



INTERNATIONAL CONGRESS ON ENERGY FLUXES AND RADIATION EFFECTS

19th International Symposium on High-Current Electronics

13th International Conference on Modification of Materials with Particle Beams and Plasma Flows

17th International Conference on Radiation Physics and Chemistry of Condensed Matter

RESOLUTION

of the International Congress on High-Current electronics, Material Modification and Radiation Physics “Energy Fluxes and Radiation Effects”

On October 2–7, 2016 in Tomsk (Russia), as an event devoted to the celebration of the 120th anniversary of Tomsk Polytechnic University (TPU), the International Congress “Energy Fluxes and Radiation Effects” (hereinafter referred to as Congress) on high-current electronics, material modification by beams of charged particles and plasma fluxes, radiation physics and chemistry of condensed matter was held. The organizers were Tomsk Polytechnic University, Institute of High-Current Electronics of SB RAS and Tomsk Scientific Center of SB RAS. The Program and Organizing Committee included leading scientists from many countries around the globe. The sessions were held in the premises of Tomsk Scientific Center of SB RAS and Special Economic Zone of Tomsk.

The Congress included the following activities:

- 17th International Conference on Radiation Physics and Chemistry of Condensed Matter, RPC-17;
- 19th International Symposium on High-Current Electronics, SHCE-19;
- 13th International Conference on Modification of Materials with Particle Beams and Plasma Flows, CMM-13;
- International science school-seminar for youth “Particle beams, plasma, neutrons, photons: generation and application”.

PARTICIPANTS

The Congress was attended by more than 500 participants from 60 leading national and international scientific and educational organizations and business structures. More than 450 reports were presented, and the total number of authors surpassed 1000 people, including 180 authors from 20 countries (Germany, Czech Republic, USA, France, Japan, Egypt, China, Pakistan, Belarus Republic, Kazakhstan, Israel, Vietnam, Italy, Estonia, Ukraine, Sweden, Republic of South Africa, Belgium, Finland, Great Britain, Myanmar, Poland, Kirgizia, South Korea). All but half of the authors (49%) are young scientists under the age of 35. The Congress activities were attended by scientists, students and industry representatives from Moscow, Saint Petersburg, Ekaterinburg, Vladivostok, Novosibirsk, Tomsk and other Russian cities.

RESULTS

1. For the Congress, 453 reports were submitted, including 3 plenary reports, 171 oral presentations at the conference sessions and 279 posters.
2. Within the International science school-seminar for youth “Particle beams, plasma, neutrons, photons: generation and application”, the leading scientists delivered 12 lectures to bachelor



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and masters students, postgraduate students and young scientists of Tomsk universities (the total number of attendees is 88 people). The organizing committee recognizes high quality of lectures given by invited scientists within the International science school-seminar.

3. The reports presented within the Congress arouse great interest in the participants. Particular attention was drawn by works that demonstrated fundamentally new results or having broad practical application in future.
4. The excursions to TPU and IHCE laboratories and Tomsk sightseeing tours were conducted for Congress participants.
5. High interest to the Congress was demonstrated by young scientists and specialists (about 250 participants are under 35).
6. Following the Congress results, about 300 publications were prepared for the following journals: *Izvestiya Vuzov. Fizika*, *Journal of Physics: Conference Series*, *Vacuum* (IF = 1.86), *Resource-Efficient Technologies* (a periodical issued jointly by Elsevier and TPU).
7. As part of the Congress, the competition of the works of young scientists was conducted. The experts of the Program Committee have chosen the following works:

Within RPC-17 conference:

1st degree diploma: Natalya Lazareva, Irkutsk Branch of Institute of Laser Physics SB RAS, Irkutsk, Russia,

Report: «DETERMINATION OF ORIENTATION OF RADIATION INDUCED QUANTUM SYSTEMS IN ANISOTROPIC CRYSTALS BY THE SPATIAL-MODULATION METHOD»

2nd degree diploma: Anna Baranova, Ural Federal University, Ekaterinburg, Russia

Report: «SYNTHESIS AND STUDY OF PHOTOPHYSICAL PROPERTIES OF NEW SENSORS ON NITROAROMATICS COMPOUNDS BASED ON PYRIMIDINE AND DEVELOPMENT OF PORTABLE DETECTOR OF EXPLOSIVES»

3rd degree diploma: Kseniya Shilova, Tomsk Polytechnic University, Tomsk, Russia

Report: «METHODS FOR RADIATION AND ECOLOGICAL RESEARCH OF BUILDING LANDS AND ANALYSIS»

