

## I. Personal Data

<b>Surname</b>	Papantonopoulos
<b>Name</b>	Eleftherios
<b>Father's Name</b>	George
<b>Place and Date of Birth</b>	Athens, 3 February 1951
<b>Position</b>	Professor, Physics Department of the National Technical University of Athens (NTUA)
<b>Family Status</b>	Married, one child

## II. Education

<b>1964-70</b>	ID' High School, Athens.
<b>1970-72</b>	Statistics School, Pireaus, (Degree in Statistics).
<b>1972-76</b>	University of Athens (BSc in Mathematics)
<b>1975-76</b>	Demokritos Research Institute (Postgraduate courses in Physics).
<b>1976-80</b>	University of St. Andrews, Scotland (PhD in Physics)
<b>1977-83</b>	Special Research Summer Schools: British (1977, 78), Scottish (1976, 80), Kaiserslauten (1977), Erico Fermi (1978), Erice (1979), Cargese (1982), Μονάχου (1983).

## III. Previous Positions

- Research Collaborator, Department of Physics, University of Athens (December 1980- March 1981).
- Research Collaborator, Department of Physics , National Technical University of Athens (April 1981-September 1981).
- Postdoctoral Researcher, University of Munich (1981-83).
- Lecturer, National Technical University of Athens (1983-85).
- Associate Fellow, CERN (1985)
- Assistant Professor, National Technical University of Athens (1988-95).
- Researcher, Ecole Polytechnique, Paris (September 1992-December 1992)
- Associate Professor, National Technical University of Athens (1995)
- Professor, National Technical University of Athens (2008)

## IV. Supervision of MSc, PhD Theses

- D. Kapetanakis, Diplom Thesis (1990).
- N. Kyriasis, Diplom Thesis (1995).
- I. Pappa, MSc Thesis (1999).
- I. Pappa, PhD (2002).
- V. Zamarias, PhD (2005).
- M. Tsoukalas, PhD (started 2006)
- T. Kolyvaris, PhD (started 2007)

- P. Skamagoulis, PhD (started 2008)
- Supervision of ten diploma theses in NTUA (2004- 2010).

## V. Research Programs, Research Grants

- Program PENED, National Research Secretariat (1987).
- Program PENED, National Research Secretariat (1990).
- Program PENED, National Research Secretariat (1995).
- Program EEC/Science, SC1-CT91-O729.
- Program EEC/Science, SC1-CT92-0792.
- Program Archimedes, NTUA, 2000, (Scientific Coordinator).
- Program Thalys, NTUA, 2002, (Scientific Coordinator).
- Program Hrakleitos, Greek Ministry of Education 2003, (Scientific Coordinator).
- Program Pythagoras, Greek Ministry of Education 2004, (Scientific Coordinator).
- Program Protagoras, NTUA, 2004.
- Research Grant , Embeirikeion Foundation, 2004 (Scientific Coordinator).
- EU Program Erasmus with the Physics Department, King's College of the University of London, (Scientific Coordinator).
- EU Program Erasmus with the Institute of Cosmology and Relativity of the University of Portsmouth, 2005, (Scientific Coordinator).
- EU Program , TMR Network UniverseNet, started on October 2006 (Sub-note for Greece)
- Research program PEVE 2007, NTUA 2007, (Scientific Coordinator).

## VI. Research Interests, Research Activities

### Research Interests, Collaborations with National and International Research Institutes and Universities

- **Group Theory and Representation Theory in Lie Algebras in connection with their applications in Elementary Particles High Energy Physics.** Research activity which is connected mainly with my studies for a PhD degree.
- **Elementary Particles Phenomenology in High Energy Physics.** Research activity which was developed during my stay in Munich as a postdoctoral researcher.
- **Topics of Relativity and Cosmology in Supergravity and String Theories.** Research topics studied during my stay at CERN as Associate Fellow.
- **Study of Black Hole Classical solutions in Gravity Theories in two dimensions.** Research activity in collaborations with the University of Athens and King's College of the University of London.
- **Cosmic Rays of Ultra-High Energies.** Research activity connected with the theoretical support of the Greek Experimental Group participating in the Pierre Auger Collaboration.

