

## ELECTROMECHANICAL MATTERS. VNIEM STUDIES

Scientific and technical journal

Published since 1959

Released once every two months

### Chief Editor:

MAKRIDENKO L.A., Director General,  
D. Sc. (Tech.)

### Editorial board:

Vereshchagin V.P., D. Sc. (Tech.)

Volkov S.N., D. Sc. (Tech.)

Gecha V.Ia., D. Sc. (Tech.)

(Deputy Chief Editor)

Gorbunov A.V., Ph. D. (Tech.)

Duyshenaliyev T.B., D. Sc. of Physics  
and Mathematics (Kyrgyz Republic)

Zakharenko A.B., D. Sc. (Tech.)

Zolotoy S.A., Ph. D. (Tech.)

(Republic of Belarus)

Kazantsev S.G., D. Sc. (Tech.)

Karachun N.D., D. Sc. (Tech.)

Minaev I.V., D. Sc. (Tech.)

Nurguzhin M.R., D. Sc. (Tech.)

(Republic of Kazakhstan)

Pinchuk A.V., Ph. D. of Military Science

Sarychev A.P., D. Sc. (Tech.)

Tytnev A.P., D. Sc. of Physics  
and Mathematics

Fedotov A.Yu., D. Sc. (Tech.)

Hodnenko V.P., D. Sc. (Tech.)

Alabuzheva A.B.

(Editorial board Executive secretary)

### Executive editor:

Gecha V.Ia., D. Sc. (Tech.)

### Subscription index:

Union Catalogue

«Pressa Rossii»

**87648**

### Editorial office address:

JC «VNIEM Corporation», 30 Volnaia st., Moscow, Russian Federation. Postcode: 105187.

Tel.: (495) 365-30-63.

E-mail: vniem@vniem.ru; redaktori@mail.ru.

http://jurnal.vniem.ru.

Signed for print 3.07.2017. Format: 60×84 1/8.  
Conventional printed sheet 5,6. Circulation: 150 copies.  
Printed at «SAM-POLIGRAFIST» LLC6,  
Protopopovskii pereulok, Moscow. Tel.: (495) 545-37-10.  
www.onebook.ru.

© JC «VNIEM Corporation», 2016

## CONTENTS

### GENERAL QUESTIONS OF ELECTROMECHANICS

*S.G. Kazantsev*

Kinetic energy storage systems: global trends and russian national  
developments using HTS tapes of the second generation ..... 3

### SPACE ELECTROMECHANICS.

### SPACE CRAFTS.

### NEAR-EARTH SPACE RESEARCH

*V.Ia. Gecha, A.B. Zakharenko, A.I. Mizin,  
A.K. Nadkin, M.A. Iakubovich*

Execution options related to the current-collecting nodes  
using the rolling contact ..... 22

*A.B. Zakharenko, A.Iu. Fedotov, P.P. Telepnev*

Selecting position height of the experimental assembly  
intended for a full-scale ground experimentation performed  
with antenna of the space ionosphere ..... 28

*A.V. Melnikov, E.N. Mikhailov, A.E. Rabovskii*

Methodology for designing the optical part of local  
vertical sensors ..... 34

### HISTORY CHAPTERS OF THE NATIONAL SPACE METEOROLOGY

*L.A. Makridenko, S.N. Volkov, A.V. Gorbunov,  
V.P. Khodnenko*

Summary of development and basic results of flight tests  
and experimental operation of Electro No. 1 SC ..... 39