Institute for Nuclear Research, Kyiv (KINR)

Technical Area: nuclear physics; nuclear technology
Keywords: nuclear, radioisotope, radiation

Co

General Information

Kyiv Institute for Nuclear Research of the National Academy of Sciences of Ukraine was founded in 1970 based on a number of nuclear-oriented departments of the Institute of Physics. Since that time the strong expertise and competencies in basic nuclear physics and various applied nuclear fields have been built in KINR. The institute currently is recognized as a leading nuclear science and nuclear technology center in Ukraine. KINR has 30 scientific and technical departments with about 800 staff, including 50 Doctors of Science and 160 Candidates of Science (Ph.D. equivalent).

Institute's Focus

The main directions of the basic and applied R&D in the institute are:

- nuclear and high-energy physics;
- nuclear power and reactor physics;
- solid state radiation physics and radiation material science;
- thermonuclear fusion and plasma physics;
- radiobiology and radioecology;
- nuclear forensics and radioanalytical research;
- radiopharmaceuticals and radioisotope production.

Nuclear Facilities

- 10 MW nuclear research reactor WWR-10M (27 vertical irradiation channels, 10 horizontal neutron beams, in-core max. neutron flux - $1.2 \cdot 10^{14}$ $cm^{-2}s^{-1}$)
- Isochronous cyclotron U-240 (8-80 MeV protons, 15-70 MeV deuterons, 140 MeV α-particles, heavy ions)
- Classical cyclotron U-120 (6.8 MeV protons, 13.6 MeV deuterons, 27.2 MeV α-particles, I_{max} = 50 μA)
- Tandem electrostatic generator EGP-10K (3-10 MeV protons and deuterons, 5-15 MeV α-particles, I_{max} = 5 μA)
- Heavily shielded boxes ("hot" cells) for handling highly radioactive materials.

Valuable Technology Offerings

- Radioisotope production for the needs of industry and medicine
- Plasma-chemical etching technologies
- Development and production of tritium based radiation sources
- Development and production of (d,d)- and (d,t)-based neutron generating tubes
- Radiation treatment technologies for food industry
- Radiation sterilization technologies for medical equipment and instruments
- Expert investigation of nuclear and radioactive materials
- Development and production of nuclear radiation detectors
- Analysis of radioactivity content in environmental samples
- Investigation of witness sample and determination of the radiation burden of power reactor vessels

Scientific Cooperation & Technology Transfer

KINR conducts collaborative researches with the scientists from Russian Federation, USA, France, Germany, Italy, Austria, Poland, Sweden, Netherlands, Japan and other countries. The international cooperation is implemented through joint R&D within the National Academy, STCU, CRDF, CNCP and INTAS projects. The valuable technology transfer is provided also through the IAEA and European Commission technical co-operation projects. KINR scientists participate in international collaborations, such as DESY and NEMO. KINR scientists also participate in joint researches at JINR (Dubna, Russian Federation) and CERN (Switzerland). International conferences, workshops, seminars, schools on nuclear, lepton, plasma and high-energy physics are periodically organized at the KINR.

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