

The Paton WELDING JOURNAL

English translation of the monthly «Avtomaticheskaya Svarka» (Automatic Welding) journal published in Russian since 1948

EDITORIAL BOARD

Editor-in-Chief B.E. Paton

Scientists of PWI, Kiev

S.I. Kuchuk-Yatsenko (*vice-chief ed.*),

V.N. Lipodaev (*vice-chief ed.*),

Yu.S. Borisov, G.M. Grigorenko,

A.T. Zelnichenko, V.V. Knysh,

I.V. Krivtsun, Yu.N. Lankin,

L.M. Lobanov, V.D. Poznyakov,

I.A. Ryabtsev, V.F. Khorunov,

K.A. Yushchenko

Scientists of Ukrainian Universities

M.N. Brykov, ZNTSU, Zaporozhie

V.V. Dmitrik, NTU «KhPI», Kharkov

V.F. Kvasnitsky, NUS, Nikolaev

V.D. Kuznetsov, NTUU «KPI», Kiev

Foreign Scientists

N.P. Alyoshin

N.E. Bauman MSTU, Moscow, Russia

Guan Qiao

Beijing Aeronautical Institute, China

A.S. Zubchenko

DB «Gidropress», Podolsk, Russia

M. Zinigrad

College of Judea & Samaria, Ariel, Israel

V.I. Lysak

Volgograd STU, Russia

Ya. Pilarczyk

Welding Institute, Gliwice, Poland

U. Reisinger

Welding and Joining Institute,

Aachen, Germany

O.I. Steklov

Welding Society, Moscow, Russia

G.A. Turichin

St. Petersburg SPU, Russia

Founders

E.O. Paton Electric Welding Institute, NASU

International Association «Welding»

Publisher

International Association «Welding»

Translators

A.A. Fomin, O.S. Kurochko,

I.N. Kutianova

Editor

N.A. Dmitrieva

Electron galley

D.I. Sereda, T.Yu. Snegiryova

Address

E.O. Paton Electric Welding Institute,

International Association «Welding»

11, Bozhenko Str., 03680, Kiev, Ukraine

Tel.: (38044) 200 60 16, 200 82 77

Fax: (38044) 200 82 77, 200 81 45

E-mail: journal@paton.kiev.ua

www.patonpublishinghouse.com

State Registration Certificate

KV 4790 of 09.01.2001

ISSN 0957-798X

Subscriptions

\$348, 12 issues per year,

air postage and packaging included.

Back issues available.

All rights reserved.

This publication and each of the articles contained

herein are protected by copyright.

Permission to reproduce material contained in this

journal must be obtained in writing from the

Publisher.

CONTENTS

Interview with Prof. S.I. Kuchuk-Yatsenko, the Deputy Director
of the E.O. Paton Electric Welding Institute 1

SCIENTIFIC AND TECHNICAL

*Kuchuk-Yatsenko S.I., Shvets Yu.V., Kavunichenko A.V.,
Shvets V.I., Taranenko S.D. and Proshchenko V.A.* Flash butt
welding of railway frogs through cast austenitic insert 5

Kravchuk M.V. and Ustinov A.I. Influence of thermodynamic
and structural parameters of multilayer foils on SHS process
characteristics 8

*Akhonin S.V., Belous V.Yu., Selin R.V., Petrichenko I.K. and
Vrzhizhevsky E.L.* Structure and properties of EB- and
TIG-welded joints of high-strength two-phase titanium alloys 14

Bushma A.I. State-of-the-art of hybrid laser-plasma welding
(Review) 18

Nachimani C. Analysis of the copper-chromium based
electrode deformation during resistance spot welding process 26

Senchishin V.S. and Pulka Ch.V. Calculation of size of
structural constituents of metal deposited by induction
method with application of mechanical vibration 31

INDUSTRIAL

Zhernosekov A.M. and Kislytsyn V.M. Application of pulse
welding power sources in electrochemical processes 35

Zhemanyuk P.D., Petrik I.A. and Chigilejchik S.L. Experience
of introduction of the technology of reconditioning
microplasma powder surfacing at repair of high-pressure
turbine blades in batch production 39

Lopukhov Yu.I. Erosion resistance of Cr-Ni-Si metal in
surfacing in different shielding environments 43

*Stefaniv B.V., Khorunov V.F., Sabodash O.M., Maksymova
S.V. and Voronov V.V.* Peculiarities of restoration of working
parts of drilling bit matrix bodies 47

Makovetskaya O.K. State-of-the-art and tendencies of
development of European market of joining technologies
(Review of materials of economical-statistical data collection
on welding production SVESTA-2014) 51