- **Study of Black Hole solutions and construction of Cosmological Models in larger than four dimensions in theories of strings and membranes.** Main research activity in the last six years. This research activity resulted in two PhDs, three summer school were organized, four postdocs joined the research group, and there were many publications and participation in National and International conferences. Also various collaborations were initiated ( Institute of Cosmology and Relativity of the University of Portsmouth, Research Center IUCCA, Pune, India, Physics Department, King's College of the University of London, Physics Department of the National University of Taiwan, Taipei, Physics Department of the University Sao Paulo, Brazil). This research activity was supported by five research programs, one European program one honorable grant and three Erasmus programs.
- **Study of black hole perturbations, calculation of QNMs and investigation of Hawking radiation and applications to theories resulting from the AdS/CFT correspondence.** Research activity supported by two research programs, collaborations with the Physics Dept. of the University of Tennessee, the Physics Dept. of Orsay University, Physics Institute of Sao Paulo University, Univ. of Thessaloniki., University of Valparaiso, Chile. Two PhD students are working in the research group and one summer school has been organized.
- **Applications of the AdS/CFT correspondence to condensed matter physics.** Research activity recently developed, with one PhD students, many collaborations and one summer school has been organized.

## VII. List of Publications

1. **Problems on the Gauge Theory of Weak, Electromagnetic and Strong interactions**, E. Papantonopoulos, PhD Thesis, St. Andrews (1980).
2. **Mathematical Structure of  $SO(2n+4)$  Models for Grand Unification** E. Papantonopoulos, St. Andrews preprint (1981).
3. **A Horizontal Model for Neutrino Mixing**, E. Papantonopoulos and G. Zoupanos, Phys. Lett. 110B (1982) 465.
4. **On the Suppression of Flavour Changing Neutral Processes in Techni-Colour Theories**, A. Masiero E. Papantonopoulos and T. Yanagida, Phys. Lett. 115B (1982) 229.
5. **Flavour Changing Neutral Currents and Mass Generation in Techni-Colour Theories**, E. Papantonopoulos, in the Proceedings of the First Summer School on Elementary Particles (Corfu 1982).
6. **Fermion Masses and Mixing Angles in a  $SU(2) \times U(1)$  Model with Horizontal Interactions**, E. Papantonopoulos and G. Zoupanos, Z. Phys. C16 (1983) 361.

7. **A Computational Procedure for Calculating Matrix Elements and Clebsch-Gordan Coefficients of Simple Lie Algebras**, E. Papantonopoulos J. Comp. Phys. 53, (1984) 28.
8. **Radiative Fermion Mass Matrix Generation in Supersymmetric Models**, E. Papantonopoulos and G. Zoupanos, J. Phys. G10 (1984) 1.
9. **Dynamical Fermion Mass Hierarchy and Flavour Mixing**, D. Luest, E. Papantonopoulos, G. Zoupanos, Z. Phys. C25 (1984) 25.
10. **Dynamical Symmetry Breaking and Fermion Mass Generation**, D. Luest, E. Papantonopoulos, and G. Zoupanos, in the Proceedings of the German Physical Society, (Bielefeld, 1984).
11. **The Casimir Effect as a Source of Chiral Symmetry Breaking in QCD**, M. Floratos, E. Papantonopoulos, G. Zoupanos, Phys. Lett. 151B (1985) 433.
12. **High-Colour and Mass Hierarchies**, D. Luest, E. Papantonopoulos and G. Zoupanos, Phys. Lett. 158B (1985) 55.
13. **Phenomenology of High Colour Fermions**, D. Luest, E. Papantonopoulos, L. Streng and G. Zoupanos, Nucl. Phys. B268 (1986) 49.
14. **High Colour Fermions**, D. Luest, E. Papantonopoulos and G. Zoupanos, in the Proceedings of Recontres de Moriond (Les Arcs 1986).
15. **Evolution of the Hidden Sector in No-Scale Models**, K. Enqvist, E. Papantonopoulos and K. Tamvakis, Phys. Lett. 165B (1985) 299.
16. **Kaehler-Curvature Effects can Solve the Initial Condition Problem in Inflation**, K. Enqvist, D. Nanopoulos, E. Papantonopoulos and K. Tamvakis, Phys. Lett. 166B (1986) 41.
17. **Natural Chaotic Inflation**, E. Papantonopoulos, T. Uematsu, and T. Yanagida, Phys. Lett. 183B (1987) 282.
18. **On the Contribution of new Interactions to the  $\Delta I=1/2$  Rule in the Superstring Inspired Models**, E. Papantonopoulos, N. Tracas, G. Zoupanos, Phys. Lett. 188B (1987) 493.
19. **Quantum Dynamical Aspects of two Dimensional Spaces of Constant Negative Curvature**, E. Argires, K. Papadopoulos, E. Papantonopoulos and K. Tamvakis, J. Phys. A: Math. Gen. 22 (1989) 3577.

