



**21<sup>st</sup> International Conference of Young  
Specialists on Micro/Nanotechnologies and  
Electron Devices (EDM 2020)  
June 29 - July 3, 2020  
Erlagol (Altai Republic, Russia)**

20 Prospekt K. Marksa, bldg.4, 601  
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## CALL FOR PAPERS

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IEEE Russia Siberia Section

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Biysk Technological Institute of Altai

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- *Angela V. Gadyukina*, engineer of the students' research department, NSTU, Novosibirsk, Russia;
- *Anastasia S. Kopanenko*, engineer of the innovation and technology center, NSTU, Novosibirsk, Russia.

#### **PURPOSE OF THE CONFERENCE**

The Conference facilitates professional development of young researchers in the field of electronics and its practical applications. During the Conference the participants present their own research and also have an opportunity to study the latest achievements of the leading research groups of Russia and foreign countries. The Conference contributes to the development of scientific culture, sharing of experience, and establishment of new business and scientific circles.

#### **PARTICIPANTS**

Young scientists under the age of 35 years, graduate students, undergraduates, senior students.

#### **INVITED SPEAKERS**

Academic scientists, senior R&D engineers, heads of the leading research groups and departments, heads of industrial enterprises and production facilities.

#### **WORKING LANGUAGES**

Russian and English.

#### **CONFERENCE SECTIONS**

**Section 1.** Semiconductor Physics and Technology.

*Chair* - Nataliya L. Shwartz, Ph.D., Associate Prof.

*The section addresses the following issues: the physical properties of semiconductors, dielectrics, organic materials used in nano- and optoelectronics, semiconductor nanostructures (quantum wells, quantum wires and quantum dots), their electronic and optical properties, formation methods and possible applications; spin phenomena, topological insulators, carbon and graphene-like materials; microsystem technology, microelectromechanical systems, technologies for their creation and research, the study of physical phenomena occurring in them.*

**Keywords:** *semiconductors, dielectrics, nanostructures, nanotechnology, organic materials, microsystem technology, microelectromechanical systems.*

**Section 2.** Radio and Microwave Technology. Information Technology and Telecommunications

*Chair* - Svetlana V. Vorobiova, Cand.Sc., Associate Prof.

*The section is focused on the fundamental problems of developing and applying wired and wireless communication standards; construction and operation of local wireless networks*

*(WLAN) and new generation networks (NGN); technologies and devices for encoding and decoding information; development and operation of antenna-feeder systems, television and radio broadcasting systems, television and radio receiving equipment; development and application of communication technologies with mobile objects, including using Global Position System; theories and technologies of filtering signals, theories and technologies of signal visualization and systems built on their basis.*

**Keywords:** *communication, WLAN, NGN, mobile objects, filtering signals.*

### **Section 3. Sonic and Ultrasonic Devices: Physics, Electronics, Application**

*Chair - Vladimir N. Khmelev, Dr.Sc., Prof.*

*The section is considered the physics of the formation, distribution and control of sonic and ultrasonic vibrations in various environments; interaction of sonic and ultrasonic vibrations with various objects; computer simulation, design of ultrasound sources and electronic generators; creation of new materials and technologies improvement using ultrasound.*

**Keywords:** *sonic and ultrasonic vibrations, electronic generators.*

### **Section 4. Optical-electronic Devices and Systems: Physics, Electronics, Application**

*Chair - Eugene V. Sypin, Cand.Sc., Associate Prof.*

*The section is discussed the physical fundamentals of optical-electronic instrumentation; operation principles of optical-electronic devices and systems (OEDS) for various purposes; methods of signal processing and detection of signals in noise used in OEDS; methods for calculating and designing OEDS; practical application of OEDS; technologies for the design and manufacture of OEDS, the physical fundamentals of functioning, technology of manufacturing and using of modern photosensitive devices.*

