

INTERNATIONAL CONFERENCE «NUCLEUS-2018»
«FUNDAMENTAL PROBLEMS OF NUCLEAR PHYSICS,
ATOMIC POWER ENGINEERING AND NUCLEAR TECHNOLOGIES»
(68-th Conference on nuclear spectroscopy and atomic nucleus structure)
Voronezh, Russia, July 1 – 6, 2018

Voronezh is an industrial, scientific and cultural center of Central-Black Earth Region of Russia with population about 1 million citizens. Name of the city Voronezh was firstly mentioned in chronicle in 1177, although Voronezh was mentioned in the Veles book on birch boards in 29 year B.C..

The first Russian fleet was built up in Voronezh by Peter the Great. Many outstanding figures were born and lived in Voronezh. Among them are famous Russian writers and poets - A.V. Kol'tsov, I.S. Nikitin, I.A. Bunin, A.P. Platonov, S.Ya. Marshak, painters – I.N. Kramskoy, N.N. Ge, A.A. Buchkuri, scientists – the Nobel Prize laureates P.A. Cherenkov and N.G. Basov, chief designer of space-system engineering S.A. Kosberg, famous astronauts K.P. Feoktistov and A.V. Filipchenko, outstanding soil scientist V.V. Dokuchaev, the author of textbooks on geometry and algebra A.P. Kiselev and other people famous in the field of culture and science. The founder of circus dynasty A. Durov began his creative development in Voronezh.

Voronezh is a large industrial center having famous plants of aircraft, space, electronic and radio-industries. Novovoronezh Atomic Power-Plant, which is a pilot station for atomic water-water reactors, is working not far from Voronezh.

In Voronezh there are over 20 institute of higher education, in which about 100 thousands students are studying.

Voronezh Academic Theaters of Drama and Opera and Ballet, and also Voronezh Academic Folk chorus are well known.

Beautiful nature of Voronezh region is typical for middle-russian zone. Not far from Voronezh Grafskiy National Geosphere Reserve is situated. There are beavers, elks, deers and wild boars in the Reserve.

In Voronezh there are unique architectural buildings, such as Nikolskaya Church (18 century), Potemkin's Palace (18 century), which was created in resemblance to Winter Palace in Saint-Petersburg by famous architect Rastrelli.

THE CONFERENCE ORGANIZERS

Russian Academy of Science

Joint Institute for Nuclear Research

Voronezh State University

Novovoronezh NPP

Kadmensky S.G.	Chairman	VSU	Voronezh
Zelenskaya N.S.	Co-Chairman	SINP of MSU	Moscow
Popov V.N.	Co-Chairman	VSU	Voronezh
Povarov V.P.	Co-Chairman	NV NPP	Novovoronezh
Vlasnikov A.K.	Co-Chairman	SIP of SPSU	S.-Petersburg
Samarin V.V.	Co-Chairman	JINR	Dubna
Vahtel' V.M.	Vice-chairman	VSU	Voronezh
Titova L.V.	Scientific secretary	VSU	Voronezh

THE CONFERENCE SUBJECTS

1. Experimental investigations of atomic nucleus properties. (section 1)

- neutron-rich nuclei;
- nuclei far from stability valley;
- giant resonances;

- many-phonon and many-quasiparticle states of nuclei;
- high-spin and super-deformed states of nuclei;
- beta-decays of nuclei;
- synthesis of super-heavy elements.

2. Experimental investigations of nuclear reactions mechanisms. (section 2)

- reactions with radioactive nuclear beams;
- reactions with polarized particles;
- heavy-ion reactions;
- fusion and fission of nuclei;
- multi-fragmentation of nuclei;
- neutron reactions and ultracold neutrons;
- reactions induced by elementary particles.

3. Theory of atomic nucleus and fundamental interactions.

(section 3)

- many-body problem in nuclear physics;
- microscopic description of collective degrees of freedom and their interactions with single-particle degrees of freedom;
- theory of few-particles systems;
- non-linear nuclear dynamics;
- meson and quark degrees of freedom in nuclei, mesoatoms;
- hypernuclei and other nuclear exotic systems;
- double beta-decay and neutrino mass problem;
- interaction of nucleus with electrons of atomic shell;
- verification of theories of elementary particles interaction and conservation laws;
- physics of nucleus and particles in application to astrophysical objects.

