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Khairulin I.H., Riyanov L.N., Vavilov V.E. (FGBOU VPO «UGATU»)

ABOUT ACCOUNTING MAGNETIC SYSTEMS INTERACTIONS OF TRIAXIAL ELECTROMECHANICAL ENERGY CONVERTER

OF OSCILLATORY TYPE..... 3 The article deals with an original design of electromechanical energy converter of oscillative motion with three degrees of inductor freedom, implementation of which will enable to encrease specific power of electrical machines of this class, as well as performance factor. A mathematical model of researched triaxial electromechanical converter of oscillative motion taking into account a mutual influence magnetic systems and reflecting an interrelation mechanical electromagnetic and heat parameters of the proposed technical solution has been developed. An analysis of obtained dependences is brought. The results can be used for practice at designing one-, two-, and threeaxial electromechanical energy converters of oscillatory type.

Key words: non-conventional energy sources, electromechanical energy converters of oscillatory type, permanent magnets.

SPACE ELECTROMECHANICS. SPACECRAFT

Bezrodnikh I.P., Morozova E.I., Petrukovitch A.A. (SRI RAS)

Semenov V.T., Dolkart V.M. (JSC «VNIIEM Corporation»)

RADIATION LOADS ON SPACECRAFT AT PUTTING THEM ON INTERPLANETARY TRAJECTORY

Basing on calculation of radiation absorbed doses from earth radiation belts particles, it was concluded that at leading a spacecraft out of intermediate near-earth orbit (orbit inclination 51°, perigee 220 km, apogee 13 000 km, perigee argument 270°, orbit time about 6 h) on interplanetary trajectory at absent of solar bursts, the biggest radiological hazard is represented by relativistic electrons of outer belt. Manned space vehicles used the above mentioned intermediate orbit must have an aluminium screen with mass thickness not less than $3g/cm^2$ for radiation protection of the crew. At these parameters of the screen independently of the outer radiation belt status the radiation absorbed dose from radiation belt particles will not exceed 12 rad with a probability of 99,9%.

Key words: radiation absorbed dose, radiation belts, preservation against ionization radiation of space rays.

Vorokov A.V. (JSC «VNIIEM Corporation»)

RESEARCHING POSSIBILITY TO USE DOAS METHOD FOR RECOVERY OF TRACE GAS CONTENT OF THE EARTH'S ATMOSPHERE ACCORDING TO SPECTROMETER DATA

To measure quantity of small gases content in atmosphere, it is proposed to process a spectral radiance of solar emission dissipated and absorbed in atmosphere using DOAS (differential optical absorption spectroscopy) method. The main provisions of this method were considered and conclusion on practicability to use it for SA-MP apparatus designed to operate in perspective Meteor-MP SC No 1 with the aim to improve quality of interpretable information on the stage of thematic processing was drawn. Key words: DOAS method, Buger – Lambert – Baire law, Ring's effect, Fraunhofer's lines, least square method, air mass coefficient.

Gorbulin V.I., Shcherbakov V.I. (Military space academy n.a. A.F. Mozhaysky)

space rope system. The lower level system it's a middle class LV for delivery of crews and cargos to the orbital station. Key words: SSC, transport technologic service, space rope system.

PRODUCTS AND EQUIPMENT TEST PROCEDURES

Krasova N.A., Pustobayev M.V., Tyutnev A.P. (JSC «VNIIEM Corporation»)

An analysis of modern calculation and experimental methods to assess an impact loads on spacecraft on-board equipment (SC OBE) and confirm its percussion strength is presented. A method enabling to increase endurance of SC OBE under development to impact effects is proposed. Key words: spacecraft, impact effects, testing, calculation, impact spectrum, pyrotechnic.

ELECTROMECHANICS AND SOCIOECONOMIC DEVELOPMENT OF THE COUNTRY

Karelin A.V. (FSUE TsNIImash)

Ruzakov A.Yu., Khiblin I.N. (JSC «VNIIEM Corporation»)

The article presents calculation data of the NOC-facility active zone bearing part structure for nuclear wastes disposal in two design variants: standard (baseline) and enforced structure. The results of strength and proper frequency structure calculation show that the standard design satisfies fully requirements presented to NPP at 7 points earthquake at installation on 0 m mark level.

Key words: nuclear optical converter, strength calculation, earthquake, proper frequency, finite element model, reserve coefficient.

Makridenko L. A., Minavev I.V. (ISC «VNIIEM Corporation»)

SPACE HARDWARE CREATION PROJECTS QUALITATIVE ASSESSMENT METHODOLOGICAL PECULIARITIES
A methodological approach to system justification for structuring qualitative assessment of space hardware design in the contemporary context.
Key words: space hardware design, qualitative assessment levels hierarchy, enterprise strategic potential, projects control.

Shuvalov V.A., Yakovlev A.A. (FSUE TsNIImash)

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PAGES OF NATIONAL SPACE METEOROLOGY HISTORY

Makridenko L.A., Volkov S.N., Gorbunov A.V., Khodnenko V.P. (JSC «VNIIEM Corporation»)

A period of development of national space meteorology from «Kosmos-122» ESV launch to creation and operation of meteorological space system «Meteor» is considered. Key words: satellite, meteorological observations, scientific-informative hardware, support system, nebulosity structure, television systems, infra-red equipment, actinometric equipment, meteorological space system.