CURRICULUM VITAE: N.E. Mavromatos

SECTION A

Name in full: **Nikolaos Emmanuel MAVROMATOS**
Address: **King's College London, University of London, Department of Physics, Office 7.21, Strand Campus KCL, Strand London WC2R 2LS, United Kingdom**
Title of Present Post: **Professor of Theoretical Physics** (*ad hominem* Chair)
Date of Appointment to King's College: **01/10/1999**
Date and place of Birth: **15/11/1961**, Athens (Greece)
Nationality: Greek
Date of Appointment to Present Post: **01/09/2006** (elected to the personal Chair on 25 May 2006).

SECTION B: EDUCATION (including academic and other honours)

(i)Undergraduate Studies: Athens University, School of Physical Sciences, Physics Department.
Entrance (distinction): September 1979.
Graduation (distinction): November 1983: First Class Hon. B.Sc. (Physics): 9.63/10.

(ii) October 1983-August 1984: research work in Athens University, Physics Dept., in collaboration with B.Sc.-dissertation supervisor Prof. C.N. Ktorides (Athens); extension and completion of original results obtained during B.Sc. dissertation.

(iii) October 1984 - September 1987: D.Phil study at Oxford University (United Kingdom) in Theoretical Particle Physics (study under the supervision of Dr. M. Daniel (Rutherford Lab.) and Prof. C.H. Llewellyn Smith (Oxford)). Title of D.Phil dissertation: *Low energy aspects of String Theories*. Results include an extension of Zamolodchikov's c-theorem for perturbations about fixed points to the stringy σ-model case. D.Phil. (Oxon) Degree obtained September 1987. MA (Oxon) Degree obtained November 1987.

Awards and Distinctions

- 1979-1984: Top-in-the-class Award of the Greek State Scholarships Foundation for the entire duration of undergraduate studies.
- 1985-1987 Linacre College (Oxford) Domus Studentship: Senior Graduate Scholarship awarded for academic excellence.
- Gravity-Research Foundation (USA) Millennium Award for best Essay in 1999 Competition : J.Ellis, N.E. Mavromatos and D.V. Nanopoulos: *Search for Quantum Gravity*.
- Gravity-Research Foundation (USA) First Prize Award for best Essay in 2005 (100 years of Relativity) Competition : J.Ellis, N.E. Mavromatos and D.V. Nanopoulos: *The String Coupling accelerates the Expansion of the Universe*.
- Fellow of the Institute of Physics (UK) (elected) since April 2004.
- Teaching Excellence Award - King's College London, School of Physical Sciences and Engineering (May 2009).

SECTION C: PREVIOUS APPOINTMENTS

(i) October 1987- September 1990: Junior Research Fellow of Hertford College (University of Oxford); Full Member of the Governing Body of the College.

(ii) May-June 1989 : CERN-Theory Division Research Associate (supported by CERN).

(iii) October 1990 - December 1992 : CERN-Theory Division Research Fellow.

(iv) January 1993 - July 1995 : Scientific Associate at CERN/ April 1993: Elected to an Advanced Research Fellowship at the Theoretical Physics Dept. of the University of Oxford.

(v) August 1993 - July 1995 (on leave from Oxford): European Union Research Fellow at E.N.S.L.A.P.P. (Annecy-le-Vieux, France).

(vi) July 1995 - October 1999: Advanced Research Fellow of P.P.A.R.C. at the Physics Department of Oxford University (junior faculty post).

(vii) July 1995-present : Also (part time) Research Associate at CERN EP (Theory Consultant of ATLAS collaboration (astroparticle group). In the past I have been a consultant of CP-LEAR neutral-Kaon experiment at CERN, and of AMS experiment (Profs. H.Hofer and F.Pauss (ETH, Zurich and CERN)).

(viii) October 1999 - August 2003: Lecturer (B) in Theoretical Physics (since October 1999), confirmed Teacher of KCL (since September 2001), and P.P.A.R.C. Advanced Research Fellow (until September 2000), Physics Department, Theoretical Physics Group, King's College, University of London.

(ix) April-September 2003, and April-June 2006 & 2007, May-June 2008, May 2009: Visiting Professor in the Theoretical Physics Department of the University of Valencia (Spain).

(x) 1 September 2003 - 31 August 2006: Reader in Theoretical Physics of the University of London at KCL/Physics.

(xi) 1 September 2006 - Professor (Personal Chair) of Theoretical Physics of the University of London (elected May 2006).

(xii) Paid Scientific Associate, CERN Theory Division, 1 October 2010 - May 31 2011.

SECTION D: TEACHING

Undergraduate Teaching

- **(i)** Third-year undergraduate course: *CP3630: General Relativity and Cosmology*, since 2000-2001 Academic year. I have produced my own (detailed) lecture notes, with problems, available on: `http://www.kcl.ac.uk/schools/nms/physics/courses/cp3630details.html`
- **(ii)** Since the Academic year 2003-2004 and until the year 2007-2008 I have also been teaching the course Nuclear and Particle Physics to First Year Physics undergraduates.
- **(iii)** Since the academic Year 2008-2009 and until 2009-2010 I taught the course Modern Physics *5CCP2240* to second year undergraduates.
- **(iv)** Apart from my regular tutorials and course advising, and my participation to undergraduate project examinations, I have also supervised and am currently supervising several undergraduate laboratory projects, and fourth year (MSci) projects. Specifically, I had supervised successfully three MSci 4th year theoretical projects on *Acceleration of the Universe* (I class), *Topics in Cavity Electrodynamics* (upper II class), *Planetary and Galactic Orbits in General relativity with cosmological constant* (I class), and I am currently supervising the MSci project : *neutrino oscillations in noisy*

media. I have also supervised several *3rd Year Pair and Group Laboratory projects* on topics such as: *Spontaneous Symmetry Breaking in Physics*, *Supersymmetric Quantum Mechanics Detection of Gravitational Waves*, *Lorentz symmetry tests*. Two of my group third year projects so far won first prizes in the poster session of the Department.

- **(v)** I have also given lectures on *How to carry out Theoretical Physics Research* in the M.Res. Programme of the Physics Department at KCL (in academic years 2001-2002, 2002-2003, 2003-2004).

Graduate Teaching at King's College:

- **(i)** From January 2010 , I will teach the forth year course *The Standard Model and Beyond* as part of a MSci programme between the departments of Mathematics and Physics. I have produced my own (detailed) lecture notes, with problems, available on:
`http://www.kcl.ac.uk//schools/nms/physics/courses/cp4501details.html`

Graduate Teaching Outside King's College:

(i) I have taught in the Master's programmes of the Department of Theoretical Physics of the University of Valencia in the past (Academic years May 2006, May 2007 and December 2007) *10 hours* in *each course* on *General Relativity and Cosmology*, including topics from *observational Astrophysics* and *Dark Energy* issues.

(ii) In May-June 2008 I have given *20 hours* of invited graduate lectures in the Doctorate Programme of Academic Excellence of the University of Valencia, as well as in special student groups at IFIC-Valencia, on *advanced topics in Modern Cosmology*, including lectures on *inflation* and *cosmological perturbations* (gauge invariant linearised formalism). Notes from that course (which also includes topics taught in the Master's Programme) can be found at:
`http://kcl.ac.uk/schools/pse/physics/people/nickmavromatos.html`

(iii) In May 2009 I have given an invited Doctorate course on *Introduction to Modern Cosmology (10 hours)* in the Department of Theoretical Physics of the University of Valencia. Notes on the course can be found in: `http://eee.uv.es/course/view.php?id=27`

(iv) In June 2010 I have given an invited Masters Course on *General relativity (10 hours)* , followed by an invited Doctorate (Ph D) course on *Introduction to Modern Cosmology (10 hours)* in the Department of Theoretical Physics of the University of Valencia. Notes on the courses can be found in: `http://eee.uv.es/course/view.php?id=27`

Previous (before joining KCL) teaching experience:

Tutor in Mathematical Physics, Theory Option and Relativity Theory at Hertford College (Oxford Univ.) from 1987-1990 (undergraduate courses).
Tutor at the British Universities Summer School in Theoretical Particle Physics (BUSSTEP): Oxford 1989, Glasgow 1990 (graduate courses).
Participated in teaching of the graduate course : Advanced Field-Theory and String-Theory at Oxford (Michaelmas term 1998): Handouts have been produced on *Introduction to String Theory*.

SECTION E: RESEARCH

E.1 Areas of Research

I consider myself as a Quantum Field Theorist with an inclination to High-Energy (Particle Astro)Physics, especially to Quantum Gravity and Cosmology, as well as to some interdisciplinary topics in Condensed-Matter Physics (gauge theory approach to high-temperature superconductivity and spin-charge separation in doped antiferromagnetic systems in general). Although I would not describe myself as a mathematical physicist, I maintain a strong interest in applying, as well as developing, new techniques and/or mathematical concepts and methods to physical problems ranging from issues of Quantum Gravity and String Theory to some interdisciplinary topics in condensed matter systems where particle field theory methods are applicable. I maintain a strong interest in comparing theoretical results with experiments in both areas of research.

(i) A major part of my recent research is concerned with theoretical studies of relaxation models of **Dark Energy** in the context of (non-critical, non-equilibrium) string Universes and their phenomenology, in connection with recent astrophysical data, including implications for **Dark Matter**. For this type of work, I have received, together with J. Ellis and D. Nanopoulos, the First Prize in the Gravity Research Foundation (USA) Essay Competition for the (Einstein) year 2005.

(ii) Another major part of my research deals with attempts to construct mathematically consistent models of quantum space-time foam, either in the context of **Liouville (non-critical) string theory,** which I believe to be a viable theory of quantum gravity, or more generally in models of quantum gravity with a topologically non-trivial and possibly non-commutative vacuum structure, leading to decoherence of (quantum) matter. In this latter respect, in collaboration with Sarben Sarkar, I am currently involved in research exploiting novel (non-perturbative) contributions of a specific kind of string-inspired space-time foam (**D0-brane-foam**) to **dark energy**, associated with **flavoured particles**, such as **neutrinos**.

(iii) In addition, I am currently involved in **phenomenological precision studies** of such models in the context of **discrete space-time symmetries (T,C,P and CPT)** in neutral mesons and neutrinos, which are sensitive probes of these symmetries. In collaboration with J. Bernabeu and J. Papavassiliou, I have developed novel observables for testing these symmetries in entangled states of neutral mesons (ϕ (kaon) and B-meson factories), as well as in terrestrial and extraterrestrial neutrino physics.

(iv) I am also interested in studies of the confinement property of **strong interactions**, following a Polyakov-type approach, but incorporating modern developments in string/D(irichlet) brane theory.

(v) Moreover, there are parts of my research associated with the study of mathematical properties of **Black Holes in General Relativity**, for instance analytic proofs of existence theorems of Hairy Black Holes in various models of interest to Particle Physics of the Early Universe, including string- or M-theory inspired higher-curvature (Gauss-Bonnet) modifications to the Einstein action.

(vi) The parts of my research pertaining to the **interdisciplinary topics** lying in the border line between condensed-matter and particle physics are concentrated on **Strongly Correlated Electrons** (SCES), with emphasis on the gauge-field theory approach to high-temperature superconductivity, and Quantum Decoherence induced in open quantum mechanical systems.

(vii) Experience with this latter research topic also led me to the formation of some projects lying in the **interface of condensed matter physics and biophysics** (construction of models aiming at the potential use (*in vitro*) of biological microtubules as cavities, allowing dissipationless information and signal transduction). Two years ago, in collaboration with some biochemistry groups in Germany (Prof. Unger and his team), and the X-ray grou;p of KCL/Physics (headed by Prof. Alan Michette), we have started developing a research programme towards an experimental verification of ferroelectric properties (if any) of microtubular macromolecules, and in particular a measurement of permanently induced electric-dipole moments, by studying their behaviour under the influence of external fields.

E.2 Evidence of Esteem

My work seems to have a significant impact on the relevant community so far. Perhaps I should mention (although I must stress that, personally, I do not ascribe to this type of metrics special significance) that, in general, my research has received up to now more than 5300 citations (excluding self cites), with an h-index of 41, while 30 of my papers are classified as top cited (1 famous (562 citations), 13 with more than 100

citations per article, and 16 with more than 50, with several close to 100 citations per article in the SPIRES list. I believe I have done original research, of international reputation, which is widely acknowledged and cited, in both the quantum gravity area and the strongly correlated electron area.
As evidence of esteem I would like to mention that:
I shared (together with J. Ellis and D. Nanopoulos) the First Prize for the 1999 and 2005 Essay competitions of the Gravity Research Foundation (USA), for essays on phenomenology of quantum gravity and string cosmology, respectively, based on my quantum gravity research.
I was elected Fellow of the Institute of Physics (April 2004), ordinary member of the London Physical Society (January 2003), and I have been a member of the EPSRC Peer Review College (2003-2005).
I have been invited as a visiting professor in the Universities of Valencia (Spain) (three times) and of Athens and National Technical University of Athens (Greece).
I have been invited as a keynote speaker and chaired sessions in many international conferences worldwide. I was in the advisory board of such activities, and I delivered several lectures in prestigious graduate schools worldwide (among them I should mention my published lectures in four Springer Lecture Notes in Physics).
I was appointed (in 2005) by the Greek Government as a member of the international advisory committee for cooperation of Greece with CERN. Appointment was renewed in 2007 and continues at present.

E.3 Visiting Professorships

(I) Theoretical Physics Department of Valencia University (Spain):
(i) April-September 2003
(ii) April - June 2006, 2007, December 2007, May-June 2008, May 2009; June 2010: giving various graduate courses (both at MSc and Ph D levels) on *General Relativity and Cosmology*, and *Astroparticle Physics topics*.
(II) Univesity of Athens (Greece) (Pythagoras Research Programme): November 2005-January 2006
(III) National Technical University of Athens (Greece): November 2004-January 2005 (Empirikion Foundation), Lectures on *Astrophysics and Cosmology* (undergraduate programme).

