Intellectual Archive

BULLETIN

March
2012

ISSN 1929-1329

Intellectual Archive

BULLETIN

Abstracts and the descriptions of works in
Art and Science
submitted to www.IntellectualArchive.com

Toronto
March 2012

Publisher: Shiny World Corp.

Address: 9350 Yonge Street
P.O.Box 61533,
Richmond Hill, Ontario
L4C 3N0
Canada

E-mail: support@IntellectualArchive.com
Web Site: www.IntellectualArchive.com

Series: Bulletin

Frequency: Monthly

Month: March of 2012
ISSN: 1929-1329

Abstracts and the descriptions of works in Art and Science submitted to www.IntellectualArchive.com in March 2012

ID 176 **Natural Sciences / Physics / Nuclear physics**
Submitted Mar 01, 2012
Author A.A. Bolonkin
Title: Femtotechnology: Nuclear AB-Material with Fantastic Properties
Abstract: At present the term `nanotechnology` is well known in its` ideal form, the flawless and completely controlled design of conventional molecular matter from molecules or atoms. Such a power over nature would offer routine achievement of remarkable properties in conventional matter, and creation of metamaterials where the structure not the composition brings forth new powers of matter. But even this yet unachieved goal is not the end of material science possibilities. The author herein offers the idea of design of new forms of nuclear matter from nucleons (neutrons, protons), electrons, and other nuclear particles. He shows this new `AB-Matter` has extraordinary properties (for example, tensile strength, stiffness, hardness, critical temperature, superconductivity, supertransparency, zero friction, etc.), which are up to millions of times better than corresponding properties of conventional molecular matter. He shows concepts of design for aircraft, ships, transportation, thermonuclear reactors, constructions, and so on from nuclear matter. These vehicles will have unbelievable possibilities (e.g., invisibility, ghost-like penetration through any walls and armour, protection from nuclear bomb explosions and any radiation flux, etc.)
Web link: ***www.IntellectualArchive.com/getfile.php?file=AwwkR9OOoDm&orig_file=Femtotechnology Nuclear AB-Material with Fantastic Properties.doc***

ID 177 **Natural Sciences / Physics / Particle physics**
Submitted Mar 01, 2012
Author Colin James
Title: Understanding the Cause of Electric Charge in Electrons and Quarks
Abstract: I suggest that the electron is an electron neutrino with a unique frequency (~ 2.47 x 1020s-1). The unique frequency is identified by the vacuum s virtual photons and the electron is contained by elastic collisions in an approximately circular orbit (hence the diffuse nature of the electron). The containment redistributes the vacuum energy by redirecting one handedness of virtual photons outwards. The loss of homogeneity in the vacuum is counteracted by an inflow of oppositely handed virtual photons. The outward and inward flows account for electric charge. The electron s spin (h/4Ï€) is the spin of its orbit relative to a moving observer. The diameter of the free electron s containment orbit equals the reduced Compton wavelength and its circumference is half the Compton wavelength. A similar structure within hadrons shows the 2:1 charge ratio for quarks. A search for intermittent e2-, e3- and e2+, e3+ with masses /2me, /3me may provide support for the theory.
Web link: ***www.IntellectualArchive.com/getfile.php?file=25dUl8JRgkC&orig_file=Understanding the Cause of Electric Charge in Electrons and Quarks.pdf***

ID 178 **Natural Sciences / Physics / Quantum field theory**
Submitted Mar 07, 2012

Author Ervin Goldfain
Title: Fractional Field Theory and Deep Terascale Physics
Abstract: During the last decade, a number of important developments have surfaced concerning fractional calculus and its applications in various branches of fundamental and applied science. In particular, fractional field theory (FFT) represents an active area of research in mathematical physics whose motivation stems, in part, from its ability to shed light on many of open questions surrounding Quantum Field Theory (QFT), Standard Model for particle physics (SM) and Quantum Gravity Theories (QG). We review here some recent developments of FFT that promise to recover the physics of SM in the low-energy limit and solve some of its seemingly intractable puzzles.
Web link: ***www.IntellectualArchive.com/getfile.php?file=jFhrsGKjMgM&orig_file=Fractional_Field_Theory_and_Deep_Terascale_Physics.pdf***

ID 179 **Natural Sciences** / **Physics** / **Astrophysics**
Submitted Mar 10, 2012
Author Antoine Acke
Title: PHYSICAL FOUNDATION OF GRAVITO-ELECTROMAGNETISM - THE THEORY OF INFORMATONS
Abstract: The "theory of informatons" explains the gravitational interactions by the hypothesis that "information" is the substance of gravitational (and of E.M.)fields. The constituent element of that substance is called an "informaton". Every material object manifests itself in space by the emission of informatons. These are dot shaped mass and energy less entities that rush away with the speed of light, carrying information about the position and the velocity of the emitter. The laws of gravito-electromagnetism are mathematically deduced from the dynamics of the informatons, and the gravitational interactions are explained as the effect of the trend of a material object "to become blind" for flows of information generated by other masses.
Web link: ***www.IntellectualArchive.com/getfile.php?file=TPHZOulTfP4&orig_file=PHYSICAL FOUNDATION OF G.E.M..pdf***

