

# Basic regulations of the National Student Team Contest



The permanent link to the Rules is given in the page <https://enanos.nanometer.ru/about.html>

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Moscow  
2020

## Introduction

The National Student Team Contest is a national stage of the International Olympiad on Nanotechnology (**International NanoOlympiad, INO**) having a goal to select a winner student team for participation in INO with a support of the Organizing Committee of the Russian Internet Olympiad on Nanotechnology (RION) “Breakthrough to the Future”. The INO is a complex mixed annual collaborative international event which holds an international competition among university level students and could combine a pre-olympic scientific conference for young scientists and the Olympiad itself. INO is organized to improve motivation of the students towards deeper knowledge in nanotechnology and better skills for innovative applications of real scientific and industrial problems. It is also a platform for international collaboration and networking in the relevant areas of nanotechnology. Participants propose their competitive ideas and plans as nanotechnology based solutions for focused problems related to global challenges. These rules are based on regulations of RION and take into consideration of the approved regulations of INO system of olimpiads and events.



*First INO package*

## Organizers

Lomonosov Moscow State University and the Fund for Infrastructure and Educational Programs are the organizers of RION and NSTC as a part of RION. At the same time, the NTSC program and regulations are being coordinated in accordance with the annual INO rules to provide better results of National Student Team participation in the INO. Persons responsible for contacting with INO representatives are named from the RION Organizing Committee official members. The NSTC Jury has to be formed by the Organizers among leading scientists and researchers in the field of nanotechnology, chemistry, physics,



biology, innovations. The Jury rates the solutions of the participants on the basis of full independence, transparency and scientific ethics. The final results are confirmed by the responsible representatives of the Organizers prior to a public announcement of the winners of the contest. The winners are supported within the budget limits of RION in terms of travel and living expenses in Moscow and travel expenses to INO with limited finding of their stay in the host country of INO.

### Contest brief description

The NSTC is a competition among bachelor, master and PhD students of higher school in Russia considering theoretical, experimental and creative skills based on nanotechnology and nanomaterials subjects. The Contest selects the best **national team members** for participation in the International NanoOlympiad contest on nanotechnology as determined by regulations of INO. The NSTC consists of two main steps – a distant stage demanding preparation of short overviews of a proposed experimental project and its possible practical applications and a consulting and / or training stage with experts of RION after selection of the NTSC winners. The sum achievements of both the stages will play the main role for the formation of a Russian Nation Team of Students in nanotechnology assumed to take part in the INO or satellite international events of INO. The NTSC is a part of the RION, by definition. The official language for the Contest is English. PhD level students can join the Contest by special approval to be received from RION.



*The First INO people*

### Scope

NSTC includes but not limited for both theoretical skills, experimental studies and searching for innovative solutions in the fields of nanotechnology as closely related to modern materials science, physics, optics, inorganic, organic, analytical, physical

chemistry, biochemistry, biophysics, nanomedicine, engineering of high-tech devices and IT technology, material treatment, technical entertainment, marketing of nanotechnology products.

## Main Goal and Tasks

The main Goal of NSTC consists in selection of the best students to demonstrate national team achievements on the international level.



### INO Event Program (9-15 Apr. 2018)

DAY	Day 0	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
Time	Monday 20-Farv. 09-Apr	Tuesday 21-Farv. 10-Apr	Wednesday 22-Farv. 11-Apr	Thursday 23-Farv. 12-Apr	Friday 24-Farv. 13-Apr	Saturday 25-Farv. 14-Apr	Sunday 26-Farv. 15-Apr
07:00-08:30		In Campus Breakfast	In Campus Breakfast	In Campus Breakfast	In Campus Breakfast	In Campus Breakfast	In Campus Breakfast
08:30-09:00		Reception					
09:00-10:20		S1-Opening ceremony (9:30-10:20)	M3-Creativity Session	M5-Business workshop (TBD)	M8-Nanoproduct Commercialization Workshop	Demo Session#2 Part1 (Business & Impact)	TBD
10:20-10:40		Break	Break	Break			Break
10:40-12:00		S2-INO event Overview	M4(1)-Mixed Team Challenge (Session 1)	M6-Visit to Pardis Park Company (TBD)			Closing and Awarding Ceremony
12:00-13:15		Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
13:15-14:30	Transfer to Hotel	M1-Workshop on Safety, Standardization and Regulatory aspects of nanoproducts		M7-Pitching Workshop	M9-IP licensing, Partnering	Demo Session#2 part2 (Business & Impact)	
14:30-15:30		T1-Pardis Tech. Park Exhb. Tour	M4(2)-Mixed Team Challenge (Session 2)				
16:00-17:00		M2-Workshop on Environmental aspects of nanotechnology application			Demo Session#1 (Technical)		
17:15-17:30		Break		T2-Tehran Tour(1) & Dinner		T3-Tehran Tour(2) & Dinner	
17:30-19:00		Teamwork/BM Mentoring	Teamwork				
19:00-20:00	Dinner	Networking Dinner	Dinner		Dinner		
20:00-21:00	Student Networking (Optional)	Teamwork	Teamwork		Teamwork		

