THIRND CIRCULAR

INTERNATIONAL CONFERENCE «NUCLEUS-2012»

«FUNDAMENTAL PROBLEMS OF NUCLEAR PHYSICS,
ATOMIC POWER ENGINEERING AND NUCLEAR TECHNOLOGIES»

(62-th conference on nuclear spectroscopy and atomic nucleus structure)

Voronezh, Russia, June 25 – 30, 2012

Conference will take place in Voronezh on June, 25-30, 2012.

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

ORGANIZING COMMITTEE

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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 cosmics 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)***

Plenary and semiplenary sessions with oral talks (30 min.), parallel sessions with original reports (15 min) and poster talks.

The reporters will be provided with multimedia projector (Microsoft Power Point).

Conference proceedings, presented at the Conference as oral talks, will be published in the journals “Izvestiya RAN, Ser. Fizicheskaya” and “Physics of Atomic Nuclei” in 2013. During the conference the authors must be submitted to the Organizing Committee of the materials prepared by the rules of these journals. Articles submitted to the Conference by e-mail will not be accepted.

Conference Program Organizing Committee with a list of selected reports to the Plenary, Semiplenary and parallel sessions, and poster communications, is in the attached file PROGRAMM_2012.rtf

WORKING LANGUAGES OF THE CONFERENCE

Working languages of the Conference are English and Russian.

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CONDITIONS OF PARTICIPATION

It is planned that the Conference will be hold in the Voronezh Training Center of Trade Unions (Uchebno-metodicheskiy centr profsoyuzov, www.umcvoronezh.ru). The participants will be accommodating in the rooms of the Voronezh Training Center of Trade Unions (price per room per night depending on the class from 700 rubles up to 2500 rubles.) and in hotels (price per room per night from 2500 rub.). 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, break refreshments, Welcome and Conference parties, and a copy of Conference proceedings. The Conference participants, who will stay in hotels, reserve hotel rooms on their own and ahead of time (hotel "Russia» - www.russiahotelvrn.ru, phone (473) 255-58-98; Hotel "Don" phone (473) 232-05-08, the hotel "Stroitel’ " phone. (473) 255-55-55). 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 8^{00} a.m. The Conference Opening will be at 10^{00} a.m. on June, 25, 2012. Please let us know what type of transport and when you arrive, to ensure your meeting.

THE ORGANIZING COMMITTEE ADDRESS

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