E.4 Postgraduate Supervision and Examining

Ph D Students Supervision at KCL:

- (i) **graduated**:

  Dr Steven Willison (EPSRC Quota Studentship), graduated in January 2005, currently having a post doc position in Chile. Topic of thesis: *Higher-Curvature corrections to General relativity in multi-dimensional space times/Lovelock gravity.*

  Dr. Elias Gravanis (KCL Research Studentship), graduated May 2006, topic of thesis: *Liouville-string cosmologies, higher-curvature corrections to multi-dimensional general relativity/Lovelock gravity.*

  Dr. Alison Waldron (self financed), graduated September 2006, topic of thesis: *Quantum-Gravity-Induced Decoherence and Particle Physics: methods, tests and bounds.*

  Dr. Michael Westmuckett (EPSRC Quota Studentship), *stringy/brane models of space time foam: formal aspects* .

  Dr. Anna Kostoukis (ESR of European Union TMR Network), *Novel Functional Methods for Strings in background Fields and Applications*

  Co-supervisor (with Dr. Sakellariadou) of Dr. Muhammad Furqaan Yusaf, *Alternative to Dark Matter Models: Theoretical Approaches, including string-inspired models, and Astrophysical Tests* .

- (ii) **current fourth year**:

  Ms Ariadne Vergou and Mr **Walter Tarantino**.

Graduate Student Supervision outside KCL

I fully supervised (towards D.Phil. degree) three graduate students when I was at Oxford as a PPARC Advanced Fellow: Dr. Elizabeth Winstanley (on **Black Holes and aspects of quantum-space time foam**), Dr. Daniel McNeill (on analytic Lattice calculations and other non-perturbative techniques in three-dimensional gauge models with applications to high-temperature superconductivity) and Dr. Adrian Campbell-Smith (mainly on non-perturbative aspects of supersymmetric three-dimensional gauge theories, but also on the **phenomenology of large extra dimensions in D–brane theory**). All of them graduated successfully within the required period. Dr. Campbell-Smith served one year as a post doc at King's College (2000-2001) before moving to finance at his own will. Dr. Winstanley is currently Professor at U. Sheffield, Mathematics department. She holds her permanent position in the depadrtment Mathematics since September 2001. I also co-supervised the Ph.D. dissertation of Dr. P. Kanti (Ioannina, Greece, mainly on **Black Holes in String Theory**, but also on aspects of **Quantum Gravity foam)** together with Prof. K. Tamvakis (Ioannina). Dr. P. Kanti has been holding (since September 2004) a permanent lectureship at the Mathematics Department of Durham University, and in 2007 she moved to Ioannina U., Physics Dept. as an associate Professor. Also it should be mentioned that the topic of the Ph.D. dissertation of Dr. N. Dorey (currently Professor in Mathematical Physics, Cambridge DAMTP), on effective gauge models of high-temperature superconductivity, was based on collaborative work while I was a Junior Research Fellow at Oxford (1988-1990).

I had been appointed as **Visiting Examiner** of the *MSc Course of Imperial College London, Quantum Fields & Fundamental Forces*, for the academic years: 2005-2009 (inclusive).

E.5 Examiner in Ph D Theses in UK and Abroad:
UK:
(1) *Dr. Y. Ishimoto*, Oxford, Theoretical Particle Physics, external examiner: (title of research: *Logarithmic Conformal Field Theories*, March 2003 -successful).
(2) *Mr. Dean R. Morgan*, Department of Applied Mathematics of the University of Sheffield, external examiner. Title of research: *Quantum Gravity Phenomenology and High-Energy neutrinos*, (November 2005-successful).
(3) *Mr. Richard A. Brown*, Univ. of Portsmouth, Institute of Cosmology and Gravitation, external examiner, Title of research: *Brane-World Cosmology with Gauss-Bonnet and induced-gravity terms*, viva due in 2006.
(4) *Mr Ben Rogers*, King's College London Ph.D. in Astrophysics, Internal examiner, representative of London University. Title of Research: *The Star Formation Histories of Elliptical Galaxies in the Optical*, November 2009, successful.
(5) *Mr. Simon Wilshin*, University of Oxford, Department of Theoretical Physics, external examiner, Title of research: *Identifiable Branes and their realisation in toy models of String Theory*, March 2010, successful.
Spain:
(6) *Dr. J. Sanchez de Santos*, in the Department of Physics, **Santiago de Compostella University** (title of research: *string theory and the renormalization group*, 1992 -successful).
(7) *Dr. Daniele Binosi* in the Department of Theoretical Physics-Particle Physics, **University of Valencia** (title of research: *Studies in Gauge Theories: Supersymmetric Defects and Gauge Independent Green's Functions*, December 2002 -successful)
(8) *Mr. Miguel Nebot* in the Department of Theoretical Physics-Particle Physics, **University of Valencia**, title of research: *CP Violation in B-meson systems*, graduated successfully on 31 May 2005.
(9) Member of the academic Board for the Ph D examination of *Dr. E. Alvarez* (graduated 2006), Valencia University (Spain).

E.6 Membership in Learned Societies

- Fellow of the Institute of Physics (elected) since April 2004.

- Ordinary member (elected) of the London Physical Society ("Bragg Society"), since January 2003.
- Member of the Greek Society for the Study of High Energy Physics.
- Also, as an ex-member of the Governing Body of Hertford College Oxford I am associated with the Senior Common Room of Hertford College.

E.7 Other Research Related Activities

I have been a theory consultant of the CPLEAR experiment at CERN, of the AMS Satellite Experiment (consultant to Prof. H. Hofer and F. Pauss (ETH, Zurich & CERN)), and of ATLAS/LHC Experiment (on astroparticle physics matters) (cosnultant to Prof. J.A. Fuster-Verdu (Valencia)).
I am a regular referee in international scientific journals: Physics Letters B, Physical Review Letters, Physical Review B and D, Modern Physics Letters A, Europhysics Letters and Astroparticle Physics. I have also been a referee in several EPSRC and PPARC standard research projects and fellowship applications, as well as research projects for the Spanish and Chilean governments (see section F).
I have been an invited *Guest Editor* for a focus Issue on *Supersymmetry* of the New Journal of Physics (IOP Physics Publishing), November 2001.
(http://www.iop.org/EJ/S/3/207/NBGnawwmZEFCUquWkZcvnQ/journal/NJP). I was responsible for the selection of authors in that volume.

SECTION F: ADMINISTRATIVE DUTIES/COMMITTEE MEMBERSHIPS

F.1 Internal to King's College London

(1) From September 2011- Team leader, King's College London group in *ERC* advanced investigator grant on *The TeraUniverse* (Principal Investigator John Ellis, FRS, CERN/KCL), grant duration five years. The grant involves post doctoral and Ph D student appointments at KCL, as well as at University College London and Imperial College.
(2) Until October 2010, I have been involved as a node coordinator in the EU RTN network *UniverseNet* (coordinator Prof. Subir Sarkar (Oxford)), with KCL as a host to a ESR (PH.D. student), commencing in October 2006 for four years.
(3) During 2010, 2007 and 2005 I have been a member (as a research expert) of the Selection Committees for the posts of Reader and Lecturer in Astrophysics (2005) and for Lectureships in Particle Physics (2007 & 2010).
(4) I have also been a member of the Departmental Research Committee, and deputy chairman of the Undergraduate Board of Examiners (2002-September 2004). I have also participated in course designing and restructuring (Astrophysics and Related courses).
(5) I have been a co-director in a three-year research project (completed February 2003) on (the gauge theory approach to) Strongly-Correlated Electrons, funded by the Leverhulme Trust. The Principal Investigator of this Project is Sarben Sarkar at KCL, Physics. The project involved the administration of research funds for two post-doctoral positions, one of which was in our institution.
(6) I have been (September 2003-September 2005) a Principal Investigator of Leverhulme Biophysics Pilot Project on "experimental study of electric properties of microtubules", involving one RA based at KCL.
(7) I have also been the Principal Investigator of an EPSRC(UK)-funded travel grant for preparation of a Framework 6 European Union funded application on an integrated project on Biophysics.
(8) In addition to these major activities I have also organised two conferences held at KCL, together with Sarben Sarkar:
(i) Conference on *Branes, Gravity, Condensed-Matter and Non-linear Quantum Mechanics: possible Interfaces*, (organisers HD Doebner, G Goldin, N Mavromatos and Sarben Sarkar), KCL, September 2002 (funded by Leverhulme Trust).
(`http://maxwel.ph.kcl.ac.uk/ dsc/workshop/index.html`)
(ii) Workshop on *Strongly Correlated Electrons and Gauge Field Theories*, July 2003 (organisers: Sarben Sarkar, N.M. and S. Hands).
(iii) I have been in the organising committee of the DISCRETE 2008 Symposium on Prospects of the Physics of Discrete Symmetries, December 11-16 2008 (Valencia-IFIC, Spain) (`http://ific.uv.es/discrete08/`)

(iv) I have also sponsored partly, from funds obtained through research grants, the third Aegean School on Cosmology, held in Chios (Greece), 26 September-1 October 2005.
(9) Moreover, I have been asked to provide references for promotion to permanent faculty members and/or postdoctoral applicants in several Universities in Europe and USA. I have also been referee for research projects submitted to EPSRC, PPARC and recently FONDECYT (Research Council, Chile) and Spain (Ministry of Education and Sciences).

F.2 External to the College

(1) From April 2005-0ctober 2009, I have been appointed as visiting Examiner at Imperial College, for the MSc Course: Quantum Fields & Fundamental Forces.
(2) Since April 2005 I am a member of the International Advisory Committee to the Greek Committee for co-operation with CERN, appointed by the Greek Ministry of Research and Development.
(3)1 January 2003 - 31 December 2005 I have been a member of the **EPSRC (UK) Peer Review Panel**.
(4) My administrative experience outside the College in the past includes membership of various academic and research committees as part of my duties as a full member of the Governing Body of Hertford College (Oxford) (1987-1990). I participated in selection committees for Senior Scholarships and Junior Research Fellows in the areas of my expertise. Also in undergraduate admission interviews. As a junior faculty member (Advanced Research Fellow) in the Department of Theoretical Physics of Oxford University I participated regularly in the selection of postdoctoral fellows in the Department, as well as in the internal prioritization of Advanced Fellowship applicants.
(5) I have been involved in the organization of International Schools and Conferences in the area of my expertise, as well as in the preparation of some European Union TMR Networks. I have been a member of two such networks: *Beyond the Standard Model*, coordinated by Prof. I. Antoniadis (Ecole Polytechnique), and currently of the network *Supersymmetry and The Early Universe*, coordinated by Dr. Subir Sarkar (Oxford).
(6) I have also been involved, as one of the directors, in administering parts of two research collaborations between KCL and Athens University and Athens National Technical University (Pythagoras I and Empirikion foundation projects, mentioned above) funded exclusively by the Greek Government. Both projects are for two years, and they started in September 2004.

SECTION G: KNOWLEDGE TRANSFER

I am a theory consultant (research associate) in ATLAS Experiment at CERN (astroparticle group) via the IFIC-University of Valencia group of Prof. J. Fuster-Verdu. In the recent past I have also been a consultant to the group of Prof H. Hofer and Prof. F. Pauss (ETH, Zurich and CERN), of the satellite Alpha-Matter-Spectrometer (AMS satellite project), which can also serve as a sensitive probe of modified dispersion relations of matter as a result of quantum-gravity entanglement. I have also been a consultant to the CPLEAR Experiment at CERN.
I have also been invited to give lectures in high-quality Graduate Schools worldwide, which lead to the publication of my lectures as book chapters in prestigious books, including four separate volumes of Springer-Verlag Lecture Notes in Physics.
I also wrote (by invitation) a number of articles for the general public: two articles in the CERN Courier and one article in the Physics world.
Finally, on the occasion of the Einstein year, I was invited as a Key note speaker to give an open lecture for the general public on "Common path of Particle- and Astro- Physics in the 21st Century" in a one-day general meeting in Lamia (Greece), organized by the Lamia Technological Teaching Institute. My lecture will be published in the web page of the activities of the Greek team of OUTREACH.

SECTION H: PUBLICATIONS

I am the author of (more than) 260 scientific articles, published in refereed journals, including peer-reviewed proceedings, book chapters and four lecture notes in *Springer Lecture Notes in Physics* series. Details can be found in SPIRES hepdata list (http://www.slac.stanford.edu/spires/find/hep/).

APPENDIX B:
Conferences, Talks and Seminars: Detailed List

- Invited Lecturer, Session Chair and International Advisory Committee member, Fifth International Workshop DICE2010: *SPACE-TIME-MATTER - CURRENT ISSUES IN QUANTUM MECHANICS AND BEYOND*, Castello Pasquini (Castiglioncello, Italy), September 13-17, 2010.

- Invited Talk at Corfu Summer Institute 2010, August 29- September 6th 2010, Corfu (Greece).

- Invited participation in *Experimental Search for Quantum Grtavity 2010* Workshop, Nordita (Stockholm, Sweden), July 12-16 2010.

- Invited Speaker at the *Workshop in honour of Prof. R. Bertlmann*: *Testing Foundations of Quantum Mechanics at Different Energy Scales*, Puchberg am Schneeberg (Austria), June 25-27 2010.

- Keynote speaker at *NEB 14*, *Recent Developments in Gravity* International Conference, Ioannina (Greece), June 8-11 2010.

- Invited speaker at *Quantum Coherence and Entanglement on Macroscopic Scales* International Workshop (Organizers: Die Junge Akademie (Germany)), Tenerife (Spain), May 6-8 2010.

- Invited Speaker at HEP 2010 XXVIII International Workshop of the Hellenic Society for the study of High Energy Physics: Recent developments in Particle physics and Cosmology, Thessaloniki (Greece), March 25-28 2010.

- Invited Talk on "Stringy Space-Time Foam Refraction and Gamma-Ray Astronomy" at Corfu Summer Institute 2009, 6-14 September 2009, Corfu (Greece), published in Fortschritte der Physik 2010.

- Invited talk on "CPT Tests" at the Canadian Association of Physicists (CAP) Congress 2009, Moncton U., New Brunswick (Canada), June 7-10 2009.