### Schedule of the First INO



The Contest tasks include:

- dissimilation of advanced knowledge and state-of-art on modern nanotechnology, nanomaterials, material processing and practical analytical tools among future specialists in nanotechnology and other high technologies of the modern society,
- improving skills, knowledge and mind of nanotechnology specialists,
- cultivating the spirit of research and development among talented youth,
- selection and promotion of best students in the field of nanotechnology,
- creation of national and international cross links between research teams,
- development of new ideas and approaches in the field of nanotechnology and nanomaterials.

## History

The 1st INO has been conducted in **April of 2018 in Tehran** by Iran, Russia, South Korea, Germany, Great Britain, Malaysia, Taiwan with a growing number of new countries joining the INO society. According to a decision of the INO Steering Committee, the INO takes place once in each two years with an intermediate training of the student teams within a special international event associated with INO. In 2019, the International young scientist forum IYSF has been selected as such an event within the **12<sup>th</sup> Conference on Particle Nanotoxicology in Salzburg, Austria**. The Second INO is scheduled to be held in **Sultan Qaboos University (SQU) in Oman** in January of 2021 and the theme of the event will be "Energy and Environment". Correspondingly, a preselection to INO2021 and selection to intermediate international training event will be performed in 2020 in the frame of NSTC competition of the **XIV Russian National Olympiad on Nanotechnology**.



*The winners of the first NSTC*  
<http://enanos.nanometer.ru/contest/34>



*The winners of the NSTC of XIII RION*  
<http://enanos.nanometer.ru/contest/34>







*The team and participants of the First International Olympiad on Nanotechnology*  
<http://enanos.nanometer.ru/contest/34>



*Team work in INO*





*The winners of the National Student Team Contest representing Russia during the 1st International Olympiad on Nanotechnology in Tehran  
(<http://enanos.nanometer.ru/news/116>)*



*Campus of Sultan Qaboos University (SQU) in Oman.*



## International Young Scientist Forum

IYSF scope includes but is not limited by a wide range of nanotechnology related areas being more focused on nanotoxicology issues and regulations, chemical, physical and biology related production processes of nanomaterials and their scalability, application of nanomaterials in practice and their impact on ecology, environment and society, technical aspects of implementation of innovative findings.

The IYSF goal is to collect, discuss and disseminate trends in science and application of nanotechnology products among students and young researchers, to promote their career and to support ongoing and future studies in the framework of collaborative discussion of major scientific, experimental issues and work perspectives with leading scientists and industry representatives.

IYSF is a self-sufficient supporting event of INO meaning a high-level scientific conference with a useful discussing panel of INO-related issues promoting deeper involvement and wider participation of young audience in INO. Vice versa, INO might promote better participation of INO international teams in IYSF.

IYSF is guided by its own organization structure which might include INO representatives selected with respect to their scientific fields and practice related to the IYSC scope.

PhD students, young scientists, students of any year of study from Universities, Institutes, Companies and Academies selected by the IYSF committees on the basis of their applications and conference registration are eligible to participate, no additional requirements are needed except a valid application and proper conference registration, all IYSF participants should register themselves normally and apply individually, a letter of support would be also sent out by national councils of INO in order to require participation of all the national team members in IYSF at once.