ID 180 **Natural Sciences** / **Mathematics** / **Topology**
Submitted Mar 11, 2012
Author Alexander A. Ermolitski
Title: On a geometric black hole of a compact manifold
Abstract: Using a smooth triangulation and a Riemannian metric on a compact, connected, closed manifold Mn of dimension n we claim that every such Mn can be represented as a union of a n-dimensional cell Cn and a connected union Kn-1 (dim Kn-1<= n-1) of some finite number of subsimplexes of the triangulation. A sufficiently small closed neighborhood of Kn-1 is called a geometric black hole. Any smooth tensor field K (a fiber bundle) can be deformed into a continuous and sectionally smooth tensor field K where K has a very simple construction out of the black hole.
Web link: ***www.IntellectualArchive.com/getfile.php?file=0DbQZ8THP3h&orig_file=On_a_geometric_black_hole_of_a_compact_manifold_2.pdf***

ID 181 **Natural Sciences** / **Physics** / **Nuclear physics**
Submitted Mar 14, 2012

Author Han Geurdes
Title: Stochastic Physics & Bell`s correlation
Abstract: In general physics and nuclear physics in particular quantum mechanics is a key theory. In the present paper Bell`s theorem that supports the idea that quantum mechanics is a fndamental theory is questioned. In experiment Bell`s inequality (especially the CHSH measure) is confirmed. However, it is argued by me that the mathematics of Bell`s inequality is insufficiently `waterproof` to allow this conclusion.
Web link: ***www.IntellectualArchive.com/getfile.php?file=eGKTqBoG9lX&orig_file=geurdesStochasticPhysics[1].pdf***

ID 182 **Natural Sciences** / **Physics** / **Relativity**
Submitted Mar 14, 2012
Author Han Geurdes
Title: On an intrinsic quantum theoretical structure inside Einstein`s gravity field equations
Abstract: As is well known, Einstein was dissatisfied with the foundation of quantum theory and sought to find a basis for it that would have satisfied his need for a causal explanation. In this paper this abandoned idea is investigated. It is found that it is mathematically not dead at all. More in particular: a quantum mechanical U(1) gauge invariant Dirac equation can be derived from Einstein`s gravity field equations. We ask ourselves what it means for physics, the history of physics and for the actual discussion on foundations.
Web link: ***www.IntellectualArchive.com/getfile.php?file=Erp7NnijEqU&orig_file=JFGeurdes_On_an_intrinsic_quantum_theoretical_structure.pdf***

ID 183 **Natural Sciences** / **Mathematics** / **Algebra**
Submitted Mar 16, 2012
Author JAN MOSER
Title: JACOB`S LADDERS AND THE Z2-TRANSFORMATION OF THE ORTHOGONAL SYSTEM OF TRIGONOMETRIC FUNCTIONS
Abstract: It is shown in this paper that there is a continuum set of orthogonal systems relative to the weight function Z2(t). The corresponding integrals cannot be obtained in known theories of Balasubramanian, Heath-Brown and Ivic.
Web link: ***www.IntellectualArchive.com/getfile.php?file=PJitAgSEpQh&orig_file=Jan_Moser_Jacobs_ladders_and_the_Z2_transformation.pdf***

ID 185 **Natural Sciences** / **Mathematics** / **Differential equations**
Submitted Mar 17, 2012
Author Mikhail P. Kharlamov
Title: Bifurcation diagrams of the Kowalevski top in two constant fields
Abstract: Bifurcation diagrams of the Kowalevski top in two constant fields
Mikhail P. Kharlamov
generalized Kowalevski top, bifurcation diagrams

The Kowalevski top in two constant fields is known as the unique profound example of an integrable Hamiltonian system with three degrees of freedom not reducible to a family of systems in fewer dimensions. As the first approach to topological analysis of this system we find the critical set of the integral map; this

set consists of the trajectories with number of frequencies less than three. We obtain the equations of the bifurcation diagram in three-dimensional space. A correspondence to the Appelrot classes in the classical Kowalevski problem is established. The admissible regions for the values of the first integrals are found in the form of some inequalities of general character and boundary conditions for the induced diagrams on energy levels.

Web link: ***www.IntellectualArchive.com/getfile.php?file=qb3DMbE21ti&orig_file=KhMP_rcd2005.pdf***

ID 186 **Natural Sciences** / **Physics** / **Electromagnetism**

Submitted Mar 17, 2012

Author Norman Dombey

Title: Abdus Salam: A Reappraisal PART I How to Win the Nobel Prize

Abstract: Abdus Salam`s correspondence during his time as Director of the International Centre for Theoretical Physics (ICTP) is held in the Abdus Salam Archive of the Salam International Centre for Theoretical Physics. I use this correspondence to discuss his contribution to the theory of electromagnetic and weak interactions for which he was awarded the Nobel Prize in Physics in 1979.

