BULETINUL ŞTIINŢIFIC
al Universităţii "Politehnica" din Timişoara, Romania
SCIENTIFIC BULLETIN OF
"Politehnica" University of Timişoara, Romania

Contents and abstracts

Seria MATEMATICĂ - FIZICĂ
Transactions on MATHEMATICS & PHYSICS
Tom 47(61) , Fascicola 1, 2002, ISSN 1224-6069

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ABSTRACTS
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Mathematics

ON THE THEORY OF HYPERCOMPLEX N-TUPLE SPACES I - SUPRA NILFACTORS AND SUPRA-FRÉCHET DIFFERENTIATION IN E(σ) -

Hiroyoshi SASAYAMA

Abstract. In the present paper, we shall show that the notion of the supra-nilfactors (i.e. supra zero divisor) can be considered also in the hypercomplex *n*-tuple space and that there is a sufficient condition for non-appearance of both nilfactors and supra-nilfactors in E(σ), together with the definition of supra-Fréchet differentiability equivalent to the one given in the previous paper [I.11] which gives the generalized C.R. equations..

Keywords: hypercomplex *n*-tuple, nilfactors.

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ON VARIATION OF THE VOLUME BOUNDED BY ROTATION SURFACE UNDER INFINITESIMAL BENDING OF MERIDIAN

Ljubica S. VELIMIROVIĆ

Abstract. In this paper we investigate infinitesimal bending of a curve. Specially, the infinitesimal bending field that plane curve includes in a family of plane curves is given. Change of the volume bounded by rotational surface, under infinitesimal bending of the meridian, remaining closed plane curve, is given. The variation of the volume in this case does not have to be zero. Two examples are considered. In a case of a circle the volume is stationary, but in a case of cardioid variation of volume is non-zero.

Keywords: Infinitesimal bending, curve, infinitesimal bending of meridian, variation, volume

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ON BENDING OF HYPERBOLIC PARABOLOID

Ljubica S. VELIMIROVIĆ

Abstract. In this paper we consider geometric characteristic of a surface of hyperbolic paraboloid. Bending and infinitesimal bending of such a surface is considered. Infinitesimal bending field of hyperbolic paraboloid is given. In building

constructional sense it is a surface of a great bearing capacity by which a space based on any desired from can be covered.

Keywords: Hyperbolic paraboloid, infinitesimal bending, bending.

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CLARIFICATIONS OF THE AUTHOR'S PREVIOUS PAPER ON GOLDBACH'S CONJECTURE

Malvina BAICA

Abstract. In a previous paper [1] the author gave a tentative proof of Goldbach's Conjecture. The purpose of this paper is to provide additional explanations and to give a definitive version of the above mentioned work.

Keywords: Goldbach's Conjecture

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ON THE VOLUME FORMULA OF AN ε-ABSOLUTELY THIN TUBE

Nicolae BOJA

Abstract. It is established a formula of the volume of an ε-absolutely thin tube in the ambient Euclidean 3-space depending only on the tube tickness and on the total absolute curvature of its middle surface.

Keywords: ε-absolutely thin tube, shape operator, total absolute curvature, tube tickness and volume.

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OSCULATING CONVEXITY OF FIRST ORDER FOR PLANE CURVES

Codruța STOICA and Lavinia SIDA

Abstract. In this paper we intend to study the relationship between a convexity for curves defined by means of the position of the osculating circle's center and various types of convexity for sets and functions. We take into account the classical convexity for functions, the generalized (H, C)-convexity for functions and the ((S, s), r) convexity for sets.

Keywords: convexity for curves , (H, C)-convexity for functions, ((S, s), r) convexity for sets.

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CONSERVATION LAWS FOR DYNAMICAL HAMILTONIAN SYSTEMS ON HAMILTON SPACES OF ORDER k ≥ 1

Florian MUNTEANU

Abstract. In this paper we study dynamical Hamiltonian systems on some submanifold of the dual bundle of a k tangent bundle. Using the notions of symmetry and pseudosymmetry we obtain a kind of conservation laws for the higher order Hamiltonian, like in the case of classical Hamiltonian on T^*M.