*Russian team in the scientific conference in Salzburg preceeding the International Nanoolympiad in Salzburg (Austria)*

*([http://www.nanometer.ru/2019/09/24/olimpiada\\_529775.html](http://www.nanometer.ru/2019/09/24/olimpiada_529775.html))*

IYSF promises organization support only including the list of recommended hotels, visa support, preparation of IYSF program etc. The other types of support are a subject of separate discussion depending on available funds, partners or sponsors. 3 to 5 participants should be awarded by prestigious diploma with respect of their scientific, public or team presentations. Scopus / WoS journals should reserve a possibility to publish peer reviewed articles of best young scientists, all the abstracts should be available via web or could be printed and distributed as a conference book abstract or, better, a CD / DVD disk / flesh stick / card. TED- and standup-like talks of selected young researchers, team competitive work, workshops and / or master classes on innovations and safety in nanotechnology, oral and poster scientific sessions, INO technical planning meeting, general photo session, dissimilation of the materials in the Internet.

## **Participation**

All the participants must register using the official Internet platform of RION <http://enanos.nanometer.ru>. Registration is followed by preparation and submission of overviews of a project according to the announcement of NSTC followed by pre-selection of the participants for the second, consulting, stage of the contest in Moscow. Only BS, MS and PhD students, the citizens of Russian Federation, are legible to participate. All the participants must be polite, tolerant and well skilled through the entire competition process. The first selection stage involves individual participants, the second, consulting, stage forms a national student team as a main unit for the further competition aimed to be



continued during INO. The proposals of the participants are the subject of copyrights of the authors, the RION / INO do not intend to use the materials for any purpose except the selection procedure. The materials cannot be published without a permission of authors.

The permanent link to the announcement of the NTSC:

<https://enanos.nanometer.ru/contests>

The NTSC is now is a part of the Universiade inside the RION. All the participants of NSTC must fill out three major parts of their application:

**-Part A:** scientific minireview of own achievements (English or Russian) – **50 points**

**-Part B** (popular essay of the work) – **30 points**

**-Part B** (economical and practical implementation suggestions) – **20 points**

**Overall – 100 points**

*Recommended structure of the **Part A** (total of text, graphs, tables, refs should not exceed 10 pages):*

1. Scientific descriptive title of selfreview
2. Authors
3. Affiliations
4. Abstract
5. Keywords
6. Introduction
7. Experiments / approaches / methods
8. Results and Discussion
9. Concluding remarks
10. Acknowledgements
11. Reference list including own publications and patents
12. About the author (CV)

*Recommended structure of the **Part B** (total of text, graphs, tables, refs should not exceed 10 pages):*

Free style essay. It should be original, simple, understandable and self-sufficient based on, mainly, on Part A.

*Recommended structure of the **Part B** (total length of text, graphs, tables, refs should not exceed 5 pages):*

**Project scientific / experimental description:**

- *Project title* (3 – 20 words)

- *Abstract* (10 – 300 words)
- *Introduction* (a global problem, project aim, tasks, actuality, novelty)
- *Approach* (suggested possible solutions, experimental procedures and features, etc.)
- *Discussion* (explanations of scientific novelty and effectiveness of the suggested solutions and approaches)
- *Descriptive conclusions*
- *References*

### **Project commercial / implementation impacts and scores:**

- *Implementation* (possible practical applications of the project in devices / products)
- *Impact* (focused explanation why the project can influence our life / society)
- *Analogues* (comparison with analogues to show novelty and effectiveness)
- *Cost* (numbers and estimations why the project results would be attractive for global or local market, implementation schedule, protection of intellectual properties, possible start up investments, cost effectiveness and possible income / earning by years, stages of project implementation and growth etc.)

### **Time Schedule**

The starting date of NSTC is the same as for RION and should begin within the first decade of December. The ending point of the first, national, part should be limited by the end of January. The second, consulting, stage and the final selection procedure of the National Student Team should be settled on the end of March being the closing point of RION. The post-olympiad support of the Team is scheduled in accordance with the announcement of INO. The planning of the visit of the Team in the host country of INO is scheduled according to the regulations of INO.

### **Useful Links and Contacts**

Web site of RION – <http://enanos.nanometer.ru>,

Fund for Infrastructure and Educational Programs – <https://fiop.site/>.

Contacting address – [enanos@nanometer.ru](mailto:enanos@nanometer.ru).

Web site of INO <http://nanoolympiad.org/>.



ФОНД ИНФРАСТРУКТУРНЫХ  
И ОБРАЗОВАТЕЛЬНЫХ  
ПРОГРАММ  
Группа РОСНАНО