Web link: ***www.IntellectualArchive.com/getfile.php?file=ipJN26j2WBI&orig_file=Norman_Dombey__Abdus_Salam_A_Reappraisal_PART_I.pdf***

ID 187 **Natural Sciences** / **Physics** / **Electromagnetism**

Submitted Mar 17, 2012

Author Norman Dombey

Title: Abdus Salam: A Reappraisal PART II Salam`s Part in the Pakistani Nuclear Weapon Programme

Abstract: Salam`s biographies claim that he was opposed to Pakistan`s nuclear weapon programme. This is somewhat strange given that he was the senior Science Advisor to the Pakistan government for at least some of the period between 1972 when the programme was initiated and 1998 when a successful nuclear weapon test was carried out. I look at the evidence for his participation in the programme.

Web link: ***www.IntellectualArchive.com/getfile.php?file=2O6mGfMMrO4&orig_file=Norman_Dombey__Abdus_Salam_A_Reappraisal_PART_II.pdf***

ID 188 **Natural Sciences** / **Physics** / **Optics**

Submitted Mar 17, 2012

Author Reuven Gordon

Title: Limits for superfocusing with finite evanescent wave amplification

Abstract: Perfect lensing using negative refractive index materials and radiationless electromagnetic interference both provide extreme subwavelength focusing by amplifying evanescent wave components that are usually lost. This paper provides a relation between the achievable focus spot size, the amplification available and the focal length. This may be considered as a revised version of Abbe`s diffraction limit for focusing systems that have evanescent wave amplification. It is useful in comparing the amplification achieved in various subwavelength focusing implementations, as well as determining when it is better to use existing near-field techniques, such as simple diffraction from an aperture or slit, than to attempt complicated superfocusing.

Web link: ***www.IntellectualArchive.com/getfile.php?file=KI1QxNKsJN2&orig_file=Reuv***

en_Gordon__Limits_for_superfocusing.pdf

ID 189 **Natural Sciences** / **Computer Sciences** / **Artificial intuition**
Submitted Mar 17, 2012
Author Mark Zilberman
Title: Artificial Intuition Device and Real Life Lottery Games
Abstract: Artificial Intuition is commonly viewed as a special algorithm capable of replicating some properties of human intuition. Unfortunately the software-based Artificial Intuition currently fails to be useful for lottery players and to generate profit. At the same time, multiple publications have show that human ability to win in lotteries, in casinos and to forecast the stock market is variable and correlates negatively with geomagnetic activity. Artificial Intuition Device (AID) employs a hardware solution to Artificial Intuition and replicates some of human intuition abilities on specially-designed scientific equipment. During public testing phase, AID was programmed to forecast the outcomes of Ontario 'PICK-3' lottery and then post these predictions on the Internet, several hours prior to the lottery draws. These predictions were also recorded on an independent computer in London University (UK). During the public testing phase (lasting 1.5 years) AID was capable of generating a profit instead of loss as per null hypothesis. Similarly to human intuition, AID performance is influenced by geomagnetic activity. In geomagnetic-quiet days AID generated profit above $1,300. On geomagneticactive days, AID produced loss of about $1,000. Accounting for this influence allows us to amplify AID performance by using predictions only from days with suitable environmental conditions.
Web link: ***www.IntellectualArchive.com/getfile.php?file=u6ORgeUlnrg&orig_file=Mark_Zilberman_Artificial_Intuition_Device_and_Real_Life_Lottery_Games.pdf***

ID 190 **Natural Sciences** / **Mathematics** / **Topology**
Submitted Mar 18, 2012
Author SHENGMAO ZHU
Title: THE HIGHER ORDER TERMS IN ASYMPTOTIC EXPANSION OF COLOR JONES POLYNOMIALS
Abstract: Color Jones polynomial is one of the most important quantum invariants in knot theory. Finding the geometric information from the color Jones polynomial is an interesting topic. In this paper, we study the general expansion of color Jones polynomial which includes the volume conjecture expansion and the Melvin-Morton-Rozansky (MMR) expansion as two special cases. Following the recent works on SL(2, C) Chern-Simons theory, we present an algorithm to calculate the higher order terms in general asymptotic expansion of color Jones polynomial from the view of A-polynomial and noncommutative A-polynomial. Moreover, we conjecture that the MMR expansion corresponding to the abelian branch of A-polynomial. Lastly, we give some examples to illustrate how to calculate the higher order terms. These results support our conjecture.
Web link: ***www.IntellectualArchive.com/getfile.php?file=8LJtEhliQZ0&orig_file=Shengmao_Zhu__The_higher_order_terms.pdf***

ID 191 **Natural Sciences** / **Mathematics** / **Algebra**
Submitted Mar 18, 2012
Author WENCHUAN HU
Title: LAWSON HOMOLOGY FOR ABELIAN VARIETIES

Abstract: In this paper we introduce the Fourier-Mukai transform for Lawson homology of abelian varieties and prove an inversion theorem for the Lawson homology as well as the morphic cohomology of abelian varieties. As applications, we obtain the direct sum decomposition of the Lawson homology and the morphic cohomology groups with rational coefficients, inspired by Beauville`s works on the Chow theory. An analogue of the Beauville conjecture for Chow groups is proposed and is shown to be equivalent to the (weak) Suslin conjecture for Lawson homology. A filtration on Lawson homology is proposed and conjecturally it coincides to the filtration given by the direct sum decomposition of Lawson homology for abelian varieties. Moreover, a refined Friedlander-Lawson duality theorem is obtained for abelian varieties. We summarize several related conjectures in Lawson homology theory in the appendix for convenience.

