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GENERAL PROBLEMS OF ELECTROMECHANICS_

Makridenko L.A., Sarichev A.P., Vereshchagin V.P., Rogoza A.V. (FGUE «NPP VNIIEM») STATE OF THE ART AND PERSPECTIVES FOR ELECTROMAGNETIC BEARINGS DEVELOPMENT
IN FGUE «NPP VNIIEM»
Main stages of development of electromagnetic bearings used in different designs of FGUE «NPP VNIIEM» in fields of space techniques and gas industry are considered in this article. An analysis of main sci-tech problems characterizing a scientific level and results of fulfilled designs has been conducted. A comparison of some specifications of electromagnetic bearings developed by FGUE «NPP VNIIEM» for gas pumping units to foreign companies' samples is carried out. The presented data testify about correspondence of VNIIEM's bearings to up-to-date world level. The expansion of production of bearings for gas industry and development of new samples for large power plants and space techniques is considered to be perspective.
Key words: electromagnetic bearings, development problems, fields of application, specification.
SPACE ELECTROMECHANICS. SPACECRAFT_
Volkov S.N., Kazantsev S.G., Fryantsev A.V. (FGUE «NPP VNIIEM»)
APPROXIMATION AND INTERPOLATION METHOD VIA THE SIMPLEST FRACTIONS
AS A NEW APPROACH FOR PREVIOUS COMPUTING THE EARTH REMOTE SENSING
DATA OBTAINED FROM THE SPACE
geometric correction and radiometric calibration by means of approximation and interpolation via the simplest fractions is proposed. The advantage of this method is that the absolute error of this method is by an order less than the polynomial approximation one. Key words: the Earth remote sensing, image recognition, recovery and picture enhancement, simplest fractions.
Egorov V.V. (Space research institute of RAS)
SPACE RADIO ALTIMETRY. MODERN STATE OF THE ART, CURRENT PROBLEMS AND WAYS TO RESOLVE THEM
A modern state of the art and problems of space radio altimetry including different methods and means for altimetry sounding the earth surface. The considered problems are issues of uncertainties in altitude measuring, consideration on influence of ionosphere and troposphere on altimetry results. The underuse of prior information while processing the measured data; inefficient implementation of optimal and quasioptimal processing algorithms of radioaltimeter echoed signals, insufficient high true accuracy altitude measurement are between the considered problems. Possibilities and ways to resolve the specified problems are examined herein. Key words: altitude, radioaltimeter, uncertainty, accuracy, ionosphere, prior information, optimality, aperture synthesis.
Vorobyov A.A., Zikova T.S., Spitsin D.D., Udintsev R.D., Yanevsky V.D. (SRF Military Academy n.a. Peter the Great)
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Evseev I.V., Yurov V.M. (SRF Military Academy n.a. Peter the Great)
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determination of aerodynamic coefficients at solving problems of optimization. Key words: descent spacecraft modules, aerodynamic coefficient, aerodynamic equivalence, numerical method, noncircular form.
Bezrodnikh I.P., Morozova E.I., Petrukovich A.A. (SRI RAS)
Kazantsev S.G., Kotchetov I.V., Semenov V.T. (FGUE «NPP VNIIEM») BRAKING RADIATION OF ELECTRONS IN SPACECRAFT MATTER. CALCULATION METHODOLOGY
method are quoted here. A problem of interacting flow relativistic electrons with spacecraft matters and influence of various constructional materials on background radiation formation of deceleration emission inside the spacecraft come under review. An interaction of braking radiation quanta with crystal Csl(Tl) is described here in details as an example for Monte Carlo modeling method on electromagnetic radiation quanta passing through a complex chemical composition matter. Key words: spacecraft, space rays, radiation belt, relativistic electron, continuous X-ray radiation, Monte Carlo method.
ELECTROMECHANICS AND SOCIOECONOMIC DEVELOPMENT OF THE COUNTRY
Kazantsev S.G., Ovcharenko T.N. (FGUE «NPP VNIIEM»)
PIEZOELECTRIC CRYSTALS MECHANICAL PROPERTIES FOR ACOUSTOELECTRIC DEVICES
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