20. **Quantum Constraint Algebra for a Closed Bosonic String in a Gravitational and Dilaton Background**, M. Diakonou, K. Farakos, Koutsoubas and E. Papantonopoulos Phys. Lett. B240 (1990) 351
21. **Hamiltonian Formulation and Quantum Constraint Algebra for Closed String Moving in a Curved Background**, M. Diakonou, K. Farakos, G. Koutsoubas and E. Papantonopoulos, Phys. Lett. B247 (1990) 273.
22. **The Effect of the 2D Gravity on the  $\beta$ -Functions of a Non-Linear  $\sigma$ -Model**, G. Diamadis, B. Georgalas, A. Lahanas and E. Papantonopoulos Phys. Lett. B277 (1992) 398.
23. **On the High Energy Suppression of Transition Amplitudes in the Driven Anharmonic Oscillator**, G. Diamandis, B. Georgalas, A. Lahanas and E. Papantonopoulos, Phys. Lett. B306 (1993) 319.
24. **Tachyon Effects on the Two dimensional Black Hole Geometry**, G. Diamandis, B. Georgalas and E. Papantonopoulos, Mod. Phys. Lett. A10 (1995) 1277.
25. **Discontinuities and Collision of Gravitational Waves in String Theory**, A. Kehagias and E. Papantonopoulos, Mod. Phys. Lett. A10 (1995) 2531.
26. **Tachyon Field Quantization and Hawking Radiation**, K. Hiou-Lahana, G. Diamandis, B. Georgalas, X. Mandas and E. Papantonopoulos, Phys. Rev. D52 (1995) 5877.
27. **Optical Filter Design for the Fluorescence Detector of the AUGER Project** E. Fokitis, S. Maltezos and E. Papantonopoulos, AUGER Project technical report (065, 1998).
28. **Filter Development in the Auger Experiment**, M. Fokitis, S. Maltezos, E. Papantonopoulos, in the Proceedings of the Third Summer School on Elementary Particles Physics, (Corfu 1998).
29. **Irreversible Time Flow in a Two-Dimensional Dilaton Black Hole with Matter**, G. Diamandis, J. Ellis, B. Georgalas, N. Mavromatos, D. Nanopoulos and E. Papantonopoulos, J. Mod. Phys. A13 (1998) 4265.
30. **On Graceful Exit from Inflationary Phase in Two-Dimensional Liouville String Cosmology**, G. Diamandis, B. Georgalas, N. Mavromatos and E. Papantonopoulos, Phys. Lett. B461 (1999) 57.
31. **Type-0 Brane Inflation from Mirage Cosmology**, E. Papantonopoulos and I. Pappa, Mod. Phys. Lett. A15 (2000) 2145.