Web link: ***www.IntellectualArchive.com/getfile.php?file=elt7NoRVfWf&orig_file=Wenchuan_Hu__Lawson_Homology_for_Abelian_Varieties.pdf***

ID 193 **Natural Sciences / Physics / Quantum field theory**

Submitted Mar 19, 2012

Author S. A. Emelyanov

Title: Quantum mechanics vs relativity: an experimental test of the structure of spacetime

Abstract: We have performed an experimental test in which quantum mechanics predicts a nonlocal single-particle transport beyond the very paradigm of motion in three dimensions and therefore beyond the relativity. The test has shown that such transport does exist. This fact strongly challenges the relativistic concept of simultaneity giving rise to a renaissance of Newtonian concept of absolute time but in a combination with the multidimensional space which corresponds to the quantum-mechanical notion of configuration space. The test legitimates realistic interpretation of quantum mechanics insofar as the requirement of Lorentz invariance appears irrelevant to any version of quantum theory.

Web link: ***www.IntellectualArchive.com/getfile.php?file=4nKDvgjYH52&orig_file=Sergey_Emelyanov__Quantum_mechanics_vs_relativity_an_experimental_test.pdf***

ID 194 **Natural Sciences / Mathematics / Dynamical systems**

Submitted Mar 19, 2012

Author Mikhail P. Kharlamov

Title: Bifurcation diagrams and critical subsystems of the Kowalevski gyrostat in two constant fields

Abstract: The Kowalevski gyrostat in two constant fields is known as the unique example of an integrable rigid body problem described by the Hamiltonian system with three degrees of freedom not reducible to a family of systems in fewer dimensions. The practical explicit integration of this system can hardly be obtained by the existing techniques. Then the challenging problem becomes to fulfill the qualitative investigation based on the study of the Liouville foliation of the phase space. As the first approach to topological analysis of this system we find the stratified critical set of the momentum map; this set is represented as the union of manifolds with induced almost Hamiltonian systems having less than three degrees of freedom. We obtain the equations of the bifurcation diagram in three-dimensional space. These equations have the form convenient for the classification of the bifurcation sets arising on 5-dimensional iso-energetic levels.

Web link: ***www.IntellectualArchive.com/getfile.php?file=KkKOXpGnCPW&orig_file=Kh***

MP_hmj09.pdf

ID 202 **Natural Sciences** / **Mathematics** / **Probability**
Submitted Mar 23, 2012
Author Yilun Shang
Title: Mean of the maximum of Brownian motion with a parabolic drift
Abstract: We analyze the mean of the maximum $M(a,b)$ of $\{aW(t)-bt^2:-\infty<t<\infty\}$, where W is a standard two-sided
Brownian motion on $(-\infty,+\infty)$. We derive explicit asymptotics for $EM(a,b)$, together with numerical values by Monte Carlo simulations. (Published in: Octogon Mathematical Magazine, 2011, 19(2), 405--410.)
Web link: ***www.IntellectualArchive.com/getfile.php?file=ZgfllhILvwg&orig_file=Brownian motion with a parabolic drift.pdf***

ID 204 **Natural Sciences** / **Physics** / **Relativity**
Submitted Mar 25, 2012
Author Mohammad Shafiq Khan
Title: Energy Theory of Matter & Cosmology
Abstract: A new theory "Energy Theory of Matter and Cosmology", as an alternative theory, is proposed which could explain all the problems with different theories of physics; the main cause of which are the theories of relativity and resultantly the Big Bang Theory fails. Since it is established that the basic building substance of matter is energy and it has to be under the influence of a scalar force field this energy is converted into the matter. The scalar force field originated from the universal creator and with the initiation of the scalar force field energy, of which the matter is made up of, was converted into matter. During the process of conversion of energy into the particles, the particles attained high energies and collisions of the particles started. These particles in the process of fusion emit radiation which finally takes the form of cosmic background radiation and under the influence of said scalar force field, weak nuclear force; strong nuclear force and electromagnetic forces the atoms started forming. Then these atoms under the influence of gravitational force started clustering and thereby planets, stars and other astronomical bodies came into existence.
Web link: ***www.IntellectualArchive.com/getfile.php?file=SOIhCpELSFI&orig_file=Revised Energy Theory of Matter & Cosmology.doc***

