my interest in interdisciplinary science and helped me appreciate its usefulness. We also got to experience other cultures—there was a cultural exchange time where the different teams shared about their country and culture.

COMPANIES ABOUT INST



The global mission of the INST is to give students the possibility to believe in themselves and come up with the idea that their knowledge can change the world. The local mission of the INST is to change educational system to a better way, to help everyone present their ideas clearly, and defend them correctly.

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 **Selvita**



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