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Mathematics

THE ELLIPTICAL FERMAT'S LAST THEOREM (ELFLT) AND THE ORIGINAL EUCLIDEAN FERMAT'S LAST THEOREM (EFLT)

Malvina BAICA

Abstract. In this paper the author will show that the Elliptical Fermat's Last Theorem (ELFLT) proved by Faltings in the geometry of the elliptic curves is equivalent to (not the same as) the original Fermat's Last Theorem stated by Fermat in Euclidean Geometry and proced by the author.

Keywords: Euclidean algorithm, Baica's General Euclidean Algorithm, Euclidean Fermat's Last Theorem, Elliptic Fermat's Last Theorem.
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ABOUT SIX-DIMENSIONAL PLANAR HERMITIAN SUBMANIFOLDS OF CAYLEY ALGEBRA

Mihail B. BANARU and Galina A. BANARU

Abstract. It is proved that six-dimensional planar Hermitian submanifolds of the octave algebra are ruled manifolds.

Keywords: planar submanifold, Hermitian manifold, ruled manifols, Cayley algebra.
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SUR LE CALCULE AUTOMATIQUE DE QUELQUES INTEGRALES TRIGONOMETRIQUES

Constantin MILICI

Résumé. Dans ce présent travail nous proposons de préciser le calcule automatique de quelques coefficients α des sommes trigonométriques plus générales $A_{p,q}$ exprimées par l'integrale: x x x .

Keywords: calcule automatique de quelques coefficients α
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ON SET VALUED FUNCTIONS PROBABILISTIC SUBMEASURABILITY

Octavian LIPOVAN

Abstract. Using probabilistic generalizations of submeasure notion, in [4] the author defined the probabilistic submeasurability of set valued functions and studied some properties of this. The purpose of this paper is to obtain a criterion of probabilistic submeasurability by using the notion of "control submeasure".

Keywords: submeasure notion, probabilistic submeasurability.
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SOME REMARKS ABOUT THE RIGID BODY WITH TWO QUADRATIC CONTROLS

Cristian LĂZUREANU

Abstract – We prove the integrability via Jacobi's elliptic functions of the rigid body equations with two particular quadratic controls and we study the stability of the equilibrium states of this equations.

Keywords: elliptic functions of the rigid body equation.
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CONTROL AND STABILITY ON THE HEISENBERG LIE GROUP H(3)

Camelia ARIEŞANU

Abstract. In the last time there was a great deal of interest in the study of control system on matrix Lie groups in connection with their deep applications in robotics, classical mechanics and engineering. The goal of our paper is to study such control system on the Heisenberg Lie group H(3).

Keywords: control and stability, Lie groups.
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A FUNCTIONAL DEFINITION OF EXPONENTIAL FUNCTION

Nicolae N. NEAMŢU

Abstract. The purpose of this paper is to give a functional definition of the exponential function and the basic properties of the function.

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STABILITY OF THE EIGENVECTORS OF AN OPERATOR COMING FROM CUNTZ ALGEBRAS AND WAVELETS

Paşc GĂVRUŢĂ and Liviu CĂDARIU

Abstract. Are given two results concerning the stability of the eigenvector of an operator studied by O.Brately and P.E.T.Jorgensen in connexion with representations of the Cuntz algebras and wavelets.

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A MOMENT PROBLEM FOR OPERATORS

Doru PĂUNESCU

Abstract – We study a family of bounded linear operators double indexed by a subsemigroup, operators which satisfies both a positivity condition introduced by Zoltan Sebestyen in [5] and a regularity one introduced by P.Găvruţă and the author in [1]; we prove the these operators can be expressed in terms of communiting semigroups of operators acting on an appropriate Hilbert space.

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Physics

ON THE HEAT LOOS OF FLAT-PLATE SOLAR COLLECTOR

Ioan LUMINOSU and Cristian MARCU

Abstract – The paper sets itself to illustrate, based on relations presented in literature, the way in which the global heat loss coefficient was predetermined by numerical method, as well to present its values, as a result of measurements performed by means of a set of collectors used in the western part of Romania.

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POSITION AND MOMENTUM INFORMATION ENTROPIES OF THE ROTATING MORSE OSCILLATOR

Dušan POPOV

Abstract. In the paper we have examined the position – and moment – space information entropies of the rotating Morse potential, which plays a dominant role in model calculations in molecular spectroscopy. These entropies are related to new appearing kind of entropy, called "entropy of the hypergeometrical function" and which is calculated in the parabolic logarithm approximation.

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CHARGE CARRIERES ENERGY SPECTRA AND STATES IN ANISOTROPIC AND BOUNDED STRUCTURES

J. P. ŠETRAJIČIĆ, B. B. TOŠIĆ, S. M. STOJKOVIĆ and D. L. J. MIRJANIĆ

Abstract. In this paper we shll study crystaline structures where translational symmetry of the atom (ion) distribution of the electron (or hole) system in broken by the sputtering and due to existence of two boundary surfaces. This is a model of high-temperature superconductors in which the observed symmetry breaking orthogonal to CuO planes was treated as a perturbation. The single-particle fermion wave functions and the possible energies of charge carriers were determined. The competitive existence of the superconductive and normal regions in such sample was shown in agreement with experimental data. The conditions for the formation of superconductive states and the limitations on current density values in the planes parallel to boundary surfaces (in CuO planes) were obtained and discussed.

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