**Keywords:** *optical-electronic, signal processing, photosensitive devices.*

### **Section 5. Power Electronics and Power Engineering**

*Chair - Gennady S. Zinoviev, Dr.Sc., Prof.*

*The section is considered: qualitative and quantitative rates of electrical energy converting technologies; developing mathematical models and analyzing electromagnetic processes in electrical energy converters; analyzing energy exchange processes between generators and non-linear consumers of electrical energy; mathematical methods for analyzing and synthesizing electrical circuits with semiconductor and electromechanical converters, circuits, devices and systems of power electronics; application features of advanced high-power high-voltage semiconductor devices and modules based on them (IGBT, IGCT, MOSFET); microprocessor control devices for high-power electrical energy converters; simulation of high-power electrical energy converters; construction methods for reactive power compensation and methods for their calculation; algorithms and control devices for power electronics systems; methods of analysis and control of closed nonlinear pulse control systems with various types of modulation.*

**Keywords:** *power converters, semiconductor devices, microprocessor control, reactive power compensation, control.*

### **Section 6. Medical Electronics**

*Chair - Gennady S. Evtushenko, Dr.Sc., Prof.*

*Section themes include hardware and software for medicine, biophysics, and ecology. Research and development in biomedical engineering, wearable biomedical sensors, and systems, medical informatics, telemedicine issues, new medical devices, introducing the Internet of Things technology (IoT) into medical devices will all be covered in this section.*

**Keywords:** *medicine, biophysics, ecology, biomedical sensors, medical devices, biomedical engineering.*

### **Section 7. Robotics, Mechatronics, and Automation**

*Chair - Oleg V. Nos, Dr.Sc., Associate Prof.*

*The conference section provides a platform for young scientists, researchers, and students from a variety of universities as well as practitioners to discuss new research results and*

*perspectives on future developments in the fields of Robotics, Mechatronics, and Automation. The selected reports represent the most promising ideas to address the research issues in design, software, hardware and control of advanced mechatronic systems, intelligent robots and high-performance electrotechnological equipment involving practical aspects for their applications in the areas of industrial automation, and other related sectors.*

**Keywords:** robotics, mechatronics, automation, control strategies.

## VENUE

The Conference takes place at the sport-camp “Erlagol”, Altai Republic, Russia. The special environment of the event helps participants to be fully involved in the operation of the Conference. The venue is especially famous and attractive because of the unique opportunities to enjoy the beauty and harmony of the Altai nature, to visit recreation facilities, to have fun playing sports, and even at extreme rafting!

The comfortable transfer of all participants to the sport-camp “Erlagol” is provided by buses, departing from Novosibirsk. The sessions take place in the camp’s halls, equipped with all the necessary presentation facilities, including a laptop and a screen projector.

## IMPORTANT DATES

Deadline for [applications](#) and Paper submission – ~~December 28, 2019~~ **January 19, 2020**

Notification of paper acceptance – **March 4, 2020**

Deadline for payment of the registration fee, IEEE CF and PDF-file of paper submission – **April 26, 2020**

## PARTICIPANTS REGISTRATION

A participant is allowed to present 1 or 2 reports and can be a co-author of no more than 3 papers.

To take part in the Conference all potential participants must register at the “Lomonosov” platform and fill in the online [application form](#).

**ATTENTION!** All changes in the status of the application will be displayed in your account.

## INSTRUCTION FOR AUTHORS

Papers submitted to Program Committee must contain the results of the original (unpublished) researches. A paper should adequately convey the nature of the research, papers with low scientific level will be declined. The quality of the English text must meet the requirements of literacy, long expressions should be avoided and generally accepted scientific terminology should be used.

Publication volume cannot be less than 3 pages (excluding references and information about authors) and shouldn’t exceed 6 pages, authorship should be limited to 6 authors. The list of references should include at least 10 sources on the research topic. Self-citation should be limited to 3 references.

**ATTENTION!** Participants at the conference or a delegate, notified and approved by the conference organizers, are expected to present and defend the paper in person in order for their paper to be considered for inclusion in the conference proceedings publication. The accepted papers will be excluded from the final proceedings if the author does not attend the conference (“no-show author”).