Professor Tartakovsky award in the field of radiation physics of solid body: Rinat Abashev, Institute of Industrial Ecology, UB RAS, Ekaterinburg, Russia

Report: «HIGH-TEMPERATURE THERMOLUMINESCENCE OF ANION-DEFICIENT CORUNDUM AND ITS CONNECTION WITH TI IMPURITY»

Within CMM-13 conference:

1st degree diploma: Maxim Trigub, V.E. Zuev Institute of Atmospheric Optics SB RAS, Tomsk, Russia,

Report: «LASER MONITORS FOR HIGH SPEED IMAGING OF MATERIALS MODIFICATION AND PRODUCTION»



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2nd degree diploma: Ivan Shanenkov, Tomsk Polytechnic University, Tomsk, Russia

Report: «PLASMA DYNAMIC SYNTHESIS OF IRON OXIDES IN A DISCHARGE PLASMA JET WITH POSSIBILITY TO CONTROL FINAL PHASE COMPOSITION»

3rd degree diploma: Irina Grubova, Tomsk Polytechnic University, Tomsk, Russia

Report: «SAND-BLASTING TREATMENT AS A WAY TO IMPROVE THE ADHESION STRENGTH OF HYDROXYAPATITE COATING ON TITANIUM IMPLANT»

Professor Kreindel award in the field of radiation and plasma technologies: Gennadii Liziakin, Joint Institute for High Temperatures RAS, Moscow, Russia

Report: «MEASUREMENT OF THE RADIAL FIELD DISTRIBUTION IN A PENNING DISCHARGE BY ISOLATED PROBE»

Within SHCE-19 symposium:

1st degree diploma: Dmitry Sorokin, Institute of High Current Electronics SB RAS, Tomsk, Russia,

Report: «OPTICAL CHARACTERISTICS IN THE VUV SPECTRAL RANGE OF PLASMA FORMED DURING THE HIGH-PRESSURE REP DD IN MIXTURES OF RARE GASES»

2nd degree diploma: Rustam Cherdizov, Institute of High Current Electronics SB RAS, Tomsk, Russia

Report: «EXPERIMENTAL RESEARCH OF NEUTRON YIELD AND SPECTRUM FROM DEUTERIUM GAS-PUFF Z-PINCH ON THE GIT-12 GENERATOR AT CURRENT ABOVE 2 MA»

3rd degree diploma: Vasilii Krutikov, Institute of Electrophysics UB RAS UB RAS, Ekaterinburg, Russia

Report: «GALVANIZED STEEL PIPE JOINING FEATURES UNDER MAGNETIC PULSE WELDING»

Professor Vorobiev award in the field of high-current electronics: Anton Gusev, Institute of Electrophysics UB RAS, Ekaterinburg, Russia

Report: «INVESTIGATION OF THYRISTOR-BASED SWITCHES TRIGGERED IN IMPACT-IONIZATION WAVE MODE»

8. The Congress was also attended by business representatives from the field of development and procurement of scientific, analytical and manufacturing equipment for organizations working in the sphere of radiation and plasma technologies.

CONGRESS PARTICIPANTS DECREED:

1. to accept that the Congress was conducted to a high scientific and organizational standard.
2. to express the gratitude to the Ministry of Education and Science of the RF, Federal Agency for Scientific Organizations, Russian Foundation for Basic Research, Tomsk Scientific Center, Institute of High-Current Electronics of SB RAS and National Research Tomsk Polytechnic University for support in Congress organization.



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3. to engage the Organizing Committee to manage the publication of the Congress proceedings in the shortest time.
4. to engage the chairs of the conferences to select papers for publishing in Vacuum journal.
5. to consider successful the experience of the organization of the International school-seminar; to involve students, postgraduates and young specialists into Congress activities, encourage their scientific success and achievements.
6. to engage the Organizing Committee to send this resolution to heads of interested organizations, which representatives took part in the Congress.
7. to actively attract the business representatives to the Congress, who work in the field of its topics.
8. to consider the possibility of establishing the following sections: Biocompatible materials (within CMM conference) and Semiconductors (within RPC conference).
9. to conduct the next Congress in October 2018 in Tomsk (Russia).

Congress co-chairman, corresponding member of RAS

Ratakhin N.A.

SHCE co-chairman, RAS academician

Kovalchuk B.M.

SHCE co-chairman

Remnev G.E.

CMM co-chairman

Krivobokov V.P.

CMM co-chairman

Koval N.N.

RPC co-chairman

Lisitsin V.M.

RPC co-chairman

Yakovlev A.N.