4. Nuclear reactions theory (section 4)

- theory of direct and statistical nuclear reactions, theory of multiple scattering;
- theory of reactions with clusters and heavy ions;
- theory of relativistic nuclear collisions;
- theory of polarization phenomenon in nuclear reactions;
- theories of proton, two-protons and cluster radioactivity and fission of nuclei.

5. Technique and methods of experiment and applications of nuclear-physical methods.

(section 5)

- Perspectives of nuclear medicine development;
- Nuclear-physics for nanophysics and nanotechnologies;
- Radiation technologies for micro and nanoelectronics and new materials;
- Problems of radiational reliability and durability of microelectronics products and of cosmic systems.

6. Fundamental problems of nuclear power and nuclear technologies. (section 6)

- problems of atomic power reactors with slow and fast neutrons;
- problems of radioactive waste treatment;
- transmutation methods;

- channeling of nuclei and elementary particles;
- radiation technologies for micro- and nano-electronics and new materials producing.

7. Experience and problems of qualitative training of Russian and foreign specialists in field of nuclear physics, atomic power engineering and nuclear technologies. (section 7)

It has been planned the realization of Plenary sessions with invited talks (20–30 min.), parallel sessions with original reports (10–15 min) and poster talks.

The reporters will be provided with an Overhead projector or computer support (Microsoft Power Point).

Conference proceedings will be published in Izvestiya RAN, Ser. Fizicheskaya, Physics of Atomic Nuclei and Nuclear Physics and Engineering.

WORKING LANGUAGES OF THE CONFERENCE

Working languages of the Conference are English and Russian.

PLACE OF THE CONFERENCE

The Conference will be held in Voronezh.

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ORGANIZING COMMITTEE

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CONFERENCE FEE

Conference fee of 200 Euro or equivalent in US dollar (depending on accommodation) for participants and the half of these amounts for accompanying persons includes car transportation, excursions, lunches in Voronezh Training Center of Trade Unions (<http://www.umcvoronezh.ru>), break refreshments, Welcome and Conference parties, and a copy of Conference proceedings. Participants will stay at comfortable hotels in Voronezh (day price of hotel room is more than 2 500 rubles).

Expenses on hotel accommodation and meals (excluding lunches in Center) are paid by participants themselves.

ARRIVAL AND REGISTRATION

Arrival days of participants are June 24-25, 2012. Registration will take place in Voronezh Training Center of Trade Unions on June, 24 during a day and on June, 25 at 8³⁰ – 9⁰⁰ a.m. The Conference Opening will be at 9⁰⁰ a.m. on June, 25, 2012.

THE ORGANIZING COMMITTEE ADDRESS

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ABSTRACTS

The book of abstracts will be published and distributed among participants during the Conference. We kindly ask to submit the abstracts of talks in electronic form using Word (in .rtf format, see attached file template.rtf) to Dr. A. Vlasnikov (nucleus2012@mail.ru, subject «Nucleus-2012») before **March 15, 2012**.

The text of abstracts should be prepared in English using Times New Roman fonts and should not exceed strictly **one page of A4 size** (210mm x 297 mm, left margin 30mm, upper margin 20 mm, right margin 20 mm, bottom margin 20 mm) including figures, tables and references. The title font size is 16 pt, bold, centered, line spacing 1.

The authors list should be typed using 14 pt fonts, line spacing 1. Names of authors are before surnames and **separated by a break from surnames**. The list of organizations should be typed in italic, 12 pt fonts, line spacing 1, with semicolons between names of the organizations, each organization in separate line. If the authors work in different organizations these organizations should be enumerated with the numbers given in the superscripts after the author's name in the list of authors and in superscripts before the name of organization in the list of organizations. E-mail addresses of speakers must follow a list of organizations on a single line (font size 12 pt, line spacing 1). The body of a text should be prepared using 14 pt fonts, line spacing 1.

The bibliography list (12 pt) should be enumerated and the reference numbers in a body of the abstracts should be in brackets. The author's name in the bibliography should be before surname without any break between them. **Only monochrome images of high contrast are allowed**. The figures captions should be prepared using 12 pt, italic. The template of the abstracts is attached to this e-mail.

Permission for publication of abstracts (for authors from Russia) should be sent by fax:

Fax: +7-812-4287240 (Dr. A.K.Vlasnikov).