

INTERNATIONAL CONFERENCE «ROBOTIZATION AND AUTOMATION OF WELDING PROCESSES»



Annual, traditional, summer International Conference took place at the E.O. Paton Electric Welding Institute on June 13–14, 2017. This year Conference was dedicated to robotization and automation of welding processes. The Conference was organized by the National Academy of Sciences of Ukraine, E.O. Paton Electric Welding Institute and International Association



During visit of demonstration hall of the E.O. Paton Electric Welding Institute with a group of reporters of Chinese Xinhua News Agency. Demonstration of machine vision system

«Welding». More than 120 specialists from Ukraine, China and Poland participated in the Conference.

Among the participants are the scientists and specialists from E.O. Paton Electric Welding Institute, LLC «Fronius Ukraine», LLC «Fanuc Ukraine», LLC «Binzel Ukraine», Poland Institute of Welding in Gliwice, JSC «Motor Sich», NTUU «Igor Sikorsky KPI», Guangdong Institute of Welding (PRC), «Wei-han Science and Technology» (PRC) and others (in total more than 40 companies).

The Conference was opened by Prof. L.M. Lobanov, Deputy Director of the NAS of Ukraine (academician of the NAS of Ukraine). After welcoming the participants of the Conference, he in short review outlined the main directions of the presentations.

Around 30 presentations were made during plenary session of the Conference. Conditionally, they can be divided on the following directions by topics:

- tendencies of development and application of robotics;
- example of application of effective solutions in welding processes automation;
- means for geometry adjustment and monitoring in robotic arc welding;
- practice of implementation of robotic complexes.

A lot of the presentations sparked interest of the Conference participants and were accompanied by questions to the presenters.

A day before the Conference, on June 13, the participants had the possibility (optionally) to visit LLC «Fronius Ukraine» (Knyazhychi village, Brovary area, Kyiv region). A group of 40 people was divided and V. Bondarenko and V. Slyuta, the representatives of LLC «Fronius Ukraine», conducted a familiarization excursion around the company territory.

The visitors saw a laboratory of automation and robotization. It is equipped with welding systems for mechanized and automatic welding using one or two arcs, systems for orbital welding of pipe with pipe and pipe with tube plate, system for welding in different spatial positions, automatic systems with magnetic containment in flat and vertical positions, system for surfacing on cylinder bodies. Also MAG surfacing process and CMT process with pulsed arc were demonstrated. The participants were also familiarized with laboratory unit for dual arc welding of longitudinal extended welds.



Participants of the Conference before boat trip over Dnieper

Engineering service of LLC «Fronius Ukraine» has been working since 2006. It helps to generate an order together with the customer, ensures training of technologist-operators, and provides consultations and engineering support. All this guarantees «correct work». The engineering service has specially equipped class for training.

In the conclusion the visitors attended a presentation on «Examples of effective solutions of welding (surfacing) processes automation», including welding of longitudinal welds FLW, welding process TIME (2 arcs) of bracket-like columns, CMT surfacing of mining equipment (one-layer surfacing with portion of base metal in deposited ≤ 6 wt.%), surfacing of inner pipe surfaces of 6 and 9 m length, CMT surfacing of support bearings, operation of system for orbital welding of open and close type.

Familiarization with the developments of Fronius Company sparked lively interest of the visitors.

During the Conference the participants could visit a demonstration hall of the E.O. Paton Electric Welding Institute, where they could see welding robotic complex based on Fanuc robot and Fronius welding systems. The complex is equipped with machine vision system, developed at the E.O. Paton Electric Welding Institute by a team headed by Cand. of Tech. Sci. E.V. Shapovalov. «HORDA» wire from «Dizhka



Рac» package, courtesy of «Vitapolis» Company (Bo-yarka, Kyiv region), was used in the welding robotic complex.

Proceedings of the Conference were published in «Avtomaticheskaya Svarka» journal Nos. 5/6, 2017 and in English in «The Paton Welding Journal», Nos. 5/6, 2017.

The Conference had creative, friendly atmosphere and was traditionally closed by evening trip over Dnieper River on «Kashtan-5» motor ship, during which the participants admired of coastal landscapes with the churches, bridges over Dnieper as well as discussed in free atmosphere the perspectives of cooperation and directions of works in the field of welding processes robotization.

Dr. A. Zelnichenko and Prof. V. Lipodaev