- Invited Plenary talk on "Lorentz Invariance, Causality and String Theory" at "the Planck Scale", XXV Max Born Symposium , Institute of Theoretical Physics, Wroclaw U., Wroclaw (Poland), June 29-July 3 2009.

- Plenary talk on "CPT and Decoherence in Quantum Gravity", in DISCRETE 08, Symposium on Prospects in the Physics of discrete symmetries, Valencia-IFIC, December 11-16 2008. Talk to be published in J. Phys. Conf. Series. Member of the organising commitee.

- Invited plenary talk on "Quantum Gravity Decoherence and intrinsic CPT Violation in entangled states", in the conference SPIN-STAT 2008, Theoretical and experimental aspects of the spin-statistics connection and related symmetries, Trieste, October 21st - 25th 2008, to appear in Foundations of Physics. Member of the advisory commitee.

- Invited plenary talk at DICE 2008, Castiglioncello (Italy), September 22-26 September, 2008. Talk to appear in the J. Phys. Conf. Series, on "High-Energy gamma-ray Astronomy and String Theory", e-Print: arXiv:0903.0318 [astro-ph.HE].

- Invited talk at LEAP 2008: International Conference on Low Energy Antiproton Physics, Vienna, Austria, 16-19 Sep 2008. Talk on "Quantum Gravity, CPT symmetry and Entangled States", to be published in the Proc. of Austrian Academy of Sciences e-Print: arXiv:0811.1372 [hep-ph]

- Invited plenary talk on "MAGIC and the speed of light: conventional astrophysics or new fundamental physics?" at HEP 2008 International Conference of the Hellenic Society for the study of High Energy Physics: Recent developments in high energy physics and cosmology, Ancient Olympia (Greece), April 16-19 2008.

- Invited talk at From Quantum to Emergent Gravity: Theory and Phenomenology, Trieste, Italy, 11-15 Jun 2007, e-Print: arXiv:0708.2250 [hep-th] (PoS in press).
- Invited talk at Kaon International Conference (KAON'07), Frascati, Italy, 21-25 May 2007. Published in PoS KAON:041,2008. e-Print: arXiv:0707.3422 [hep-ph]
- Invited talk at International Workshop on *Brane-World Gravity, Progress and Problems*, Institute of Cosmology & Gravitation, Portsmouth (UK), September 18-29, 2006. Talk on "relaxation dark energy and non-equilibrium cosmologies from colliding brane (super)worlds".
- Invited participation in 6th International Workshop on *Identification of Dark Matter*, Rhodes Island (Greece), September 11-16 2006, plenary talk on relaxation models for dark energy and particle physics models constraints, session chair, member of international advisory committee. Talk published in the proc. (with V.A. Mitsou, e-Print: astro-ph/0611788).
- Invited participation in DICE2006, Third International Workshop on *Decoherence, Information, Complexity and Entropy*, Piombino (Italy), September 10-15 2006, plenary talk on dark energy and neutrinos, session chair, member of international advisory committee. Talk published in J. Phys. Conf. Ser. 67: 012011, 2007 (with S. Sarkar).
- Invited participation in BEACH2006, 7th international conference on *Hyperons, Charm and Beauty Hadrons*, Lancaster University July 2-8 2006, plenary talk on CPT and Quantum Mechanics tests with Kaons: Theory. Talk at: Nucl. Phys. B (Proc. Suppl.), 167 (2007), 43-46 [arXiv:hep-ph/0607320].
- Invited participation in international workshop on *Exotic Hadronic Atoms, Deeply Bound Kaonic States and Antihydorgen*, June 19-24 2006, ECT (Trento, Italy), plenary talk on CPT tests in particle physics.
- Invited talk at HEP 2006 International Conference of the Hellenic Society for the study of High Energy Physics: Recent developments in high energy physics and cosmology, Ioannina (Greece), April 13-16 2006.
- Invited participation in *Mini Workshop on neutral Kaon interferometry at a* Φ*-factory: from quantum mechanics to quantum gravity*, March 24 2006, plenary talk on decoherence and CPT violation in quantum gravity.
- Invitated participation in *III International Workshop on "Neutrino Oscillations in Venice": 50 years from tnhe neutrino discovery*, Venice (Italy), February 7-10 2006, plenary talk on probing quantum decoherence with neutrino oscillation experiments.
- Invited participation in LEAP05, Bonn (Germany), 16-22 May 2005, plenary talk on theory of CPT Violation.
- Invited Plenary Talk on "quantum physics of black holes and quantum gravity phenomenology", at 2005 Workshop on Recent Advances of Particle Physics and Cosmology, Thessaloniki Univ. (Greece), April 21-24 2005.
- Invited participation in EXA05, Exotic Atoms Conference in Vienna (Austria), 21-25 February 2005, plenary talk on CPT Violation: Theory & Phenomenology.
- Invited colloquium on "CPT Violation", in PSI Laboratory (Villingen, Switzerland), 12 November 2004.
- Invited speaker in international conference on "fundamental symmetries and fundamental constants", Trieste ICTP (40 years anniversary), September 15-18 2004. Lecture notes available at: `http://www.ictp.trieste.it/ smr1580/`

- Invited plenary speaker and advisory board member at Second International Workshop on Decoherence, Information, Complexity and Entropy, Piombino (Italy) September 1-5 2004, on "Dark Energy in the Universe, the Irreversibility of Time and Neutrinos", Proc. published in Brazilian J. Physics (eds. H.T. Elze (2005)). (pp 10), member of international advisory committee.

- Invited plenary talk in *Second International Workshop on Neutrino Oscillations in Venice*, 2-5 December 2003, published in Proceedings (eds M. Baldo-Ceolin 2003, pp. 405-435).

- Invited plenary talk given at 4th International Conference on Physics Beyond the Standard Model: Beyond the Desert (BEYOND 03), Castle Ringberg, Tegernsee, Germany, 9-14 Jun 2003, (Springer Proc. in Physics, Vol. 92 (eds. H.V. Klapdor-Kleingrothaus, (2003), pp. 43-75).

- Invited Plenary Talk at LEAP 2003, 3-7 March 2003 Yokohama Japan (on "Theoretical and phenomenological aspects of CPT violation,"), published in Nucl. Instrum. Meth. B **214**, 1 (2004) [arXiv:hep-ph/0305215].

- Decoherence, Information, Complexity and Entropy, 1st International Workshop, Piombino (Italy) September 2002 invited plenary talk, advisory board member (together with A. K. Powell (KCL): Lecture Notes in Physics (Springer), Vol. 633, *Decoherence and Entropy in Complex Systems*, (2004),pp.296-318), member of international advisory committee.

- 1st International Conference on String Phenomenology, Oxford, England, 6-11 Jul 2002 (invited talk on "vacuum energy, cosmological supersymmetry breaking and inflation from colliding brane worlds", hep-th/0210008, published in World Sci. 2003 (eds. S. Abel *et al.*), pp. 239 - 245).

- Workshop on Decoherence in Physics, Trieste, June 2002, invited talk on the *Nature of Time in Liouville String Theory and Decoherence'*.

- Conference on Physics Beyond the Standard Model: Beyond the Desert 02, Oulu, Finland, 2-7 Jun 2002 Chaired session, member of Advisory Board. (lectures on "quantum gravity, cosmology, (Liouville) strings and Lorentz invariance", can be found in archive hep-th/0210079, published in *Beyond the Desert 2002* (IOP 2003, eds. H.V. Klapdor-Kleingrothaus), pp. 1 - 28).

- Invited Physics Plenary Talk (on evidence for acceleration in the Universe and Dark Energy component) at the ATLAS-LHC Collaboration, CERN October 2001.

- Lectures at Corfu Summer Institute on Elementary Particle Physics (Corfu 2001), Corfu, Greece, 31 Aug - 20 Sep 2001 (e-Print Archive: hep-th/0204115), Chaired session.

- Invited lecture at *International Conference on Mathematics and Engineering Techniques in Medicine and Biological Sciences*, June 26-29, 2000, Monte-Carlo Resort, Las Vegas, U.S.A., (Proc. published, quant-ph/0009089).

- 3rd International Conference on Dark Matter in Astro and Particle Physics (Dark 2000), Heidelberg, Germany, 10-16 Jul 2000, chaired session, member of advisory board (talk Published in *Heidelberg 2000, Dark matter in astro- and particle physics* 209-233 (e-Print Archive: gr-qc/0009045)

- Lake Louise Winter Institute: From Particles to the Universe, Lake Louise, Alberta, Canada, 20-26 Feb. Chaired session and talk published by World Scientific (e-Print Archive: astro-ph/0004225).

- Invited contribution to the to the 2nd International Conference Physics Beyond the Standard Model: Beyond the Desert 99: Accelerator, Nonaccelerator and Space Approaches, Ringberg Castle, Tegernsee, Germany, 6-12 Jun 1999. Published in *Tegernsee 1999, Beyond the desert 1999* 299-334 (e-Print Archive: gr-qc/9909085).

- Corfu Summer Institute on Elementary Physics: Workshop on Common Trends in Particle and Condensed Matter, Corfu, Greece, 24-28 Sep 1999, conference organiser, session chair (e-Print Archive: cond-mat/9909310).

- Invited talk at the Workshop 'Biophysics of the Cytoskeleton', Banff, Canada August 18-21 1997, Advances in Structural Biology, Vol 5 (1998), 283. e-Print Archive: quant-ph/9802063

- Workshop on Physics Beyond the Standard Model: Beyond the Desert: Accelerator and Nonaccelerator Approaches, Tegernsee, Germany, 8-14 Jun 1997, session chair. In *Tegernsee 1997, Beyond the desert* 873-883.

- Nagoya Japan (1996), *Perspectives of strong coupling gauge theories* 164-170 (eds. J. Nishimura, K Yamawkai, World Sci.). (invited talk at e-Print Archive: hep-th/9703011)

- Invited talk at 5th Hellenic School and Workshops on Elementary Particle Physics, Corfu, Greece, 3-24 Sep 1995. e-Print Archive: gr-qc/9606008

- EXPERIMENTAL TESTS OF CPT SYMMETRY AND QUANTUM MECHANICS AT CPLEAR. By CPLEAR Collaboration (N.E. Mavromatos et al.). Contributed to 2nd Workshop on Physics and Detectors for DAPHNE (DAPHNE 95), Frascati, Italy, 4-7 Apr 1995. e-Print Archive: hep-ph/9506395

- Invited talk at Int. Conf. on Phenomenology of Unification from Present to Future, Rome, Italy, Mar 23-26, 1994, published in Proc. (e-Print Archive: hep-th/9405196)

- Lectures given at International Workshop on Recent Advances in the Superworld, Woodlands, TX, 13-16 Apr 1993. Published in Woodlands Superworld 1993:3-26 (QCD161:I966:1993) e-Print Archive: hep-th/9311148

- Invited talks given at 4th Hellenic School on Elementary Particle Physics, Corfu, Greece, Sep 2-20, 1992, and at International School of Astrophysics, 'D. Chalonge': 2nd Course: Current Topics in Astrofundamental Physics, Erice, Italy, 6-13 Sep 1992 (N.E. Mavromatos, preprint ENSLAPP-A-424-93, CERN-TH-6854-93, Apr 1993. 17pp.).

- Int. Symposium on Blackholes, Membranes, Wormholes and Superstrings, Woodlands, TX, Jan 16-18, 1992, session chair. In *Houston 1992, Proceedings, Black holes, membranes, wormholes and superstrings* 51-70 (e-Print Archive: hep-th/9204096)

- SUPERCONDUCTING GAUGE THEORIES IN (2+1)-DIMENSIONS. By N.E. Mavromatos (CERN). CERN-TH-6331-91, Nov 1991. 6pp. Invited talk given at 1st General Conf. of the Balkan Physical Union, Thessaloniki, Greece, Sep 26-28, 1991.

Lectures at Major International Graduate Schools

- Invited Lectures on "LHC Physics and Cosmology", at Lake-Louise Winter Institute 2007, February 19-24 2007, Lake Louise (Alberta, Canada).

- Invited Lectures at "3rd Aegean Summer School: the invisible Universe: dark matter and dark energy" on "The issue of Dark Energy in String Theory", Karfas, Chios (Greece) 24 September - 1 October 2005, Lect. Notes Phys. to appear.

- Invited set of Lectures in 40th Winter School, Poland (Ladek-Zdroj, February 2004), on "theory and phenomenology of Quantum Gravity induced CPT violation", Lect. Notes Phys. **669**, *Planck Scale Effects in Astrophysics and Cosmology* (G. Amelino-Camelia, J. Kowalski-Glikman eds), 245-320 (2005) [arXiv:gr-qc/0407005], ISBN 3-540-252630-0.

- Invited Lectures on "String Cosmology", given at 1st Aegean Summer School on Cosmology, Karlovassi, Greece, 21-29 Sep 2001, chaired sessions, discussion leader (e-Print Archive: hep-th/0111275, Lecture Notes in Physics (Springer), Vol. 592, *Cosmological Crossroads*, (2002),pp. 392-457).

- Invited lectures on "effective gauge theories, the renormalization group and high-T_c superconductivity", by NEM given at 38th Cracow School of Theoretical Physics: New Quantum Phases, Elementary Excitations and Renormalization in High-Energy and Condensed Matter Physics, Zakopane, Poland, 1-10 Jun 1998. Published in Acta Phys.Polon.B29:3819-3870,1998 (with A. Campbell-Smith) e-Print Archive: cond-mat/9810324

- Invited Lecture at 5th Chia Workshop on Common Trends in Particle and Condensed Matter Physics, Chia Laguna, Sardinia, Italy, 1-11 Sep 1997. e-Print Archive: cond-mat/9710288

- Lecture at Common Trends in Condensed Matter and High-energy Physics, Chia Laguna, Sardinia, Italy, 3-10 Sep 1995. e-Print Archive: cond-mat/9603198

- Erice Summer School 1993: from Supersymmetry to the origin of Space time, Erice Subnuclear 1993 Vol. 31:0001-66 (QCD161:I65:1993) e-Print Archive: hep-th/9403133, Chaired session, advisory board member

- Lectures at Common Trends in Particle and Condensed Matter Physics, Chia-Laguna, Italy, Sep 1992. Published in Nucl.Phys.Proc.Suppl.33C:145-191,1993

LIST OF PUBLICATIONS OF N.E. MAVROMATOS

2010

[1] J. Ellis, N. E. Mavromatos, "On the Interpretation of Gravitational Corrections to Gauge Couplings," [arXiv:1012.4353 [hep-th]].

