

# Editorial

## ‘Physical Laws Should have Mathematical Beauty’

*Paul Dirac* (August 1902-October 1984)

The scope of the Electronic Journal of Theoretical Physics (EJTP) covers several high quality aspects of theoretical and mathematical physics. It is aimed to support the scientific collaboration between all theoretical physicists.

Recently, the **Majorana Prize** 2008 was awarded to:

- *Geoffrey F. Chew* For his fundamental contributions in thinking the whole Particle Physics following a philosophy which is giving new impulses to the most recent Physics’ areas and for his latest contributions on Quantum Cosmology.
- *Hagen Kleinert* for his remarkable paper entitled ‘From Landau’s Order Parameter to Modern Disorder Fields’, and *S. Esposito and G. Salesi* for their esteemed paper ‘Generalized Ginzburg-Landau Models for Non-conventional Superconductors’, published in our project ‘*Lev Davidovich Landau and his Impact on Contemporary Theoretical Physics*’ (Horizons in World Physics, Volume 264, Nova Science Publishers, NY, 2009).
- *Giuseppe Vitiello* for his paper entitled ‘Topological Defects, Fractals and The Structure of Quantum Field Theory’ which will be published in our project on the Quantum Field Theory, Springer, 2009.
- *N. I. Farahat and W. I. Eshraim* for their paper entitled ‘Hamilton-Jacobi Formulation of A Non-Abelian Yang-Mills Theories’, EJTP Volume 5, Issue 17 (March 2008).

The twenty first issue of the Electronic Journal of Theoretical Physics (EJTP) contains a collection of high quality research papers in different topics of mathematical and theoretical physics.

*Licata* and *Sakaji* reproduced *E. Recami's* original paper entitled 'The Tolman-Regge Antitelephone Paradox: Its Solution by Tachyon Mechanics', *Lett. Nuovo Cimento*, **44**, 587 (1985), in this esteemed paper *E. Recami* discusses the *Tolman* Paradox and explains how to solve the old Paradox via Tachyon Mechanics. The reason for reproducing it here is that superluminal motions have been actually met, starting with 1992, in a series of experiments reported in a number of papers and researches, in addition to the recent interest in this area. *Michail Zak*, from the Jet Propulsion Laboratory California Institute of Technology, reports in his remarkable paper, a new approach of Monte-Carlo simulations based on the coupling of dynamical equations and the corresponding Liouville equation without using the random number generator. In her esteemed paper entitled 'First Passage Random Walk of Coupled Detector-System Pairs and Quantum Measurement', *Fariel Shafee*, from Princeton University, discusses an important topic on the quantum measurement and presents a new model for the measurement of a characteristic of a microscopic quantum state by a large system that selects stochastically the different eigenstates with appropriate quantum weights. *Peter Enders*, from Germany, discusses extensively the gauge freedom in the electromagnetic potentials and explains the underdeterminacy in Maxwell's theory.

*Sidharth* from the International Institute for Applicable Mathematics and Information Sciences, discusses some aspects on quantum gravity using non commutative geometry at the Compton scale techniques. In his seminal paper *Sergiu I. Vacaru*, from The Fields Institute for Research in Mathematical Science, Canada, addresses the nonholonomic Ricci flows of metrics and geometric objects subjected to nonintegrable constraints especially the Deformations of the Solitonic pp-Waves and Schwarzschild Solutions. In his remarkable paper on Quantum Entanglement *Singh*, from India, examines the behavior of the maximally entangled Bell state of two spin 1/2 massive particles under relativistic transformations. In their seminal paper, *Chakrabarty* and *Choudhury*, from India, discuss the impossibility theorem of partially swap and its consistency to the unitarity principles of quantum mechanics.

*Dibakar Ghosh*, from India, addresses the chaotic oscillators and the time scale synchronization between two different time- delay systems. *Khan, Iqbal* and *Farooq Ahmad*, from India, discuss the phase transitions occurring in the gravitational clustering of galaxies on the basis of thermodynamic fluctuation theory. *Bipin Singh Koranga*, from India, reports the Neutrino Oscillation Probability from Tri-Bimaximality due to Planck Scale Effects. *Sadeghi* and *Pourhassan*, from Mazandaran University, consider the Schwinger and Heisenberg representation of  $su(1,1)$  algebra under Hall effect. *Bali, Banerjee* and *Banerjee*, from India, address Some LRS Bianchi Type VI<sub>0</sub> Cosmological Models with Special Free Gravitational Fields. *Eid*, and *Hamza*, from Egypt, presents The Motion of a Test Particle in the Gravitational Field of a Collapsing Shell.

All the papers have gone through EJTP standard peer review process, the hard work of editors and referees are extremely important to ensure the quality of this issue.

I am grateful to the people that have supported me, the distinguished authors, the referees for their careful and timely job, and the EJTP Editors for their reviewing and fruitful suggestions. In particular, Beny Neta, José Luis Lopez-Bonilla, Leonardo Chiatti, and Tepper L. Gill. Special thanks to Ignazio Licata for his valuable suggestions and Editorial help.

The Editors are grateful to the direction of *Lett. Nuovo Cimento* for permission to reproduce the article: E. Recami, *Lett. Nuovo Cimento*, **44**, 587 (1985).

I hope that this issue will make more physicists aware of the current and hot research that concern Theoretical Physics.

*Ammar Sakaji*, EJTP Editor