Keywords: conservation law, symmetry, dynamical system, Hamiltonian system, Hamilton space of order k ≥ 1, Hamilton-Jacobi equations.

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GENERAL STABILITY OF THE CUBIC FUNCTIONAL EQUATION

Paşc GĂVRUTA and Liviu CĂDARIU

Abstract. In this paper, we give some general results on the stability of the cubic functional equation considered recently by J.M. Rassias [4].

Keywords: group homomorphism, cubic functional equation, Banach space, cubic mapping.

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Physics

RESEARCHES REGARDING THE CO-BE THIN FILMS

M. BOLDAN, M.GANGĂL

Abstract. In order to achieve Co-Be ferromagnetic thin films using the electrodeposition method. The conditions to be respected are: the adherence and the continuity of the obtained sample, the maximum of deposition efficiency and the chemical, mechanical and magnetic properties to be reproducible, answering to the purpose.

The experience shows that little changes in deposition conditions have a consequence major variations in the quality of the investigated samples.

Keywords: ferromagnetic thin films

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RESEARCES UPON THE ACHIEVEMENT OF SOME NEW VITROCERAMIC MATERIALS

M.GANGĂL, M.BOLDAN

Abstract. Progress of modern techniques cannot be imagined without magnetic materials, thus, for this reason, in the last few years in order to obtain new materials, many studies were leaded on the achievement of vitroceramic materials containing metalic oxides.

Keywords: magnetic materials

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BLACK-BODY RADIATION:THE LORENTZ TRANSFORMATION OF PLANCK'S LAW

Bernhard ROTHENSTEIN, Aldo De SABATA, Floricica BARVINSCHI

Abstract. A simple and transparent derivation of the Lorentz transformation of Planck's law is presented. It requires the knowledge of the laws governing black-body radiation in the rest frame of the source, the Lorentz-Einstein transformations for the space-time coordinates of events, and the Doppler effect. A diagram is proposed that displays, in true values, the physical quantities associated to black-body radiation in the rest frame of the source, and in a reference frame relative to which the source moves with constant velocity.

Keywords: black-body radiation

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COMPLEX MAGNETIC PERMEABILITY OF SOME LI AND LI-ZN FERRITES

I.Hrianca, M. Cristea, A. Ratuszna, N. Stefu

Abstract. The dependence of complex magnetic permeability on frequency in the range 4 ÷35 MHz was determined, for two types of powder Li ferrite and LiZn ferrite samples. The X - spectra of samples before and after calcination are discussed. The results of magnetic measurements show very small magnetic losses, independent on frequency, but increase significantly after sintering process.

Keywords: Li ferrite, LiZn ferrite

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MICROWAVE TRANSIENT PHOTOCONDUCTIVITY STUDIES IN POROUS SEMICONDUCTORS

Horia-Eugen PORȚEANU, Elisaveta KONSTANTINOVA, Vladimir KYTIN, Oleg LOGINENKO,Victor TIMOSHENKO, Thomas DITTRICH, Frederick KOCH

Abstract: The dynamics of the photogenerated carriers in porous silicon and TiO_2 anatase was studied at 35 GHz by measuring the change in time of the conductivity σ and dielectric constant ε_r. Localization of carriers leads to a positive change of ε_r, while quasifree carriers to a negative change. Size reduction in Si shortens the recombination time as long as the surface traps are not significant. Magnetic field investigations show opposite variation of conductivity in porous silicon compared with TiO_2.

Keywords: porouse silicon

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ABOUT THE EFFICIENCY OF SOLAR ENERGY STORAGE IN THE PEBBLE BEDS

Cristian MARCU, Ioan LUMINOSU, Filip LUPEA

Abstract. It is well known, that the solar energy utilization in the processes of heating has required, in the most instances, the presence of a storage segment [1]. The method of the pebble bad storage is very suitable into all of the cases in which the air is circulated as the thermal agent (the working fluid).

The paper provides a review of the behavior of the pebble bed storage systems in correlation with the shape and the sizes of storage tancks and storage materials, the rate flow of air and some considerations on the thermal balance.

Keywords: solar energy

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