[2] N. E. Mavromatos, V. A. Mitsou, S. Sarkar and Ariadne Vergou, "Stochastic Finsler D-particle Space-Time Foam Enhances Dark Matter Relics," [arXiv:1012.4094 [hep-ph]].

[3] N. E. Mavromatos, "Quantum-Gravity Induced Lorentz Violation and Dynamical Mass Generation," [arXiv:1011.3528 [hep-ph]], Physical Rev. **D** in press.

[4] N. E. Mavromatos, "String Quantum Gravity, Lorentz-Invariance Violation and Gamma-Ray Astronomy," Int. J. Mod. Phys. **A25**, 5409-5485 (2010). [arXiv:1010.5354 [hep-th]].

[5] N. E. Mavromatos, "Stringy Space-Time Foam and High-Energy Cosmic Photons," [arXiv:1010.5399 [gr-qc]].

[6] N. E. Mavromatos, S. Sarkar, W. Tarantino, "Flavour-Condensate-induced Breaking of Supersymmetry in Free Wess-Zumino Fluids," [arXiv:1010.0345 [hep-th]].

[7] J. Alexandre, N. E. Mavromatos, D. Yawitch, "Emergent relativistic like kinematics and dynamical mass generation for a Lifshitz-type Yukawa model," Phys. Rev. **D82**, 125014 (2010). [arXiv:1009.4811 [hep-ph]].

[8] N. E. Mavromatos, S. Sarkar, A. Vergou, "Stringy Space-Time Foam, Finsler-like Metrics and Dark Matter Relics," Phys. Lett. **B696**, 300-304 (2011). [arXiv:1009.2880 [hep-th]].

[9] N. E. Mavromatos, "Stringy space-time foam refraction and gamma-ray astronomy," Fortsch. Phys. **58**, 779-782 (2010).

[10] J. Ellis, N. E. Mavromatos, D. V. Nanopoulos, "Comments on Ultra-High-Energy Photons and D-Foam models," Phys. Lett. **B694**, 61-64 (2010). [arXiv:1004.4167 [astro-ph.HE]].

[11] G. Amelino-Camelia *et al.*, "Physics with the KLOE-2 experiment at the upgraded DAϕNE," Eur. Phys. J. C **68**, 619 (2010) [arXiv:1003.3868 [hep-ex]].

2009

[12] J. Bernabeu, F. J. Botella, N. E. Mavromatos and V. A. Mitsou, "DISCRETE '08: Symposium on Prospects in the Physics of Discrete Symmetries," J. Phys. Conf. Ser. **171**, 011001 (2009).

[13] J. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "D-Foam Phenomenology: Dark Energy, the Velocity of Light and a Possible D-Void," arXiv:0912.3428 [astro-ph.CO].

[14] J. Bernabeu, C. Espinoza and N. E. Mavromatos, "Cosmological Constant and Local Gravity," Phys. Rev. D **81**, 084002 (2010) [arXiv:0910.3637 [gr-qc]].

[15] N. E. Mavromatos, "Probing Lorentz Violating (Stringy) Quantum Space-Time Foam," *The Planck Scale - Proc. XXV Max Born Symposium*, June 29-July 3 2009 Wroclaw, Poland (eds. J. Kowalski-Glikman, R. Durka and M. Szczachor), Am. Inst. Physics Proc. 1196, 169 (2009), arXiv:0909.2319 [hep-th].

[16] J. Alexandre and N. E. Mavromatos, "Dark Energy as an off-shell Tachyon Background in four-dimensional Strings," Phys. Lett. B **682**, 450 (2010) [arXiv:0906.4990 [hep-th]].

[17] N. E. Mavromatos, "Decoherence and CPT Violation in a Stringy Model of Space-Time Foam," Found. Phys. **40**, 917 (2010) [arXiv:0906.2712 [hep-th]].

[18] N. E. Mavromatos, S. Sarkar and W. Tarantino, "Flavour Condensates in Brane Models and Dark Energy," Phys. Rev. D **80**, 084046 (2009) [arXiv:0907.5122 [hep-th]].

[19] I. Ferreras, N. E. Mavromatos, M. Sakellariadou and M. F. Yusaf, "Incompatibility of Rotation Curves with Gravitational Lensing for TeVeS," Phys. Rev. D **80**, 103506 (2009) [arXiv:0907.1463 [astro-ph.GA]].

[20] A. Sakharov, N. Mavromatos, A. Meregaglia, A. Rubbia and S. Sarkar, "Exploration of Possible Quantum Gravity Effects with Neutrinos I: J. Phys. Conf. Ser. **171**, 012038 (2009) [arXiv:0903.4985 [hep-ph]].

[21] T. Li, N. E. Mavromatos, D. V. Nanopoulos and D. Xie, "Time Delays of Strings in D-particle Backgrounds and Vacuum Refractive Indices," Phys. Lett. B **679**, 407 (2009) [arXiv:0903.1303 [hep-th]].

[22] N. E. Mavromatos, "CPT Violation and Decoherence in Quantum Gravity," Plenary talk at DISCRETE'08: Symposium on Prospects in the Physics of Discrete Symmetries, Valencia, Spain, 11-16 Dec 2008, J. Phys. Conf. Ser. **171**, 012007 (2009) [arXiv:0904.0606 [hep-ph]].

[23] N. E. Mavromatos, "High-Energy gamma-ray Astronomy and String Theory," invited plenary talk at DICE 2008, Castiglioncello (Italy), September 22-26 2008, J. Phys. Conf. Ser. **174**, 012016 (2009) [arXiv:0903.0318 [astro-ph.HE]].

[24] J. Alexandre, K. Farakos, N. E. Mavromatos and P. Pasipoularides, "Neutrino oscillations in a Robertson-Walker Universe with space time foam," Phys. Rev. D **79**, 107701 (2009) [arXiv:0902.3386 [hep-ph]].

[25] J. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Probing a Possible Vacuum Refractive Index with Gamma-Ray Telescopes," arXiv:0901.4052 [astro-ph.HE], Phys. Lett. B **674**, 83 (2009).

[26] N. E. Mavromatos, M. Sakellariadou and M. F. Yusaf, "Can TeVeS avoid Dark Matter on galactic scales?," arXiv:0901.3932 [astro-ph.GA], Phys. Rev. D **79** (Rapid Comm.), 081301(R) (2009).

[27] J. Alexandre, J. Ellis, N. E. Mavromatos, New J. Phys. **12**, 043050 (2010). [arXiv:0901.2532 [hep-th]].

2008

[28] J. Alexandre, A. Kostouki and N. E. Mavromatos, "Tachyon-Dilaton-induced Inflation as an alpha'-resummed String Background," JHEP **0903**, 022 (2009) [arXiv:0811.4607 [hep-th]].

[29] K. Farakos, N. E. Mavromatos and P. Pasipoularides, "Bulk photons in Asymmetrically Warped Spacetimes and Non-trivial Vacuum Refractive Index," JHEP **0901**, 057 (2009) [arXiv:0807.0870 [hep-th]].

[30] N. E. Mavromatos and S. Sarkar, "Non-extensive statistics in stringy space-time foam models," Phys. Rev. D **79**, 104015 (2009) [arXiv:0812.3952 [hep-th]].

[31] N. E. Mavromatos, "Quantum Gravity, CPT symmetry and Entangled States," Hyperfine Interactions: Volume **193**, Issue 1, 283 (2009) [arXiv:0811.1372 [hep-ph]], invited talk at LEAP08-EXA08, Austrian Academy of Sciences, Stefan Meyer Institute, Vienna (September 2008).

[32] N. E. Mavromatos and D. V. Nanopoulos, "The MAGIC of SSC and how it affects LHC," AIP Conf. Proc. **1166**, 26 (2009) [arXiv:0902.1507 [hep-ph]].

[33] B. Dutta, A. Gurrola, T. Kamon, A. Krislock, A. B. Lahanas, N. E. Mavromatos and D. V. Nanopoulos, "Supersymmetry Signals of Supercritical String Cosmology at the Large Hadron Collider," Phys. Rev. D **79**, 055002 (2009) [arXiv:0808.1372 [hep-ph]].

[34] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Derivation of a Vacuum Refractive Index in a Stringy Space-Time Foam Model," Phys. Lett. B **665**, 412 (2008) [arXiv:0804.3566 [hep-th]].

[35] J. Alexandre, N. E. Mavromatos and D. Tanner, "Non-perturbative time-dependent String Backgrounds and Axion-induced Optical Activity," Phys. Rev. D **78**, 066001 (2008) [arXiv:0804.2353 [hep-th]].

[36] J. Alexandre, A. Kostouki and N. E. Mavromatos, "Non-renormalization for the Liouville wave function," New J. Phys. **10**, 073029 (2008) [arXiv:0801.2557 [hep-th]].

[37] N. E. Mavromatos, A. Meregaglia, A. Rubbia, A. Sakharov and S. Sarkar, "Quantum-Gravity Decoherence Effects in Neutrino Oscillations: Expected Constraints From CNGS and J-PARC," Phys. Rev. D **77**, 053014 (2008) [arXiv:0801.0872 [hep-ph]].

[38] J. Alexandre, K. Farakos, N. E. Mavromatos and P. Pasipoularides, Phys. Rev. D **77**, 105001 (2008) [arXiv:0712.1779 [hep-ph]].

[39] N. E. Mavromatos and S. Sarkar, "Towards a microscopic construction of flavour vacua from a space-time foam model," New J. Phys. **10**, 073009 (2008) [arXiv:0710.4541 [hep-th]].

2007

[40] N. E. Mavromatos and S. Sarkar, "Probing Models Of Quantum Decoherence In Particle Physics And Cosmology," J. Phys. Conf. Ser. **67**, 012011 (2007).

[41] J. Albert *et al.* [MAGIC Collaboration and Other Contributors Collaboration], "Probing quantum gravity using photons from a flare of the active galactic nucleus Markarian 501 observed by the MAGIC telescope," Phys. Lett. B **668**, 253 (2008) [arXiv:0708.2889 [astro-ph]].

[42] N. E. Mavromatos, "Lorentz Invariance Violation from String Theory," Proceedings of Science (PoS), **QG-PH**, 027 (2007) [arXiv:0708.2250 [hep-th]]. Invited talk at From Quantum to Emergent Gravity: Theory and Phenomenology, Trieste, Italy, 11-15 Jun 2007.

[43] J. Alexandre, N. E. Mavromatos and D. Tanner, "Antisymmetric-Tensor and Electromagnetic effects in an alpha'-non-perturbative Four-Dimensional String Cosmology," New J. Phys. **10**, 033033 (2008) [arXiv:0708.1154 [hep-th]].

[44] N. E. Mavromatos, "LHC Physics and Cosmology," Lectures at Lake Louise Winter Institute 2007: Fundamental Interactions (World Sci. 2008) (19-24 Feb 2007, Lake Louise, Alberta, Canada) [arXiv:0708.0134 [hep-ph].

[45] N. E. Mavromatos and V. A. Mitsou, "Observational Evidence for Negative-Energy Dust in Late-Times Cosmology," Astropart. Phys. **29**, 442 (2008) [arXiv:0707.4671 [astro-ph]].

[46] N. E. Mavromatos, "CPT and Decoherence in Quantum Gravity," PoS **KAON**, 041 (2008) [arXiv:0707.3422 [hep-ph]].

[47] J. Alexandre and N. E. Mavromatos, "Can strings live in four dimensions?," arXiv:hep-th/0703171 Addendum to [53].

[48] N. Mavromatos and M. Sakellariadou, "Relativistic modified Newtonian dynamics from string theory?," Phys. Lett. B **652**, 97 (2007) [arXiv:hep-th/0703156].

[49] G. A. Goldin, N. E. Mavromatos and R. J. Szabo, "Worldsheet Instantons and a Null String Limit of Born-Infeld Theory," Eur. Phys. J. C **53**, 667 (2008) [arXiv:hep-th/0702173].

2006

[50] A. B. Lahanas, N. E. Mavromatos and D. V. Nanopoulos, "Smoothly evolving Supercritical-String Dark Energy relaxes Supersymmetric-Dark-Matter Constraints," Phys. Lett. B **649**, 83 (2007) [arXiv:hep-ph/0612152].

[51] N. E. Mavromatos and V. A. Mitsou, "Relaxation dark energy in non-critical string cosmologies and astrophysical data," invited talk (N.E.M.) at 6th International Workshop On The Identification Of Dark Matter (11-16 Sep 2006, Island of Rhodes, Greece) Proc. IDM 2006 [arXiv:astro-ph/0611788].

[52] J. Alexandre, J. R. Ellis and N. E. Mavromatos, "Non-perturbative formulation of non-critical string models," JHEP **0703**, 060 (2007) [arXiv:hep-th/0611228].

[53] J. Alexandre, J. R. Ellis and N. E. Mavromatos, "Non-perturbative formulation of time-dependent string solutions," JHEP **0612**, 071 (2006) [arXiv:hep-th/0610072].

[54] A. B. Lahanas, N. E. Mavromatos and D. V. Nanopoulos, "Dilaton and off-shell (non-critical string) effects in Boltzmann equation PMC Phys. A **1**, 2 (2007) [arXiv:hep-ph/0608153].

[55] J. Bernabeu, J. R. Ellis, N. E. Mavromatos, D. V. Nanopoulos and J. Papavassiliou, "CPT and quantum mechanics tests with kaons," In Di Domenico, A. (ed.): Handbook on neutral kaon interferometry at a Phi-factory 39-83. [arXiv:hep-ph/0607322].