ID 205 **Natural Sciences** / **Physics** / **Particle physics**
Submitted Mar 26, 2012
Author Manfred Buth
Title: Nonlocality and Interaction
Abstract: Three statements are asserted: (a) There is no contradiction between quantum mechanics and special relativity, if the role of interaction in the analysed experiments is sufficiently respected. (b) There is no paradoxical situation in the gedankenexperiment of Einstein, Podolsky and Rosen. (c) The principles of quantum statistics describe nonlocal effects. From (b) one can infer that the whole discussion about EPR and all that was and is dispensable. It could have been avoided, if in time the analysis of possible experiments would have been carried out a bit more carefully.
Web link: ***www.IntellectualArchive.com/getfile.php?file=a4QLFML1ZHD&orig_file=Nonl***

ocality and Interaction.pdf

ID 206 **Social Sciences / Psychology / Neuropsychology**
Submitted Mar 26, 2012
Author Mohammad Shafiq Khan
Title: Theory of Origin & Phenomenon of Life
Abstract: Origin of life and understanding the universe had been the matter of inquisitors to mankind. A new theory is put forward here that could also be called "Revitalism" compared to the vitalism of previous two centuries. So far science has not visualized that besides matter and electromagnetic radiation any other form of "energy" can exist. Now having realized that there could be dark energy which has been proved to be existing (vide "energy theory of matter & cosmology" written by the author in the same issue). Scientists with an open mind look for other forms of "energy" so as to better understand the universe, matter and the life forms. There is an energy which acts as the source of life in different life forms. A fresh view of all the life sciences is required so as to have the perfect understanding of phenomenon of life.
Web link: ***www.IntellectualArchive.com/getfile.php?file=DMhqwJppZOD&orig_file=Theory of Origin and Phenomenon of Life.pdf***

ID 207 **Natural Sciences / Physics / Relativity**
Submitted Mar 26, 2012
Author Mohammad Shafiq Khan
Title: Experimental & Theoretical Evidences of Fallacy of Space-time Concept and Actual State of Existence of the Physical Universe
Abstract: The theoretical and experimental evidences against the concept of contraction of space in the direction of motion leads to the failure of spaceâ€“time concept and every theory and concept associated with it. The obvious conclusions are space is finite & absolute, time is relative & emergent, matter is emergent and radiation is the electromagnetic work capacity dissipated by the matter which propagates in the medium of ether as a wave motion.
Web link: ***www.IntellectualArchive.com/getfile.php?file=oEOcgA6nOll&orig_file=Fallacy of Space-time Concept.docx***

ID 208 **Natural Sciences / Physics / Relativity**
Submitted Mar 26, 2012
Author Mohammad Shafiq Khan
Title: Michelson â€“ Morley experiment: A misconceived & misinterpreted experiment
Abstract: A thorough review of the Michelson - Morley experiment reveals that the experiment had been not only misinterpreted but also misconceived. Under the theory & methodology adopted by Michelson & Morley the reasons of misconception and misinterpretation have been found to be: 1. Doppler Effect of light was not taken into account and 2. The motion of the solar system was not also taken into account.
Web link: ***www.IntellectualArchive.com/getfile.php?file=pN8dGOGqJ6d&orig_file=Michelson Morley Experiment.doc***

ID 209 **Natural Sciences / Physics / Astrophysics**
Submitted Mar 26, 2012

Author Mohammad Shafiq Khan
Title: Energy Theory of Matter and Cosmology
Abstract: A new theory "Energy Theory of Matter and Cosmology", as an alternative theory, is proposed which could explain all the problems with different theories of physics; the main cause of which are the theories of relativity and resultantly the Big Bang Theory fails. Since it is established that the basic building substance of matter is energy and it has to be under the influence of a scalar force field this energy is converted into the matter. The scalar force field originated from the universal creator and with the initiation of the scalar force field energy, of which the matter is made up of, was converted into matter.
Web link: ***www.IntellectualArchive.com/getfile.php?file=ieec8TqVxfp&orig_file=Revised Energy Theory of Matter & Cosmology.doc***

ID 210 **Natural Sciences** / **Physics** / **Relativity**
Submitted Mar 26, 2012
Author Mohammad Shafiq Khan
Title: Foundation of Theory of Everything: Non-living Things and Living Things
Abstract: The very concept of space-time has been shown to be a mathematical misrepresentation. A unified theory of forces in nature has been proposed. The theistic Foundation of Theory of Everything also envisages the theory for living things with primary concern of the life of human beings. The characteristics of the `soul` energy has been defined; besides proposal has been put forward regarding the characteristics of the `energies` which being the source of life in all plants and animals.
Web link: ***www.IntellectualArchive.com/getfile.php?file=gQkdfgstMCJ&orig_file=Foundation of Theory of Everything.docx***

ID 211 **Natural Sciences** / **Physics** / **Relativity**
Submitted Mar 26, 2012
Author Daniele Sasso
Title: Relativistic Theory of Black Holes
Abstract: The gravitational theory is the most accredited theory for explaining black holes. In this paper we present a new interpretation based on the relativistic theory that explains black holes as a consequence of the relativistic speed of departure between the speed of celestial system and the speed of both light and quantum rays at very high energy, calculated with respect to the observer.
Web link: ***www.IntellectualArchive.com/getfile.php?file=lE6OXKmjLPH&orig_file=Relativistic Theory of Black Holes.pdf***

ID 213 **Natural Sciences** / **Physics** / **Particle physics**
Submitted Mar 26, 2012
Author Mario E. de Souza
Title: Weak decays of hadrons reveal compositeness of quarks
Abstract: Considering the latest available data from the Particle Data Group this work shows that leptonic, semileptonic and nonleptonic weak decays of hadrons reveal the compositeness of quarks and provides a reasonable explanation for the apparent null results of quark compositeness and argues that, actually, primons (prequarks) have already been found by some important experiments such as EMC, SMC, SLAC E143 and HERMES.

