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**AT THE FOREFRONT OF SCIENTIFIC-TECHNOLOGICAL  
REVOLUTION: SCIENTIFIC ELABORATIONS OF THE SCIENTISTS  
OF E.O. PATON ELECTRIC WELDING INSTITUTE IN  
THE SECOND HALF OF THE TWENTIETH CENTURY**

**Summary**

In the second half of the twentieth century, E.O. Paton Electric welding Institute. (hereinafter - IES) rate of creation of new technologies has increased significantly welding. The investigation of physical and metallurgical processes in welding, surfacing, coating, melting and other related technologies have given rise to new research progress in technology. In the fields of worker appeared a new energy, electronic, laser and light beams, plasma arc; mastered energy blast, magnetic pulse energy, friction, diffusion phenomena; developed the world's first micro welding heteropolar pulses. Were improved welding materials, improved equipment. Primarily the new technologies were used in the manufacture of atomic reactors, chemical devices, nodes missiles and aircraft, electronic equipment and other modern technology.

The research work performed world standart made in advanc welding materials, agglomerated flux, cored wires, high quality electrodes used for the manufacture of spherical tanks, pipe connections on highways, building structures and other responsible destination. We have already studied of thermal and metallurgical processes of welding, the strength of welded joints created databases, several thousand pieces of equipment.

For the Institute Technology of weld, electron-beam melting, solder, sprayed products millimeter thickness from a few meters to almost all metals, ceramics and other materials; scope of welding and related technologies expanded from jewelry industry and medicine to aerospace engineering and a great number of kilometers oil pipeline.

As in the «History of the National Sciences Academy of Ukraine»: noted «The Department of physical and technical problems it goes without saying the leader was the E.O. Paton Electric welding Institute, which became the world's largest research center in the field of welding and special electrometallurgy. The scientists of institute have received significant results in physics and low-arc discharge plasma powerful sharply focused beams of electrons and their control systems, melting and solidification of metals. The technology was developed welding mechanized pulsed, welding in space and underwater, electron beam welding very thick metals, created new effective and low toxic welding materials developed methods significantly improve the reliability and durability of welded structures operating at normal and low temperatures».

Now EWI named after Paton. – it's a scientific, technical and industrial complex, which includes besides the institute with academic departments and laboratories, experimental design and technology bureau, experimental production, Special Design and Technology Bureau of pilots production technology using metal explosion, three research factories several engineering centers, and various support services, working for all departments.