At the application the authors must submit the following files (**file size limit is 20 MB**):

1. **full text of the paper (doc or docx)** in English, drawn in accordance with the requirements (requirements are presented in the [attached file](#)). The name of the file should be in the format *SectionNumber\_Author’sSurname\_en* (for example *2\_Petrov\_en*);

2. **full text of the paper** in Russian - **only for authors from the Russian Federation**. The name of the file should be in the format *SectionNumber\_Author'sSurname\_ru* (for example *2\_Petrov\_ru*);
3. **copy of security clearance** - **only for authors from the Russian Federation**, drawn at the place of study/work. The name of the file should be in the format *SectionNumber\_Author'sSurnameInitials\_expert* (for example *2\_PetrovAA\_expert*);
4. **copy of export commission conclusion** - **only for authors from the Russian Federation**, drawn at the place of study/work. The name of the file should be in the format *SectionNumber\_Author'sSurnameInitials\_export* (for example *2\_PetrovAA\_export*).

Pay attention that all papers submitted to the program committee are checked by IEEE Cross Check system. Similarity over 30% is not acceptable.

**ATTENTION!** Along with confirmation of acceptance authors will receive the instructions how to convert doc(docx)-file to PDF format by **IEEE pdf eXpress**. Dear participants, Program Committee recommends checking pdf file after conversion.

**An author becomes an official participant and his/her paper is included in the Proceedings of EDM 2020 when:**

1. the Program Committee has accepted the paper for publication;
2. the confirmation has been sent to the author by e-mail, specified during registration;
3. paper in pdf format has been received by the Program Committee;
4. payment of the registration fee has been done.

The IEEE Copyright Form is filled in and submitted after the event.

#### **REGISTRATION FEE**

Regular: 155 USD

IEEE Member: 130 USD

Guest (no report and paper): 105 USD

#### **Extras (additional payment required):**

Transfer charges (NSTU -- "Erlagol" -- NSTU): 30 USD

Accommodation and meals at the sport-camp "Erlagol": 65 USD

Additional page of the paper (over 6 pages): 8 USD

Additional EDM 2020 Proceedings: 16 USD

Shipping the Proceedings: within Russian Federation: 8 USD

abroad: 20 USD.

**Taxes are included.**

**Shipping the Proceedings** is made only on the participant's request by e-mail with the title of the paper, the delivery address, and the addressee.

#### **WAYS OF PAYMENT**

##### **1. Invoice**

If you need an invoice please contact by [e-mail](#).

Invoice includes next information:

**Beneficiary:** Novosibirsk State Technical University

**Address:** K. Marksa Prospekt 20, Novosibirsk, Russia, 630073

**Ordering:** (Last Name) (First Name)

**Organization:** (Organisation name)

**Address:** (Street). (House), (Town), (Country), (Zip code)

**Payment for:** Registration fee for participation in the EDM 2020 conference, paper “(Paper Name)”, authors (authors list)

**Description:** Registration fee for participation in the EDM 2020 conference (absentee/direct participation)

**Cost:** (€ Euro) or (U.S. Dollar)

**[NSTU bank details for transferring](#)**

**Bank Account Information (€ Euro):**

Bank: Bank Levoberezhny (PJSC)

Address: 630054, Russia, Novosibirsk, Plakhotnogo str. 25/1

SWIFT Bank: LEVBRU55

acc. No 40503978100210000113

Correspondent bank: CommerzBank AG, (Frankfurt/Main, Germany)

Correspondent acc. No: 400888093201

SWIFT Bank: COBADEFFXXX

**Bank Account Information (U.S. Dollar):**

Bank: Bank Levoberezhny PJSC

Address: 630054, Russia, Novosibirsk, Plakhotnogo str. 25/1

SWIFT Bank: LEVBRU55

acc. No 40503840500210000113

Correspondent bank: VTB Bank (Europe) SE, Frankfurt Am Main, Germany

Correspondent acc. No: 0105078414

SWIFT Bank: OWHBDEFFXXX

## **2. Appointment**

Appointment can be obtained from one of the secretaries of the Conference (NSTU, 20, Prospekt K. Marksa, Novosibirsk, 630073, Russia: Anastasia Kopanenko).

Payment in the cash office of the NSTU (floor 1, building 1, NSTU, 20, Prospekt K. Marksa, Novosibirsk, 630073, Russia); no commission.

A copy of the check should be sent to [edm.nstu@gmail.com](mailto:edm.nstu@gmail.com)

**Glad to see you at EDM 2020!**