The article was published in Scientia Plena,
www.scientiaplena.org.br/sp_v4_064801.pdf

Web link: ***www.IntellectualArchive.com/getfile.php?file=LphKePRqtxJ&orig_file=Weak decays of hadrons.pdf***

ID 215 **Natural Sciences** / **Mathematics** / **Algebra**

Submitted Mar 27, 2012

Author Josimar da Silva Rocha

Title: The n-ary Adding Machine and Soluble Groups

Abstract: We describe under a variety of conditions abelian subgroups of the automorphism group A of the regular n-ary tree T which are normalized by the n-ary adding machine t=(e,...,e,t)s where s is the n-cycle (0,1,...,n-1). As an application, for n a prime number, and for n = 4 we prove that every finitely generated soluble subgroup of A containing t is an extension of a torsion-free metabelian group by a finite group.

Web link: ***www.IntellectualArchive.com/getfile.php?file=INeNjexLngG&orig_file=The n-ary Adding Machine and Soluble Groups.pdf***

ID 221 **Natural Sciences** / **Physics** / **Biophysics**

Submitted Mar 28, 2012

Author Matti Pitkanen

Title: Sheldrake`s Morphic Fields and TGD View About Quantum Biology

Abstract: In this article I propose an interpretation for the vision of Sheldrake based on zero energy ontology and TGD based view about geometric time and experienced time forcing to accept the notions of 4-dimensional brain and society. In this framework the problem is to understand why our sensory perception is 3-dimensional whereas the standard problems related to memory disappear since memory corresponds to 4-D aspects of perception and of conscious experience and memory storage is 4-dimensional. The vision about gene expression as something to some extend analogous to a democratic decision of 4-D society looks rather natural in this framework and would explain some still poorly understood aspects of gene expression known from the days of Mendel. Therefore the term "the prence of the past" appearing in the title of one of Sheldrake`s books has quite a concrete meaning in TGD Universe.

Web link: ***www.IntellectualArchive.com/getfile.php?file=K31Xjxle37x&orig_file=Sheldrakes Morphic Fields and TGD View About Quantum Biology.pdf***

ID 222 **Natural Sciences** / **Earth Sciences** / **Atmospheric science**

Submitted Mar 28, 2012

Author Glen Gilchrist

Title: A Simple Method to Determine Surface Albedo Using Digital Photography

Abstract: Surface albedo is an important concept, useful in explaining how closed systems (such as the Earth - Atmosphere) respond to incident radiant energy. Specialist, calibrated equipment is used by geo-scientists to measure ambient and reflected radiation from subject sources - this is often cost prohibitive within a teaching environment. A "semi" calibrated method is presented, utilising simple digital photography of both reference and subject sample. Using the "levels" function built into freely available image editing software, a simple algorithm is presented that allows a relative reflectance of the sample image to be calculated. Processing this

with relation to a calibrated image allows for the simple determination of surface albedo. Using this method, albedo levels within 3% of a calibrated meter are obtained.

Web link: ***www.IntellectualArchive.com/getfile.php?file=fkLebvFkU8q&orig_file=A Simple Method to Determine Surface Albedo Using Digital Photography.pdf***

ID 227 **Natural Sciences / Physics / Particle physics**

Submitted Mar 28, 2012

Author Gunn Quznetsov

Title: Fermion-Antifermion Asymmetry

Abstract: An event with positive energy transfers this energy photons which carries it on recorders observers. Observers know that this event occurs, not before it happens. But event with negative energy should absorb this energy from observers. Consequently, observers know that this event happens before it happens. Since time is irreversible then only the events with positive energy can occur. In single-particle states events with a fermion have positive energy and occurences with an antifermion have negative energy. In double-particle states events with pair of antifermions have negative energy and events with pair of fermions and with fermion-antifermion pair have positive energy.

Web link: ***www.IntellectualArchive.com/getfile.php?file=CCYe1hDL04o&orig_file=Fermion-Antifermion Asymmetry.pdf***

ID 229 **Literature / Non-fiction / Guides and manuals**

Submitted Mar 29, 2012

Author Martiros Khurshudyan

Title: Two Faces Myth Figure in Chess

Abstract:

Web link: ***www.IntellectualArchive.com/getfile.php?file=dLso5mbYRNG&orig_file=Two Faces Myth Figure in Chess.pdf***

ID 230 **Natural Sciences / Physics / Nuclear physics**

Submitted Mar 29, 2012

Author D. Pons

Title: The Preponderance of Matter: Asymmetrical Genesis Via the Antineutrino Route

Abstract: The existence of the universe is an enigma because the energy at genesis should have created equal amounts of matter and antimatter, which should have subsequently annihilated. What happened in the baryogenesis process to cause matter to predominate in the cosmos? A candidate conceptual solution is presented based on the cordus conjecture, and featuring the antineutrino in a prominent role. A detailed model is produced for the production of an electron-antielectron pair from photons. The novel contribution is showing how the discrete field structures of the photon dynamically transform into those of the two massy particules. A new production process is detailed whereby an energetic antielectron is remanufactured into a proton and two antineutrinos. The production process could equally have converted electrons to antiprotons, and a tentative explanation is given for why this might not have happened.