[56] N. E. Mavromatos, "CPT and quantum mechanics tests with kaons: Theory," Invited talk at 7th International Conference on Hyperons, Charm and Beauty Hadrons (BEACH 2006), Lancaster, England, 2-8 Jul 2006 [arXiv:hep-ph/0607320] Proceedings: PROCEEDINGS. Edited by G. Borisov, M. Bozzo, R. Jones, C. Kalman, P. Ratoff, M. Smizanska, N. Solomey. Amsterdam, Elsevier, 2007. 205p. (Nucl. Phys. B (Proc. Suppl.) **167** (2007), 43-46)

[57] N. E. Mavromatos, "The issue of dark energy in string theory," Lect. Notes Phys. **720**, 333 (2007) [arXiv:hep-th/0607006].

[58] J. Bernabeu, N. E. Mavromatos and S. Sarkar, "Decoherence induced CPT violation and entangled neutral mesons," Phys. Rev. D **74**, 045014 (2006) [arXiv:hep-th/0606137].

[59] N. E. Mavromatos and S. Sarkar, "Methods of approaching decoherence in the flavour sector due to space-time Phys. Rev. D **74**, 036007 (2006) [arXiv:hep-ph/0606048].

[60] G. A. Diamandis, B. C. Georgalas, A. B. Lahanas, N. E. Mavromatos and D. V. Nanopoulos, Phys. Lett. B **642**, 179 (2006) [arXiv:hep-th/0605181].

[61] J. R. Ellis, N. E. Mavromatos, V. A. Mitsou and D. V. Nanopoulos, "Confronting dark energy models with astrophysical data," Astropart. Phys. **27**, 185 (2007) [arXiv:astro-ph/0604272].

[62] N. E. Mavromatos and S. Sarkar, "A possible quantum-gravitational origin of the neutrino mass difference?," Presented by N.E.M. *at 3rd International Workshop on NO-VE: Neutrino Oscillations in Venice: 50 Years after the Neutrino Experimental Discovery*, Venice, Italy, 7-10 Feb 2006. Published in Venice 2006, Neutrino oscillations 273-289 [arXiv:hep-ph/0604081].

[63] G. Barenboim, N. E. Mavromatos, S. Sarkar and A. Waldron-Lauda, "Quantum decoherence and neutrino data," Nucl. Phys. B **758**, 90 (2006) [arXiv:hep-ph/0603028].

[64] J. R. Ellis, N. E. Mavromatos, D. V. Nanopoulos, A. S. Sakharov and E. K. G. Sarkisyan, "Robust Limits on Lorentz Violation from Gamma-Ray Bursts," Astropart. Phys. **25**, 402 (2006) [Astropart. Phys. **29**, 158 (2008)] [arXiv:astro-ph/0510172].

[65] J. R. Ellis, N. E. Mavromatos, D. V. Nanopoulos and M. Westmuckett, Int. J. Mod. Phys. A **21**, 1379 (2006) [arXiv:gr-qc/0508105].

2005

[66] N. Mavromatos and S. Sarkar, "Liouville decoherence in a model of flavour oscillations in the presence of dark energy," (15pp) Phys. Rev. D **72**, 065016 (2005) [arXiv:hep-th/0506242].

[67] N. E. Mavromatos, "CPT violation: What and where to look for," invited Plenary talk at International Conference on Low Energy Antiproton Physics (LEAP'05), Bonn, Juelich, Germany, 16-22 May 2005. . AIP Conf. Proc. **796**, 13 (2005) [arXiv:hep-ph/0506294].

[68] J. Bernabeu, N. E. Mavromatos, J. Papavassiliou and A. Waldron-Lauda, "Intrinsic CPT violation and decoherence for entangled neutral mesons," Nucl. Phys. B **744**, 180 (2006) [arXiv:hep-ph/0506025].

[69] A. Mershin, H. Sanabria, J.H. Miller, D. Nawarathna, E.M.C. Skoulakis, **N.E. Mavromatos**, A.A. Kolomenskii, H.A. Schuessler, R.F. Luduena and D.V. Nanopoulos, "Towards Experimental Tests of Quantum Effects in Cytoskeletal Proteins" (66pp), Springer-Verlag Volume on *Emerging Science of Conscioussness* (ed. J.A. Tuszynski), [arXive:physics/0505080] (contribution of **N.E.M**: section 2, Quantum Electrodynamical Model of Tubulin and its implications - theoretical modelling: pp 8 -22).

[70] K. Böhm, N. E. Mavromatos, A. Michette, R. Stracke and E. Unger "Movement and Alignment of Microtubules in electric fields and electric-dipole moment estimates", Electromagnet. Biol. and Medicine **24**, 297 - 308 (2005).

[71] N. E. Mavromatos, "CPT violation: Theory and phenomenology," arXiv:hep-ph/0504143 (11pp), Invited talk at International Conference on Exotic Atoms (EXA 2005), Vienna, Austria, 21-25 Feb 2005. (Proc. Austrian Academy of Sciences).

[72] N. E. Mavromatos and E. Papantonopoulos, "Induced curvature in brane worlds by surface terms in string effective actions with higher-curvature corrections," Phys. Rev. D **73**, 026001 (2006) [arXiv:hep-th/0503243].

[73] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "The string coupling accelerates the expansion of the universe," Gen. Rel. Grav. **37**, 1665 (2005) [Int. J. Mod. Phys. D **14**, 2327 (2005)] [arXiv:gr-qc/0503120].

[74] J. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Liouville cosmology," arXiv:gr-qc/0502119 (23pp), Proc. in *DARK 2004: 5th International Heidelberg Conference on Dark Matter in Astro and Particle Physics, College Station, Texas, 3-9 Oct 2004.*

[75] J. Ellis, N. E. Mavromatos and M. Westmuckett, "Potentials between D-branes in a supersymmetric model of space-time foam," (26pp), Phys. Rev. **D 71**, 106006 (2005) [arXiv:gr-qc/0501060].

2004

[76] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Cosmic acceleration and the string coupling," (16pp) Phys. Lett. B **619**, 17 (2005) [arXiv:hep-th/0412240].

[77] N. E. Mavromatos, "Dark Energy in the Universe, the Irreversibility of Time and Neutrinos", invited plenary talk, DICE 2004 Conference, Piombino (Italy), September 2004 (13pp), Braz. J. Phys. **35**, 284 (2005) [arXiv:gr-qc/0411067].

[78] E. Alvarez, J. Bernabéu, N. E. Mavromatos, M. Nebot and J. Papavassiliou "CPT violation in entangled $B^0 - \overline{B}^0$ states and the demise of flavour tagging" (12pp), Phys. Lett. **B607** 195 (2005). [arXiv:hep-ph/0410409].

[79] A.G. Michette, N.E Mavromatos, A.K. Powell, M. Holwill, S. Pfauntsch, "Nanotubes and microtubules as quantum information carriers ROMOTOPO 2003", Seventh Conference on Optics, Proc. SPIE **5581**, 522-530 (2004).

[80] J. Ellis, N. E. Mavromatos, D. V. Nanopoulos and A. Sakharov, "Brany Liouville inflation," (22pp), New J. Phys **6**, 171 (2004). [arXiv:gr-qc/0407089]

[81] J. Alexandre, K. Farakos and N. E. Mavromatos, "Anomalous magnetic moment in parity-conserving QED(3)," (27pp), New J. Phys.**7**, 48 (2005) [arXiv:hep-ph/0407265].

[82] N. Mavromatos and J. Pinfold, "Bringing the heavens down to earth," CERN Cour. **44N3**, 17-19 (2004).

[83] N. E. Mavromatos, "Logarithmic conformal field theories and strings in changing backgrounds," invited article, I. Kogan Memorial Volume, *From fields to Strings: Circumnavigating Theoretical Physics*, Vol. II, 1259-1364 (World Sci. eds. Misha Shifman, Arkady Vainshtein, and John Wheater, 2005) [arXiv:hep-th/0407026].

[84] N. E. Mavromatos, "CPT violation and decoherence in quantum gravity,", Lect. Notes Phys. **669**, *Planck Scale Effects in Aastrophysics and Cosmology* (G. Amelino-Camelia, J. Kowalski-Glikman eds), 245-320 (2005) [arXiv:gr-qc/0407005], ISBN 3-540-252630-0. (invited lectures at the 40th Winter School of Theoretical Physics: Quantum Gravity Phenomenology, Ladek Zdroj, Poland, 4-14 Feb 2004).

[85] G. Barenboim and N. E. Mavromatos, "Decoherent neutrino mixing, dark energy and matter-antimatter asymmetry," (6pp), arXiv:hep-ph/0406035, Phys. Rev. D70 093015 (2004)

[86] J. R. Ellis, N. E. Mavromatos and M. Westmuckett, "A supersymmetric D-brane model of space-time foam," Phys. Rev. D **70**, 044036-044049 (2004) [arXiv:gr-qc/0405066].

[87] G. Barenboim and N. E. Mavromatos, "CPT violating decoherence and LSND: A possible window to Planck scale physics," (12pp) arXiv:hep-ph/0404014, JHEP 0501:034 (2005)

[88] N. E. Mavromatos, "Neutrinos and the phenomenology of CPT violation," Invited Talk given at 2nd International Workshop on Neutrino Oscillations in Venice (NO-VE 2003), Venice, Italy, 3-5 Dec 2003. Published in *Venice 2003, Neutrino oscillations* 405-433 [arXiv:hep-ph/0402005].

[89] N. E. Mavromatos and J. Papavassiliou, "Novel Phases and Old Puzzles in QED3 and related models," Recent. Res. Devel. Phys. 5, 369-415 (TRN, India 2004) [arXiv:cond-mat/0311421], invited article.

[90] J. R. Ellis, N. E. Mavromatos, D. V. Nanopoulos and A. S. Sakharov, "Space-time foam may violate the principle of equivalence,", Int. J. Mod. Phys. **A19** 4413-4430 (2004) arXiv:gr-qc/0312044

[91] J. R. Ellis, N. E. Mavromatos, D. V. Nanopoulos and A. S. Sakharov, "Synchrotron radiation and quantum gravity," (4pp) Nature **428**, 386 (2004) [arXiv:astro-ph/0309144].

[92] J. Bernabeu, N. E. Mavromatos and J. Papavassiliou, "Novel type of CPT violation for correlated EPR states," Phys. Rev. Lett. **92**, 131601-131604 (2004) [arXiv:hep-ph/0310180].

2003

[93] N. E. Mavromatos, "On CPT symmetry: Cosmological, quantum-gravitational and other possible violations and their phenomenology," Invited talk at *Beyond the Desert 2003, Castle Ringeberg (Germany)*, Springer Proc. in Physics, Vol. 92 (eds. H.V. Klapdor-Kleingrothaus, (2003), pp. 43-75) [arXiv:hep-ph/0309221].

[94] A. B. Lahanas, N. E. Mavromatos and D. V. Nanopoulos, "WMAPing the universe: Supersymmetry, dark matter, dark energy, proton decay and collider physics," Int. J. Mod. Phys. D**12**: 1529-1591 (2003) [arXiv:hep-ph/0308251].

[95] J. R. Ellis, N. E. Mavromatos and A. S. Sakharov, "Synchrotron radiation from the Crab Nebula discriminates between models of space-time foam," Astropart. Phys. 20: 669-682 (2004) [arXiv:astro-ph/0308403].

[96] N. E. Mavromatos and J. Papavassiliou, "Super heavy dark matter anisotropies from D-particles in the early universe," Int. J. Mod. Phys. A **19** 2355-2383 (2004) [arXiv:hep-th/0307028].

[97] N. E. Mavromatos, "Theoretical and phenomenological aspects of CPT violation," plenary invited talk at LEAP)3, Yokohama Japan, March 2003, Nucl. Instrum. Meth. B**214**:1-6 (2004) [arXiv:hep-ph/0305215].

[98] J. Alexandre, N. E. Mavromatos and S. Sarkar, "Towards Exact Results in Nodal Antiferromagnetic Planar Liquids," Int. J. Mod. Phys. B **17** 2359-2394 (2003) [arXiv:cond-mat/0303611].

[99] J. Ellis, N. E. Mavromatos, D. V. Nanopoulos and A. S. Sakharov, "Quantum-gravity analysis of gamma-ray bursts using wavelets," arXiv:astro-ph/0210124, Astron. Astrophys. **402** :409-424 (2003).

[100] N. E. Mavromatos, Sarben Sarkar, "Aspects of Duality in Nodal Liquids," arXiv:cond-mat/0210248 (15pp), Int. J. Mod. Phys. **B17**, 251-272 (2003).

[101] J. Alexandre, N. E. Mavromatos and S. Sarkar, "Induced N = 2 composite supersymmetry in 2+1 dimensions," arXiv:hep-th/0207232 (10pp), New J. Phys. **5** 25 (2003).

[102] N. E. Mavromatos and R. J. Szabo, "The Neveu-Schwarz and Ramond algebras of logarithmic superconformal field theory," arXiv:hep-th/0207273 (64pp),JHEP **0301** 041 (2003).

2002

[103] N. E. Mavromatos, "Vacuum Energy, Cosmological Supersymmetry Breaking and Inflation from Colliding Brane Worlds," Proc. *First International Conference on String Phenomenology*, Oxford (UK) July 2002 (World Sci. 2003, pp 239-246), and invited talk given at the *Inauguration of Portsmouth Inst. of Cosmology and Gravitation*, Portsmouth (UK), September 2002, arXiv:hep-th/0210008.

[104] N. E. Mavromatos, "Quantum gravity, cosmology, (Liouville) strings and Lorentz invariance," Proc. *Physics Beyond the Standard Model: Beyond the Desert 2002*, Oulu, Finland, 2-7 Jun 2002 (Inst. Phys. Publishing, UK, eds. H.V. Klapdor-Kleingrothaus, pp. 1 - 28); [arXiv:hep-th/0210079].

[105] N. E. Mavromatos and A. K. Powell, "On the possibility of Quantum Coherence in Biological Systems with Application to Quantum Computing", Lecture Notes in Physics (Springer) **633**, *Decoherence and Entropy in Complex Systems*, 296-318 (2004) (DICE 2002 Conference, Piombino (Italy)) [ISBN 3-540-20639-6].

