General Information

Institute of Nuclear Physics (INP) was founded in 1956 within the Uzbekistan Academy of Sciences. Now INP is the largest scientific institution in Uzbekistan wholly occupied with fundamental researches, as well as applied developments in various fields of nuclear physics, radiochemistry, radioisotope production, radiation material science, scientific instrumentation, radiation safety and etc. The Institute has large nuclear physics facilities: 10 MW and neutrons flow density $1 \times 10^{12} - 3 \times 10^{14}$ neutrons/cm$^2$·sec WWR-SM research nuclear reactor, U-150-II cyclotron with the capability of protons, deuterons, $^3$He nuclei and alpha-particles acceleration up to the energies of 20 - 50 MeV and the flux intensity of up to 500 microampere, and U-115 special cyclotron for the radioisotopes accumulation, gamma - irradiation facility system with Co-60 sources with total activity of $7.5 \times 10^4$ Curie, neutron generator NG-150 with neutrons yield of $2 \times 10^{11}$ neutrons/sec.

The Institute is the only center in the Central Asian region for the International Nuclear Information System (INIS).

Institute permanently carries out works in the framework of the realization of the National program on preparing human resources. The institute provides a number of directed measures by the School – Higher education – Scientific Institution chain. There are two specialized councils in the Institute working with the submissions, examinations and awards of the higher scientific degrees.

The Institute has in its structure the following enterprises "Radiopreparat" and "Tezlatgich", producing radioisotopes, experimental plant with the design department, producing radioisotopes control devices, as well as 6 scientific departments and 17 research laboratories. 4 academicians, 28 doctors of science, 70 PhDs and 163 researches are working in the mentioned departments.

Institute’s Focus

Institute’s research areas include the following:

Research in nuclear physics - relativistic nuclear physics, high-energy physics, nuclear spectroscopy and etc.;

Research in radiation physics - radiation physics of metals, construction material, semiconductors, dielectrics, ceramics, optical, composition and high temperature superconductor materials;

Research in activation analysis and radiochemistry - nuclear analysis, analysis methodology, development of nuclear physics methods of various objects and control of technological processes, application aspects of nuclear analysis in material sciences, mining industry, agriculture, medicine, ecology, development of various radioisotopes production;

Scientific device construction – technological control devices design, radioactive and nuclear materials detection and etc.;

Information technologies – development of scientific information communication systems and the software for the scientific departments, services and nuclear physical facilities.
Valuable Technology Offerings

• Radiopharmaceutical products and preparations - Sodium iodide-$[^{125}\text{I}]$, Sodium iodide-$[^{131}\text{I}]$, $[^{99m}\text{Tc}]$, Technephor-$[^{99m}\text{Tc}]$, Butylide-$[^{99m}\text{Tc}]$, Sodium ortho-iodine-Hippurat- $[^{131}\text{I}]$, Albumin-$[^{131}\text{I}]$, Rose Bengal-$[^{131}\text{I}]$, Comisol-$[^{198}\text{Au}]$ and other preparations for treatment of oncological diseases;

• Radionuclide preparations for biotechnology - preparations for researches in the field of gene engineering, biotechnology (triphosphates production, labelled P-32, P-33);

• Production of Design Department with Experimental Pilot Plant - the two-radial radioisotope level-measuring assembly LMRR-1, Simplified Gamma-Counter (Meter) SGM-1M, the two-radial radioisotope density measuring facility;

• Cryogenic production - liquid nitrogen and oxygen.

Scientific Cooperation and Technology Transfer

INP has collaborative relations with several international institutions and organizations in Austria (International Atomic Energy Agency, IAEA), Italy (Abdus Salam International Center for Theoretical Physics), USA Argonne and Sandia National Laboratories, European Center for Nuclear Research (CERN, Geneva, Switzerland), Fermi National Accelerators Laboratory (Batavia, Illinois, USA), Russia (Joint Institute for Nuclear Research, Dubna), National Nuclear Centre (Kazakhstan) and research centers and universities of the USA, Germany Russia, France, Switzerland, Italy, Belgium, Japan, Poland, Czech Republic, Korea, India and others. To provide nuclear security the Institute cooperates actively with IAEA.

INP leads research programs on 33 domestic fundamental and applied projects, as well as 19 international programs and grants. The Institute produces instrumentation and products for mining, oil and gas, electric engineering industries, medicine, pharmaceutical industry, agriculture, ecology and others.

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