Web link: ***www.IntellectualArchive.com/getfile.php?file=4jmRbsKhBei&orig_file=Asymmetrical Genesis Via the Antineutrino Route.pdf***

ID 231 **Natural Sciences** / **Physics** / **Biophysics**
Submitted Mar 29, 2012
Author Michael Harney
Title: Heart Dipole Tracking Algorithm
Abstract: This paper describes a method of tracking the electromagnetic dipole, with a three-dimensional representation of the dipole being graphically displayed in real-time so as to provide diagnostic information about a patient`s heart. By knowing the coordinates and orientation of the heart dipole and comparing this data with a healthy heart, cardio-specialists may be able to determine where damaged tissue is located or other diseases in progress.
Web link: ***www.IntellectualArchive.com/getfile.php?file=dJfsLxbllei&orig_file=Heart Dipole Tracking Algorithm.pdf***

ID 232 **Natural Sciences** / **Earth Sciences** / **Environmental science**
Submitted Mar 29, 2012
Author Mohammad Mansouryar
Title: On Developing a Powertrain in a Hybrid Car with Electricity and Compressed-Air Propulsions
Abstract: A hybrid car with two propulsions of compressed-air and electricity is outlined. To fill up the compressed-air tanks, two methods of electrical and manual air are proposed. The electric propulsion is based on two collections of storing batteries and capacitors. The desired batteries are lithium-ion [1] and the desired capacitors are supercapacitors [2], in which they could store a significant amount of electric energy.
Web link: ***www.IntellectualArchive.com/getfile.php?file=CQ4MIYl63Tv&orig_file=Power train in a Hybrid Car with Electricity and Compressed-Air Propulsions.pdf***

ID 233 **Natural Sciences** / **Physics** / **Biophysics**
Submitted Mar 30, 2012
Author A.I. Zhmakin
Title: Mathematics of Human Motion: from Animation towards Simulation (A View form the Outside)
Abstract: Simulation of human motion is the subject of study in a number of disciplines: Biomechanics, Robotics, Computer Animation, Control Theory, Neurophysiology, Medicine, Ergonomics. Since the author has never visited any of these fields, this review is indeed a passer-by`s impression. On the other hand, he happens to be a human (who occasionally is moving) and, as everybody else, rates himself an expert in Applied Common Sense. Thus the author hopes that this view from the outside will be of some interest not only for the strangers like himself, but for those who are inside as well. Two flaws of the text that follows are inevitable. First, some essential issues that are too familar to the specialists to discuss them may be missing. Second, the author probably failed to provide the uniform "level-of-detail" for this wide range of topics.
Web link: ***www.IntellectualArchive.com/getfile.php?file=1hlliilnkwK&orig_file=A_Zhmakin_Mathematics_of_Human_Motion.pdf***

ID 234 **Social Sciences** / **Economics** / **Behavioural**
Submitted Mar 30, 2012
Author Abhishek Srivastava

Title: Motif Analysis in the Amazon Product Co-Purchasing Network

Abstract: Online stores like Amazon and Ebay are growing by the day. Fewer people go to departmental stores as opposed to the convenience of purchasing from stores online. These stores may employ a number of techniques to advertise and recommend the appropriate product to the appropriate buyer profile. This article evaluates various 3-node and 4-node motifs occurring in such networks. Community structures are evaluated too.These results may provide interesting insights into user behavior and a better understanding of marketing techniques.

Web link: ***www.IntellectualArchive.com/getfile.php?file=MjWuTLZfgLC&orig_file=A_Srivastava_Motif_Analysis_in_the_Amazon.pdf***

ID 235 **Social Sciences** / **Economics** / **Microeconomics**

Submitted Mar 30, 2012

Author Abhijit Kar Gupta

Title: Punctuated Equilibrium and Power Law in Economic Dynamics

Abstract: An interesting toy model has recently been proposed on Schumpeterian economic dynamics by Thurner et al. [1] following the idea of economist Joseph Schumpeter [2]. Punctuated equilibrium dynamics is shown to emerge from this model and some detail analyses of the time series indicate SOC kind of behaviours. The focus in the present work is to toss the idea whether the dynamics can really be like a self organized critical (SOC) type. This study indicates that it is necessary to iccorporate the concepts of `fitness` and `selection` in such a model in the line of the biological evolutionary model by Bak and Sneppen [7] in order to obtain power law and thus SOC behaviour.