[106] J. Ellis, E. Gravanis, N. E. Mavromatos and D. V. Nanopoulos, "Impact of Low-Energy Constraints on Lorentz Violation," arXiv:gr-qc/0209108 (4pp).

[107] E. Gravanis and N. E. Mavromatos, "Vacuum energy and cosmological supersymmetry breaking in brane worlds," Phys. Lett. B **547** 117-127 (2002) [arXiv:hep-th/0205298].

[108] N. E. Mavromatos and J. Rizos, "Exact solutions and the cosmological constant problem in dilatonic domain wall higher-curvature string gravity," arXiv:hep-th/0205299, Int. J. Mod. Phys. **A18**:57-84 (2003).

[109] N. E. Mavromatos, "Acceleration of the universe in type-0 non-critical strings: a review," arXiv:hep-th/0204115 (10pp), Proc. *Corfu Summer Institute on Elementary Particle Physics*, Corfu, Greece, 31 Aug-20 Sep 2001.

[110] N.E. Mavromatos, A. Mershin, and D.V. Nanopoulos, "QED-Cavity model of microtubules implies dissipationless energy transfer and biological quantum teleportation", Int. J. Mod. Phys. B **16** (2002) 3623-3642 [arXiv:quant-ph/0204021].

[111] G. A. Diamandis, B. C. Georgalas, N. E. Mavromatos and E. Papantonopoulos, "Acceleration of the universe in type-0 non-critical strings," arXiv:hep-th/0203241 (32pp), Int. J. Mod. Phys. **A17**: 4567-4589 (2002).

[112] J. Alexandre, N. E. Mavromatos and S. Sarkar, "Composite supersymmetries in low-dimensional systems," New Jour. Phys. 4 (2002) 24 (16pp) [arXiv:hep-th/0202047].

[113] E. Gravanis and N. E. Mavromatos, "Higher-Order Logarithmic Conformal Algebras from Robertson-Walker σ-model Backgrounds", JHEP **0206** (2002) 019 (19pp) [arXiv:hep-th/0106146].

[114] N. E. Mavromatos, "Testing Models For Quantum Gravity," CERN Cour. **42N7** (2002) 25-28.

[115] J. Alexandre and N. E. Mavromatos, "Radiatively-induced magnetic moment in four-dimensional anisotropic QED in an external magnetic field," Phys. Rev. B **65** (2002) 214409 (8pp) [arXiv:hep-ph/0111310].

2001

[116] N. E. Mavromatos, "String cosmology,", Lect. Notes Phys. **592**, *Cosmological Crossroads: an advanced course in Mathematical, Physical and String Cosmology*, 392-457 (2002) [arXiv:hep-th/0111275], ISBN 3-540-43778-9. (Lectures given at 1st Aegean Summer School on Cosmology, Karlovassi, Greece, 21-29 Sep 2001).

[117] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Non-critical Liouville string escapes constraints on generic models of quantum gravity," Phys. Rev. D **65** (2002) 064007 (7pp) [arXiv:astro-ph/0108295].

[118] G. A. Diamandis, B. C. Georgalas, N. E. Mavromatos, E. Papantonopoulos and I. Pappa, "Cosmological evolution in a type-0 string theory," Int. J. Mod. Phys. A **17** (2002) 2241-2266 [arXiv:hep-th/0107124].

[119] J. Alexandre, K. Farakos, G. Koutsoumbas and N. E. Mavromatos, "Spatially anisotropic four-dimensional gauge interactions, planar fermions and magnetic catalysis," Phys. Rev. D **64** (2001) 125007 (10pp) [arXiv:hep-ph/0107223].

[120] E. Gravanis and N. E. Mavromatos, "Putting Liouville string models of (quantum) gravity to test," arXiv:hep-th/0108008 (40pp).

[121] N. E. Mavromatos and R. J. Szabo, "D-brane dynamics and logarithmic superconformal algebras," JHEP **0110** (2001) 027 (24pp) [arXiv:hep-th/0106259].

[122] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "String theory and an accelerating universe," arXiv:hep-th/0105206 (11pp).

2000

[123] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Space-time foam effects on particle interactions and the GZK cutoff," Phys. Rev. D **63** (2001) 124025 (8pp) [arXiv:hep-th/0012216].

[124] G. K. Leontaris and N. E. Mavromatos, "A Novel Mass Hierarchy and Discrete Excitation Spectra from Quantum-Fluctuating D-branes", Phys. Rev. D **64** (2001) 024008 (12pp) [arXiv:hep-th/0011102].

[125] N.E. Mavromatos, "Cell Microtubules as Cavities: Quantum Coherence and Energy Transfer?", Invited contribution to the *International Conference on Mathematics and Engineering Techniques in Medicine and Biological Sciences*, June 26-29, 2000, Monte-Carlo Resort, Las Vegas, U.S.A., published in the proceedings, arXiv:quant-ph/0009089 (7pp).

[126] N. E. Mavromatos and J. Rizos, "String inspired higher-curvature terms and the Randall-Sundrum scenario," Phys. Rev. D **62** (2000) 124004 (11pp) [arXiv:hep-th/0008074].

[127] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "How large are dissipative effects in noncritical Liouville string theory?," Phys. Rev. D **63** (2001) 024024 (9pp) [arXiv:gr-qc/0007044].

[128] N. E. Mavromatos, "Testing a (stringy) model of quantum gravity," Proc. *3rd International Conference on Dark Matter in Astro and Particle Physics*, Heidelberg, Germany, 10-16 Jul 2000, published in *Heidelberg 2000, Dark matter in astro- and particle physics* 209-233 (H. Klapdor-Kleingrothaus ed, Springer) [arXiv:gr-qc/0009045].

[129] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Dynamical Formation of Horizons in recoiling D-branes", Phys. Rev. D **62** (2000) 084019 (10pp) [arXiv:gr-qc/0006004].

[130] N. E. Mavromatos and E. Winstanley, "D-particle recoil Space Times and 'Glueball' masses", Int. J. Mod. Phys. A **16** (2001) 251-266 [arXiv:hep-th/0006022].

[131] N. E. Mavromatos and Sarben Sarkar, "Nodal Liquids and Duality", Based on an invited talk given at N.A.T.O. Advanced Resarch Workshop on 'Strongly Correlated Electron Systems', Bled, Slovenia, 26-30 Apr 2000, to appear in the Proc., arXiv:cond-mat/0006234 (7pp).

[132] A. Campbell-Smith and N. E. Mavromatos, "D-brane recoil and Supersymmetry Obstruction", Phys. Lett. B **488** (2000) 199-206 [arXiv:hep-th/0003262].

[133] N. E. Mavromatos, "The quest for quantum gravity: Testing times for theories?," Proc. *Lake Louise Winter Institute 2000: From Particles to the Universe*, Lake Louise, Alberta, Canada, 20-26 Feb 2000, World Scientific (2001) 335-341 [arXiv:astro-ph/0004225].

[134] J. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Is nothing sacred? Vacuum energy, supersymmetry and Lorentz breaking from recoiling D-branes," Presented at 4th International Symposium on Sources and Detection of Dark Matter in the Universe (DM 2000), Marina del Rey, California, 23-25 Feb 2000, arXiv:gr-qc/0005100 (28pp).

1999

[135] N. E. Mavromatos and Sarben Sarkar, "Nodal liquids in extended t-j models and dynamical supersymmetry", Phys. Rev. B **62** (2000) 3438-3452, [arXiv:cond-mat/9912323].

[136] G. K. Leontaris and N. E. Mavromatos, "A mass Hierarchy from recoiling D-branes", Phys. Rev. D **61** (2000) 124004 (9pp) [arXiv:hep-th/9912230].

[137] J. R. Ellis, N. E. Mavromatos, D. V. Nanopoulos and G. Volkov, "Gravitational-recoil effects on fermion propagation in space-time foam," Gen. Rel. Grav. **32** (2000) 1777-1798 [arXiv:gr-qc/9911055].

[138] N. E. Mavromatos and E. Winstanley, "Infinitely Coloured Black Holes", Class. Quant. Grav. **17** (2000) 1595-1611 [arXiv:hep-th/9909018].

[139] J. R. Ellis, N. E. Mavromatos and E. Winstanley, "Logarithmic Operators fold D-branes into AdS_3", Phys. Lett. B **476** (2000) 165-171 [arXiv:hep-th/9909068].

[140] N. E. Mavromatos and R. J. Szabo, "Non-linear Schrödinger Dynamics for Matrix D-branes", Int. J. Mod. Phys. A **16** (2001) 209-250. [arXiv:hep-th/9909129].

[141] N. E. Mavromatos and S. Sarkar, "Comments on Extended t-J Models, Nodal Liquids and Supersymmetry," Presented at *Corfu Summer Institute on Elementary Particle Physics: Topology and Phase Transitions in Hot Matter (Corfu 99)*, Corfu, Greece, 19-26 Sep 1999, and presented at *Corfu Summer Institute on Elementary Physics: Workshop on Common Trends in Particle and Condensed Matter*, Corfu, Greece, 24-28 Sep 1999 [arXiv:cond-mat/9909310].

[142] A. Campbell-Smith and N.E. Mavromatos, "D-brane recoil and Supersymmetry breaking as a relaxation process", Phys. Lett. B **476** (2000) 149-156 [arXiv:hep-th/9908139].

[143] A. Campbell-Smith, J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Light-cone broadening and TeV scale extra dimensions," Phys. Lett. B **466** (1999) 11-19 [arXiv:hep-th/9907141].

[144] J. R. Ellis, K. Farakos, N. E. Mavromatos, V. A. Mitsou and D. V. Nanopoulos, "Astrophysical Probes of the constancy of the Velocity of light", Astrophys. J. **535** (2000) 139-151 [arXiv:astro-ph/9907340].

[145] J. R. Ellis, N. E. Mavromatos, and D. V. Nanopoulos, "A microscopic recoil model for light-cone fluctuations in quantum gravity", Phys. Rev. D **61** (2000) 027503 (4pp) [arXiv:gr-qc/9906029].

[146] K. Farakos, G. Koutsoumbas, N. Mavromatos and A. Momen, "Even flavor QED3 in an external magnetic field," Proc. *17th International Symposium on Lattice Field Theory (LATTICE 99)*, Pisa, Italy, 29 Jun-3 Jul 1999, Nucl. Phys. Proc. Suppl. **83** (2000) 574-576 [arXiv:hep-lat/9909010].

[147] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Probing Models of Quantum Space-Time foam", Invited contribution (by N.E.M. and D.V.N.) to the 2nd International Conference Physics Beyond the Standard Model: *Beyond the Desert 99: Accelerator, Nonaccelerator and Space Approaches*, Ringberg Castle, Tegernsee, Germany, 6-12 June 1999. e-Print Archive: gr-qc/9909085

[148] K. Farakos, G. Koutsoumbas, N. E. Mavromatos and A. Momen, "On magnetic catalysis in even-flavor QED(3)," Phys. Rev. D **61** (2000) 045005 (19pp) [arXiv:hep-ph/9905272].

[149] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Search for quantum gravity," *Awarded first prize in the Gravity Research Foundation essay competition for 1999*, Gen. Rel. Grav. **31** (1999) 1257-1262 [arXiv:gr-qc/9905048].

[150] A. Campbell-Smith, N. E. Mavromatos and J. Papavassiliou, "Gauge coupling instability and dynamical mass generation in N = 1 supersymmetric QED(3)," Phys. Rev. D **60** (1999) 085002 (8pp) [arXiv:hep-th/9905132].

[151] N. E. Mavromatos and J. Papavassiliou, "Non-linear dynamics in QED(3) and non-trivial infrared structure," Phys. Rev. D **60** (1999) 125008 (16pp) [arXiv:hep-th/9904046].

[152] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Quantum-gravitational diffusion and stochastic fluctuations in the velocity of light," Gen. Rel. Grav. **32** (2000) 127-144 [arXiv:gr-qc/9904068].

[153] A. Campbell-Smith and N. E. Mavromatos, "On dynamical mass generation in three dimensional supersymmetric U(1) gauge field theory," Phys. Rev. D **60** (1999) 105011 (19pp) [arXiv:hep-th/9904173].

[154] G. A. Diamandis, B. C. Georgalas, N. E. Mavromatos and E. Papantonopoulos, "On 'graceful exit' from inflationary phase in two-dimensional Liouville string cosmology," Phys. Lett. B **461** (1999) 57-65 [arXiv:hep-th/9903045].

[155] J. R. Ellis and N. E. Mavromatos, "Comments on CP, T and CPT violation in neutral kaon decays," Phys. Rept. **320** (1999) 341-354 [arXiv:hep-ph/9903386].

[156] J. R. Ellis, A. Ghosh and N. E. Mavromatos, "On the thermodynamics of a gas of AdS black holes and the quark-hadron phase transition," Phys. Lett. B **454** (1999) 193-202 [arXiv:hep-th/9902190].

[157] A. Apostolakis *et al.* [CPLEAR Collaboration], "Tests of the equivalence principle with neutral kaons," Phys. Lett. B **452** (1999) 425-433 [arXiv:hep-ex/9903005].

[158] K. Farakos, G. Koutsoumbas, N. Mavromatos and A. Momen, "Catalysis of chiral symmetry breaking by external magnetic fields in three dimensional lattice QED," Proc. *Conference on Strong and Electroweak Matter (SEWM 98)*, Copenhagen, Denmark, 2-5 Dec 1998, in *Copenhagen 1998, Strong and electroweak matter* 216-220. [arXiv:hep-lat/9902017].

[159] N. E. Mavromatos, "Quantum Mechanical Coherence in Cell Microtubules: A realistic Possibility?", J. Bioelectrochemistry and Bioenergetics **48** (1999) 273-284.

1998

[160] N. E. Mavromatos and R. J. Szabo, "D-branes and the non-commutative structure of quantum spacetime," Proc. *SUSY 98 Conference*, Oxford, England, 11-17 Jul 1998 and *6th Hellenic School and Workshop on Elementary Particle Physics*, Corfu, Greece, 6-26 Sep 1998, JHEP proceedings, PRHEP-corfu98/066 (14pp) [arXiv:hep-th/9811116].

[161] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Time-dependent vacuum energy induced by D-particle recoil," Gen. Rel. Grav. **32**, 943-958 (2000) [arXiv:gr-qc/9810086].

[162] G. Amelino-Camelia, J. R. Ellis, N. E. Mavromatos, D. V. Nanopoulos and S. Sarkar, "Sensitivity of astrophysical observations to gravity-induced wave dispersion in vacuo," arXiv:astro-ph/9810483 (3pp).

[163] N. E. Mavromatos and R. J. Szabo, "Matrix D-brane dynamics, logarithmic operators and quantization of noncommutative spacetime," Phys. Rev. D **59** (1999) 104018 (40pp) [arXiv:hep-th/9808124].

[164] J. R. Ellis and N. E. Mavromatos, "Confinement in gauge theories from the condensation of world-sheet defects in Liouville string," Int. J. Mod. Phys. A **14** (1999) 3761-3788 [arXiv:hep-th/9808172].

[165] J. R. Ellis and N. E. Mavromatos, "High-energy QCD as a topological field theory," Eur. Phys. J. C **8** (1999) 91-102 [arXiv:hep-ph/9807451].

[166] N. E. Mavromatos and R. J. Szabo, "Spacetime quantization from non-abelian D-particle dynamics," Phys. Rev. D **59** (1999) 064016 (5pp) [arXiv:gr-qc/9807070].

[167] K. Farakos, N. E. Mavromatos and D. McNeill, "Phase structure of lattice $SU(2) \otimes U(1)$ three-dimensional gauge theory," Phys. Rev. D **59** (1999) 034502 (26pp) [arXiv:hep-lat/9806029].

[168] K. Farakos, G. Koutsoumbas and N. E. Mavromatos, "Probing the gauge structure of high-temperature superconductors," Int. J. Mod. Phys. B **12** (1998) 2475-2494 [arXiv:cond-mat/9805402].

[169] A. Campbell-Smith and N. E. Mavromatos, "Effective gauge theories, the renormalization group and high-T(c) superconductivity," Acta Phys. Polon. B **29** (1998) 3819-3870 [arXiv:cond-mat/9810324].

[170] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "A microscopic Liouville arrow of time," *Invited review for the special Issue of J. Chaos Solitons Fractals*, Vol. 10, p. 345-363 (eds. C. Castro amd M.S. El Naschie, Elsevier Science, Pergamon 1999) [arXiv:hep-th/9805120].

[171] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "World-sheet formulation of M theory," Int. J. Mod. Phys. A **13** (1998) 5093-5112 [arXiv:hep-th/9804084].

[172] N. E. Mavromatos, D. V. Nanopoulos, I. Samaras and K. Zioutas, "Ferroelectrics and their possible involvement in Biology," Adv. Struct. Biol. Vol. **5** (1998) 127-134 [arXiv:quant-ph/9803005].

[173] N. E. Mavromatos and R. J. Szabo, "Gradient flow in logarithmic conformal field theory," Phys. Lett. B **430** (1998) 94-101 [arXiv:hep-th/9803092].

[174] N. E. Mavromatos, "World sheet defects, strings, and quark confinement," Invited Contribution to the International Workshop of the Hellenic Society for the Study of High-Energy Physics, Athens, Greece, 8-11 April 1998, arXiv:hep-th/9803189.

[175] A. Angelopoulos *et al.* [CPLEAR Collaboration], "Tests of quantum mechanics and CPT symmetry with experimental data from CPLEAR," *Prepared for 6th International Symposium on Particles, Strings and Cosmology (PASCOS 98), Boston, Massachusetts, 22-27 Mar 1998.*

[176] N. E. Mavromatos and A. Momen, "Induced magnetic moments in three-dimensional gauge theories with external magnetic fields," Mod. Phys. Lett. A **13** (1998) 1765-1780 [arXiv:hep-th/9802119].

[177] N. E. Mavromatos and D. V. Nanopoulos, "Quantum Mechanics in Cell Microtubules: Wild Imagination or Realistic Possibility?," Invited talk by N.E.M. at the Workshop *Biophysics of the Cytoskeleton*, Banff, Canada August 18-21 1997, Adv. Struct. Biol. Vol. **5** (1998) 283-318 [arXiv:quant-ph/9802063].

[178] K. Farakos, G. Koutsoumbas and N. E. Mavromatos, "Dynamical flavour symmetry breaking by a magnetic field in lattice QED(3)," Phys. Lett. B **431** (1998) 147-160 [arXiv:hep-lat/9802037].

[179] N.E. Mavromatos, "Experiment Sees the Arrow of Time-At last!" Phys. World **11N12** (1998) 21-22.

1997

[180] N. E. Mavromatos and E. Winstanley, "Existence theorems for hairy black holes in SU(N) Einstein-Yang-Mills theories," J. Math. Phys. **39** (1998) 4849-4873 [arXiv:gr-qc/9712049].

[181] G. A. Diamandis, J. R. Ellis, B. C. Georgalas, N. E. Mavromatos, D. V. Nanopoulos and E. Papantonopoulos, "Irreversible time flow in a two-dimensional dilaton black hole with matter," Int. J. Mod. Phys. A **13** (1998) 4265-4280 [arXiv:gr-qc/9712051].

[182] G. Amelino-Camelia, J. R. Ellis, N. E. Mavromatos, D. V. Nanopoulos and S. Sarkar, "Potential Sensitivity of Gamma-Ray Burster Observations to Wave Dispersion in Vacuo," Nature **393** (1998) 763-765 [arXiv:astro-ph/9712103].

[183] F. Lizzi, N. E. Mavromatos and R. J. Szabo, "Matrix σ-models for multi D-brane dynamics," Mod. Phys. Lett. A **13** (1998) 829-842 [arXiv:hep-th/9711012].

[184] J. R. Ellis, P. Kanti, N. E. Mavromatos, D. V. Nanopoulos and E. Winstanley, "Decoherent scattering of light particles in a D-brane background," Mod. Phys. Lett. A **13** (1998) 303-320 [arXiv:hep-th/9711163].

[185] G. A. Diamandis, B. C. Georgalas and N. E. Mavromatos, "N = 1 supersymmetric spin-charge separation in effective gauge theories of planar magnetic superconductors," Mod. Phys. Lett. A **13** (1998) 387-404 [arXiv:cond-mat/9711257].

[186] K. Farakos and N. E. Mavromatos, "Gauge theory approach to planar doped antiferromagnetics and external magnetic fields," Int. J. Mod. Phys. B **12** (1998) 809-836 [arXiv:cond-mat/9710288].

[187] G. Amelino-Camelia, N. E. Mavromatos, "T Duality for Boundary Non-Critical Strings", Phys. Lett. B **422** (1998) 101-108 [arXiv:hep-th/9711006].

[188] N.E. Mavromatos, and D.V. Nanopoulos, "On Quantum Mechanical Aspects of Microtubules", Int. J. Mod. Phys. B **12** (1998) 517-542 [arXiv:quant-ph/9708003].

[189] K. Farakos and N. E. Mavromatos, "Hidden Non-Abelian Gauge Symmetries in doped planar antiferromagnets," Phys. Rev. B **57** (1998) 3017-3030 [arXiv:cond-mat/9611072].

[190] K. Farakos, N. E. Mavromatos, "Dynamical Gauge Symmetry Breaking and Superconductivity in three-dimensional systems", Mod. Phys. Lett. A **13** (1998) 1019-1034 [arXiv:hep-lat/9707027].

[191] J. R. Ellis, N. E. Mavromatos, D. V. Nanopoulos, "M Theory from World-Sheet Defects in Liouville String", Mod. Phys. Lett. A **12** (1997) 2813-2827 [arXiv:hep-th/9706125].

[192] J. R. Ellis, N. E. Mavromatos, D. V. Nanopoulos, "Vacuum Fluctuations and Decoherence in Mesoscopic and Microscopic Systems", Contributed to *Symposium on Flavor Changing Neutral Currents: Present and Future Studies (FCNC 97), Santa Monica, CA, 19-21 Feb 1997*, Proc. *Santa Monica 1997, Flavor-changing neutral currents*, p. 321-336 [arXiv:quant-ph/9706051].

[193] N. E. Mavromatos and D. V. Nanopoulos, "Cell microtubules as QED cavities and quantum mechanics," *Prepared for Workshop on Physics Beyond the Standard Model: Beyond the Desert: Accelerator and Nonaccelerator Approaches, Tegernsee, Germany, 8-14 Jun 1997*, in *Tegernsee 1997, Beyond the desert* p. 703-722.

[194] N. E. Mavromatos, "Quantum-gravity-induced decoherence and CPT violation," *Prepared for Workshop on Physics Beyond the Standard Model: Beyond the Desert: Accelerator and Nonaccelerator Approaches, Tegernsee, Germany, 8-14 Jun 1997*, in *Tegernsee 1997, Beyond the desert* p. 873-883.

[195] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Quantum decoherence in a D-foam background," Mod. Phys. Lett. A **12** (1997) 1759-1773 [arXiv:hep-th/9704169].

[196] P. Kanti, N. E. Mavromatos, J. Rizos, K. Tamvakis and E. Winstanley, "Dilatonic black holes in higher-curvature string gravity. II: Linear stability," Phys. Rev. D **57** (1998) 6255-6264 [arXiv:hep-th/9703192].

[197] N. E. Mavromatos and D. V. Nanopoulos, "Microtubules: The neuronic system of the neurons?," Talk given by D.V.N. at the *Biophysics of Microtubules Workshop*, Houston, Texas, USA, April 1996, arXiv:quant-ph/9702003 (20pp).

[198] I. J. Aitchison, N. E. Mavromatos and D. McNeill, "Inverse Landau-Khalatnikov transformation and infrared critical exponents of (2+1)-dimensional quantum electrodynamics," Phys. Lett. B **402** (1997) 154-158 [arXiv:hep-th/9701087].

[199] G. Amelino-Camelia, J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "On the space-time uncertainty relations of Liouville strings and D branes," Mod. Phys. Lett. A **12** (1997) 2029-2036 [arXiv:hep-th/9701144].

[200] N. E. Mavromatos, "Non-Critical-String-Inspired Modifications Of Quantum Mechanics," In *Maiani, L. (ed.) et al.: The second DAΦNE physics handbook, vol. 1* p. 111-122.

[201] F. Lizzi and N. E. Mavromatos, "Quantum phase space from string solitons," Phys. Rev. D **55** (1997) 7859-7871 [arXiv:hep-th/9611040].

1996

[202] N. E. Mavromatos, "Non-trivial infrared structure in (2+1)-dimensional quantum electrodynamics and non-Fermi liquid behaviour," Invited talk at *International Workshop on Perspectives of Strong Coupling Gauge Theories (SCGT 96)*, Nagoya, Japan, 13-16 Nov 1996, World Sci. (1998), p. 164-170 [arXiv:hep-th/9703011].

[203] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "D-brane recoil mislays information," Int. J. Mod. Phys. A **13** (1998) 1059-1090 [arXiv:hep-th/9609238].

[204] I. J. Aitchison, G. Amelino-Camelia, M. Klein-Kreisler, N. E. Mavromatos and D. McNeill, "Non-trivial infrared structure in (2+1)-dimensional quantum electrodynamics," Phys. Rev. B *56* (1997) 2836-2842 [arXiv:hep-th/9607192].

[205] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "CPT and superstring," Talk given by J.E. at the *K Physics Workshop*, Laboratoire de l'Accelerateur Lineaire: Bat. 200 - Universite de Paris-Sud, Orsay, France, 30 May-4 Jun 1996, arXiv:hep-ph/9607434 (15pp).

[206] I. I. Kogan, N. E. Mavromatos and J. F. Wheater, "D-brane recoil and logarithmic operators," Phys. Lett. B **387** (1996) 483-491 [arXiv:hep-th/9606102].

[207] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "D Branes from Liouville Strings," Int. J. Mod. Phys. A **12** (1997) 2639-2674 [arXiv:hep-th/9605046].

[208] G. Amelino-Camelia, J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Distance measurement and wave dispersion in a Liouville-string approach to quantum gravity," Int. J. Mod. Phys. A **12** (1997) 607-624 [arXiv:hep-th/9605211].

[209] I. J. Aitchison and N. E. Mavromatos, "Evidence for deviations from Fermi-liquid behaviour in (2+1)-dimensional quantum electrodynamics and the normal phase of high-T(c) superconductors," Invited talk by N.E.M. at *Common Trends in Condensed Matter and High-energy Physics*, Chia Laguna, Sardina, Italy, 3-10 Sep 1995, arXiv:cond-mat/9603198 (20pp).

[210] J. R. Ellis, N. E. Mavromatos, D. V. Nanopoulos and E. Winstanley, "Quantum Decoherence in a Four-Dimensional Black Hole Background," Mod. Phys. Lett. A **12** (1997) 243-256 [arXiv:gr-qc/9602011].

1995

[211] N. E. Mavromatos and D. V. Nanopoulos, "A Non-critical String (Liouville) Approach to Brain Microtubules: State Vector reduction, Memory coding and Capacity," Int. J. Mod. Phys. B **11** (1997) 851-918 [arXiv:quant-ph/9512021].

[212] I. I. Kogan and N. E. Mavromatos, "World-Sheet Logarithmic Operators and Target Space Symmetries in String Theory," Phys. Lett. B **375** (1996) 111-120 [arXiv:hep-th/9512210].

[213] R. Adler *et al.* [CPLEAR collaboration], "Test of CPT Symmetry and Quantum Mechanics with Experimental data from CPLEAR," Phys. Lett. B **364** (1995) 239-245 [arXiv:hep-ex/9511001].

[214] P. Kanti, N. E. Mavromatos, J. Rizos, K. Tamvakis and E. Winstanley, "Dilatonic Black Holes in Higher Curvature String Gravity," Phys. Rev. D **54** (1996) 5049-5058 [arXiv:hep-th/9511071].