Web link: ***www.IntellectualArchive.com/getfile.php?file=9Wne4JHJ5R6&orig_file=Abhijit_Kar_Gupta_Punctuated_Equilibrium.pdf***

ID 236 **Natural Sciences** / **Computer Sciences** / **Automata theory**

Submitted Mar 31, 2012

Author A. N. Trahtman

Title: Modifying the upper bound on the length of minimal synchronizing word

Abstract: A word w is called synchronizing (recurrent, reset, magic, directable) word of deterministic finite automaton (DFA) if w sends all states of the automaton to a unique state. In 1964 Jan Cerny found a sequence of n-state complete DFA possessing a minimal synchronizing word of length (n-1)^2. He conjectured that it is an upper bound on the length of such words for complete DFA. Nevertheless, the best upper bound (n^3-n)/6 was found almost 30 years ago. We reduce the upper bound on the length of the minimal synchronizing word to n(7n^2+6n-16)/48. An implemented algorithm for finding synchronizing word with restricted upper bound is described. The work presents the distribution of all synchronizing automata of small size according to the length of an almost minimal synchronizing word.

Web link: ***www.IntellectualArchive.com/getfile.php?file=hNu56D8xVgn&orig_file=A_N_Trahtman_Modifying_the_upper_bound.pdf***

ID 237 **Natural Sciences** / **Physics** / **Mechanics**

Submitted Mar 31, 2012

Author A.V. Sedelnikov

Title: Buffon Needle Problem Application to Space Exploration

Abstract: In this article the possibility of application of classical Buffon needle problem to the investigation of orientation engine firing problem has been investigated. Such an approach makes it possible to get a reliable EP of this undesired event without using a more complicated analysis.

Web link: ***www.IntellectualArchive.com/getfile.php?file=0K4LrJKJFbd&orig_file=A_V_Sedelnikov_Buffon_Needle_Problem.pdf***

ID 238 **Natural Sciences** / **Physics** / **Optics**

Submitted Mar 31, 2012

Author Zoltan Batiz

Title: Green`s Function Formalism of Holography with Arbitrary Mass, Spin, and Dimensionality

Abstract: In this work we present a mathematical description of how one can produce and read a thin hologram. We use different kinds of waves, such as scalar, vector (electromagnetic field, Maxwell-Proca fields, acoustic waves, etc.). For reading of the hologram, we use the Green`s function formalism. With the help of computer simulations, we investigate the aberrations created by this procedure for the simplest case: 2d-scalar wave case.

Web link: ***www.IntellectualArchive.com/getfile.php?file=SO9ePCJm1la&orig_file=Zoltan_Batiz_Bhag_C_Chauhan_Greens_Function_Formalism.pdf***

ID 239 **Social Sciences** / **Economics** / **Financial**

Submitted Mar 31, 2012

Author Abhijit Kar Gupta

Title: Models of wealth distributions: a perspective

Abstract: A class of conserved models of wealth distributions are studied where wealth (or money) is assumed to be exchanged between a pair of agents in a population like the elastically colliding molecules of a gas exchanging energy. All sorts of distributions from exponential (Boltzmann-Gibbs) to something like Gamma distributions and to that of Pareto`s law (power law) are obtained out of such models with simple algorithmic exchange processes. Numerical inevstigations, analysis through transition matrix and a mean field approach are employed to understand the generative mechanisms. A general scenario is examined wherefrom a power law and other distributions can emerge.

Web link: ***www.IntellectualArchive.com/getfile.php?file=hTOhcage6QH&orig_file=A_K_Gupta_Models_of_wealth_distributions.pdf***

ID 240 **Social Sciences** / **Economics** / **Financial**

Submitted Mar 31, 2012

Author Abhijit Kar Gupta

Title: Money Exchange Model and a general Outlook

Abstract: The Kinetic Gas Theory like two-agent money exchange models, recently introduced in the Econophysics of Wealth distributions, are revisited. The emergence of Boltzmann-Gibbs like distribution of individual money to Pareto`s law in the tail of the distribution is examined in terms of 2x2 Transition matrix with a general and simple oulook. Some additional interesting results are also reported.

Web link: ***www.IntellectualArchive.com/getfile.php?file=NJCNsXiVXdM&orig_file=A_K_Gupta_Money_Exchange_Model.pdf***

ID 241 **Social Sciences / Economics / Financial**

Submitted Mar 31, 2012

Author Abhijit Kar Gupta

Title: Role of Selective Interaction in Wealth Distribution

Abstract: In our simplified description `wealth` is money (m). A kinetic theory of gas like model of money is investigated where two agents interact (trade) selectively and exchange some amount of money between them so that sum of their money is unchanged and thus total money of all the agents remains conserved. The probability distributions of individual money (P(m) vs. m) is seen to be influenced by certain ways of selective interactions. The distributions shift away from Boltzmann-Gibbs like exponential distribution and in some cases distributions emerge with power law tails known as Pareto`s law. Power law is also observed in some other closely related conserved and discrete models. A discussion is provided with numerical support to have a dig into the emergence of power laws in such models.

Web link: ***www.IntellectualArchive.com/getfile.php?file=LK9MAi5CcQK&orig_file=A_K_Gupta_Role_of_Selective_Interaction.pdf***

End of March 2012 bulletin