[215] N. E. Mavromatos and E. Winstanley, "Aspects of hairy black holes in spontaneously-broken Einstein Yang-Mills systems: Stability analysis and Entropy considerations," Phys. Rev. D **53** (1996) 3190-3214 [arXiv:hep-th/9510007].

[216] D. V. Nanopoulos and N. E. Mavromatos, "On a possible connection of non-critical strings to certain aspects of quantum brain function," Talk given at *1st International High Energy Physics Conference: The Four Seas Conference - Physics without Frontier*, Trieste, Italy, 25 Jun-1 Jul 1995, In *Trieste 1995, 1st international Four Seas conference* p. 240-248, arXiv:quant-ph/9510003.

[217] I. J. Aitchison and N. E. Mavromatos, "Deviations from Fermi-Liquid behaviour in (2+1)-dimensional Quantum Electrodynamics and the normal phase of high-T_c Superconductors," Phys. Rev. B *53* (1996) 9321-9336 [arXiv:hep-th/9510058].

[218] N. E. Mavromatos, "Eluding the no-hair conjecture for black holes," Invited talk at *5th Hellenic School and Workshops on Elementary Particle Physics*, Corfu, Greece, 3-24 Sep 1995, arXiv:gr-qc/9606008 (16pp), Published in Proc.

[219] J. R. Ellis, J. L. Lopez, N. E. Mavromatos and D. V. Nanopoulos, "Precision tests of CPT symmetry and quantum mechanics in the neutral kaon system," Phys. Rev. D **53** (1996) 3846-3870 [arXiv:hep-ph/9505340].

[220] N. E. Mavromatos and T. Ruf [CPLEAR Collaboration], "Experimental tests of CPT symmetry and quantum mechanics at CPLEAR," Contributed to *2nd Workshop on Physics and Detectors for DAPHNE (DAPHNE 95)*, Frascati, Italy, 4-7 Apr 1995, arXiv:hep-ph/9506395 (19pp).

[221] E. Winstanley and N. E. Mavromatos, "Instability of hairy black holes in spontaneously broken Einstein Yang-Mills Higgs systems," Phys. Lett. B **352** (1995) 242-246 [arXiv:hep-th/9503034].

[222] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "A String scenario for inflationary cosmology," Mod. Phys. Lett. A **10** (1995) 1685-1698 [arXiv:hep-th/9503162].

1994

[223] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Some physical aspects of Liouville string dynamics," Based on invited lectures by N.E.M., contributed to *1st International Conference on Phenomenology of Unification from Present to Future*, Rome, Italy, Mar 23-26, 1994 (G. Diambrini-Palazzi, C. Cosmelli, G. Martinelli and L. Zanello eds, World Sci. 1994), 187-225. arXiv:hep-th/9405196.

[224] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "A Noncritical string approach to black holes, time and quantum dynamics," Lectures by N.E.M. and D.V.N. in Erice Summer School July 1993, 31st Course, Proc. *Erice Subnuclear 1993,* Vol. 31 (1994, World Sci.), p. 0001-66 [arXiv:hep-th/9403133].

1993

[225] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "A Liouville string approach to microscopic time and cosmology," Lectures given at *International Workshop on Recent Advances in the Superworld*, Woodlands, Texas, USA, 13-16 Apr 1993, Published in *Woodlands Superworld 1993* p. 3-26 [arXiv:hep-th/9311148].

[226] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Valleys in string foam suppress quantum coherence," Mod. Phys. Lett. A **10** (1995) 425-440 [arXiv:hep-th/9305116].

[227] N. E. Mavromatos, "On black holes, space-time foam and the nature of time in string theory," ENSLAPP-A-424-93 (17pp) *Based on invited talks given at 4th Hellenic School on Elementary Particle Physics, Corfu, Greece, Sep 2-20, 1992, and at International School of Astrophysics, 'D. Chalonge': 2nd Course: Current Topics in Astrofundamental Physics, Erice, Italy, 6-13 Sep 1992.*

[228] N. E. Mavromatos, "Gauge models of planar high temperature superconductivity without parity violation," Lectures delivered at *Chia meeting on Common Trends in Particle and Condensed-Matter Physics*, Chia-Laguna, Sardinia, Italy, September 1992, Nucl. Phys. Proc. Suppl. **33C** (1993) 145-191 (ISSN 0920-5632).

1992

[229] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "CPT violation in string modified quantum mechanics and the neutral kaon system," Int. J. Mod. Phys. A **11** (1996) 1489-1508 [arXiv:hep-th/9212057].

[230] G. A. Diamandis, B. C. Georgalas, X. Maintas and N. E. Mavromatos, "Time dependent perturbations in two-dimensional string black holes," Phys. Lett. B **297** (1992) 67-73 [arXiv:hep-th/9210055].

[231] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "The String universe: High-T_c superconductor or quantum Hall conductor?," Phys. Lett. B **296** (1992) 40-50 [arXiv:hep-th/9209013].

[232] I. J. Aitchison, N. Dorey, M. Klein-Kreisler and N. E. Mavromatos, "Phase structure of QED in three-dimensions at finite temperature," Phys. Lett. B **294** (1992) 91-99 [arXiv:hep-ph/9207246].

[233] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "String theory modifies quantum mechanics," Phys. Lett. B **293** (1992) 37-48 [arXiv:hep-th/9207103].

[234] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Testing quantum mechanics in the neutral kaon system," Phys. Lett. B **293** (1992) 142-148 [arXiv:hep-ph/9207268].

[235] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "World sheet duality, space-time foam, and the quantum fate of a stringy black hole," Phys. Lett. B **289** (1992) 25-34 [arXiv:hep-th/9206077].

[236] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "The Origin of space-time as W symmetry breaking in string theory," Phys. Lett. B **288** (1992) 23-30 [arXiv:hep-th/9205107].

[237] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "On the W hair of string black holes and the singularity problem," Based on talks by N.E.M. and D.V.N. given at *International Sympposium on Blackholes, Membranes, Wormholes and Superstrings,* Woodlands, Texas, USA, Jan 16-18, 1992, In *Houston 1992, Proceedings, Black holes, membranes, wormholes and superstrings* p. 51-70 [arXiv:hep-th/9204096].

[238] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Measuring the W hair of string black holes" part I & II, Phys. Lett. B **284** (1992) 27-35 (part I); *ibid* 43-49 (part II). [arXiv:hep-th/9203012].

1991

[239] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Quantum mechanics and black holes in four-dimensional string theory," Phys. Lett. B **278** (1992) 246-256 [arXiv:hep-th/9112062].

[240] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "On the evaporation of black holes in string theory," Phys. Lett. B **276** (1992) 56-66 [arXiv:hep-th/9111031].

[241] N. E. Mavromatos, "Superconducting gauge theories in (2+1)-dimensions," CERN-TH-6331-91 (6pp) Invited talk given at *1st General Conf. of the Balkan Physical Union, Thessaloniki, Greece, Sep 26-28, 1991*, Published in Proc. (Aristotle Univ. of Thessaloniki Press 1991).

[242] N. Dorey and N. E. Mavromatos,"QED in three-dimension and two-dimensional superconductivity without parity violation," Nucl. Phys. B **386** (1992) 614-682.

[243] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "On the connection between quantum mechanics and the geometry of two-dimensional strings," Phys. Lett. B **272** (1991) 261-271 [arXiv:hep-th/9109027].

[244] I. J. Aitchison and N. E. Mavromatos, "Anyons," Contemp. Phys. **32** (1991) 219-234.

[245] J. R. Ellis, N. E. Mavromatos and D. V. Nanopoulos, "Quantum coherence and two-dimensional black holes," Phys. Lett. B **267** (1991) 465-474.

[246] N. Dorey and N. E. Mavromatos, "Three-dimensional QED at finite temperature," Phys. Lett. B **266** (1991) 163-168.

[247] N. Dorey and N. E. Mavromatos, "A Long wavelength effective gauge theory of the doped planar antiferromagnet," Phys. Rev. B *44* (1991) 5286-5292.

[248] N. Dorey and N. E. Mavromatos, "Ground State Instability In A Gauge Theory Model Of A Doped Planar Antiferromagnet," Phys. Lett. B **257** (1991) 359-364.

1990

[249] N. Dorey and N. E. Mavromatos, "Superconductivity In (2+1)-Dimensions Without Parity Or Time Reversal Violation," Phys. Lett. B **250** (1990) 107-116.

[250] N. E. Mavromatos, "Dynamical Mass Generation And Spin Charge Separation In D = 3: Parity Anomaly (Partial) Cancellation And Standard Models For Anyonic (High T(C)) Superconductivity," Based on invited talks at *2nd Workshop on high temperature superconductivity: concepts, models and methods*, Villa Gualino (ISI), Torino, Italy, Oct-Nov 1989, Oxford preprint OUTP-90-04-P (1990) (46pp); Addendum OUTP-90-04-P-ADD (1990) (4pp).

[251] N. Dorey and N. E. Mavromatos, "Dynamical Symmetry Breaking And High T(C) Superconductivity," Invited contribution (presented by N.D.) to *Strong Coupling Gauge Theory and Beyond* , Nagoya, Japan, August 1990, published in the proceedings (World Scientific 1991) p. 378-384.

[252] D. Espriu and N. E. Mavromatos, "On The C Theorem In Higher Genus," Phys. Lett. B **237** (1990) 370-378.

1989

[253] I. J. Aitchison and N. E. Mavromatos,"Spin Monopoles And Anyon Statistics In Effective Gauge Theories Of High T(C) Superconductors," Mod. Phys. Lett. B **3** (1989) 1275-1283.

[254] N. E. Mavromatos and J. L. Miramontes, "Regularizing The Functional Integral In 2-D Quantum Gravity," Mod. Phys. Lett. A **4** (1989) 1847-1853.

[255] N. E. Mavromatos and M. Ruiz-Altaba, "N Flavor Thirring Models From Compact Chern-Simons Cp**1 Theories And High T(C) Superconductivity," Phys. Lett. A **142** (1989) 419-426; Addendum CERN-TH-5443/89-Add (1pp).

[256] N. E. Mavromatos and J. L. Miramontes,"Finite Size Scaling, Zamolodchikov's C Theorem And The S Matrix," Phys. Lett. B **226** (1989) 291-298.

[257] I. J. Aitchison and N. E. Mavromatos, "Effective (2+1)-Dimensional Gauge Theory Of Spin And Charge Degrees Of Freedom With Chern-Simons Coupling," Phys. Rev. Lett. **63** (1989) 2684-2687.

[258] N. E. Mavromatos, J. L. Miramontes and J. M. Sanchez de Santos, "2-D Quantum Field Theories Away From Criticality: Finite Size Scaling, The C Theorem And The S Matrix," Invited contribution (presented by J.L.M.) to the *European Physical Society meeting on High-Energy Physics*, Madrid (Spain) 6-13 September 1989, Nucl. Phys. Proc. Suppl. **16** (1990) 600-601.

[259] N. E. Mavromatos, J. L. Miramontes and J. M. Sanchez de Santos, "Renormalization Group Flows As Gradient Flows In Coupling Constant Space For D-Dimensional Systems," Phys. Rev. D **40** (1989) 535-539.

[260] I. J. Aitchison and N. E. Mavromatos, "Quantization Of The Hopf Coefficient In Effective Gauge Theories Of Doped Mott Insulators," Mod. Phys. Lett. A **4** (1989) 521-527.

[261] I. J. Aitchison and N. E. Mavromatos, "Neutral Fermions In Effective Gauge Field Theories Of Doped Mott Insulators," Phys. Rev. B **39** (1989) 6544-6548.

1988

[262] N. E. Mavromatos, "An Alternative Proof Of Zamolodchikov's C Theorem In Dimensionally Regularized σ-Models: An Ope Analysis," Phys. Rev. D **39** (1989) 1659-1664.

[263] N. E. Mavromatos and J. L. Miramontes, "Zamolodchikov's C Theorem And String Effective Actions," Phys. Lett. B **212** (1988) 33-40.

[264] N. E. Mavromatos, "A Remark On The Connection Between The C Theorem And The Central Charge Action In Closed Bosonic Sigma Models," Mod. Phys. Lett. A **3** (1988) 1079-1083.

[265] N. E. Mavromatos and J. L. Miramontes, "Effective Actions From The Conformal Invariance Conditions Of Bosonic Sigma Models With Graviton And Dilaton Backgrounds," Phys. Lett. B **201** (1988) 473-480.

[266] N. E. Mavromatos, "A Note On The Atiyah-Singer Index Theorem For Manifolds With Totally Antisymmetric H Torsion," J. Phys. A **21** (1988) 2279-2290.

1987

[267] M. Daniel, D. Hochberg and N. E. Mavromatos, "The Dilaton And Quartic Curvature Terms In The Heterotic String Effective Action," Phys. Lett. B **187** (1987) 79-84.

[268] M. C. Bento and N. E. Mavromatos, "Ambiguities In The Low-Energy Effective Actions Of String Theories With The Inclusion Of Antisymmetric Tensor And Dilaton Fields," Phys. Lett. B **190** (1987) 105-109.

1986

[269] M. Daniel and N. E. Mavromatos, "The Heterotic String And Supersymmetric Counterparts Of The Lorentz Chern-Simons Terms," Phys. Lett. B **173** (1986) 405-408 [Erratum-ibid. B **176** (1986) 486].

[270] A. I. Karanikas, C. N. Ktorides and N. E. Mavromatos, "Study Of The Phase Structure Of Abelian Field Theories Through Nonlattice, Nonperturbative Calculations," Annals Phys. **172** (1986) 280-303.

1985

[271] C. N. Ktorides and N. E. Mavromatos, "A Well Defined Transition From Continuum To Lattice Formulation Of Gauge Field Theories," Annals Phys. **162** (1985) 53-71.

[272] C. N. Ktorides and N. E. Mavromatos, "Nonlocal Hamiltonian Gauge Theories And Their Connection With Lattice Hamiltonians," Phys. Rev. D **31** (1985) 3187-3192.

[273] C. N. Ktorides and N. E. Mavromatos, "Quantization Of A Nonlocal Abelian Gauge Theory And Certain Local Limit Implications," Phys. Rev. D **31** (1985) 3193-3200.