32. **Local Black Hole Solutions on the Brane with Induced Gravity**, E. Papantonopoulos in the Proceedings of XXV International Workshop on the Fundamental Problems of High Energy Physics and Field Theory, Protvino, Russia, (June 2002).
33. **Brane Inflation from Mirage Cosmology**, E. Papantonopoulos in the Proceedings of 9th Marcel Grossmann Meeting on Recent Developments in Theoretical and Experimental General Relativity, (Rome, July 2000), hep-th/0011051.
34. **Cosmological Evolution of a Brane Universe in a Type 0 String Background**. E. Papantonopoulos and I. Pappa, Phys. Rev. D63 (2001) 103506, hep-th/0010014.
35. **Inflation Induced by Vacuum Energy and Graceful Exit from it**, E. Papantonopoulos and I. Pappa, Mod. Phys. Lett. A16 (2001) 2545, gr-qc/0103101.
36. **Cosmological Evolution of a Brane Universe in a Type 0 String Background**, E. Papantonopoulos and I. Pappa, in the Proceedings of String Theory Conference in (Fukuoka, June 2001), Published in Fukuoka 2001, String theory 337-339.
37. **Cosmological Evolution in a Type-0 String Theory**, G. Diamandis, B. Georgalas, N. Mavromatos, E. Papantonopoulos and I. Pappa, Int. J. Mod. Phys. A17, (2002), 2241, hep-th/0107124.
38. **Spherically Symmetric Brane World Solutions with R(4) Term in the Bulk**, G. Kofinas, E. Papantonopoulos and I. Pappa, Phys. Rev. D66, (2002), 104014, hep-th/0112019.
39. **Acceleration of the Universe in Type-0 Noncritical Strings**, Diamandis, B. Georgalas and N. Mavromatos and E. Papantonopoulos, Int. J. Mod. Phys. A17, (2002), 4567, hep-th/0203241.
40. **Black Hole Solutions in Braneworlds with Induced Gravity**, G. Kofinas, E. Papantonopoulos and V. Zamarias, Phys. Rev. D66, (2002), 104028, hep-th/0208207.
41. **Black Holes on the Brane with Induced Gravity**, E. Papantonopoulos, in the Proceedings of the First Workshop in Gravity, Astrophysics and Strings, Kitten, (June 2002), Bulgaria.
42. **Black Hole Solutions in Braneworlds with Induced Gravity**, G. Kofinas E. Papantonopoulos and V. Zamarias, JENAM 2002, Porto, Portugal, (Sep 2002), Astrophys. Space Sci. 283, 685, (2003), hep-th/0210006.

43. **Brane Cosmology**, E. Papantonopoulos, Lectures given at 1st Aegean Summer School on Cosmology, Karlovassi, (Greece, 21-29 Sep 2001), published in ‘Cosmological Crossroads’, Lectures Notes in Physics, p. 485-475, Springer 2002, hep-th/0202044.
44. **Inflation in String Theory and how you can get out of it**, E. Papantonopoulos, in the Proceedings of Second Workshop on Cosmology, Pendeli, (Athens, July 2001), published in ‘Modern Theoretical and Observational Cosmology’, p. 75-85, Kluwer 2002,
45. **Brane Worlds with Induced Gravity**, G. Kofinas E. Papantonopoulos and V. Zamarias, in the Proceedings of the 10<sup>th</sup> Hellenic Relativity Conference on Recent Developments in Gravity, Thessaloniki, (June 2002).
46. **Stability of Five-Dimensional Rotating Black Holes Projected on the Brane**, E. Berti K. D. Kokkotas and E. Papantonopoulos, Phys. Rev. D68, 064020, (2003), gr-qc/0306106.
47. **Brane Cosmology With Curvature Corrections**, G. Kofinas, R. Maartens and E. Papantonopoulos, JHEP 0310, 066, (2003) hep-th/0307138.
48. **The Effects of Curvature Correction Terms on Brane Cosmology**, E. Papantonopoulos, in the Proceedings of the 10th Marcel Grossmann Meeting on Recent Developments in Theoretical and Experimental General Relativity, Gravitation and Relativistic Field Theories (MG X MMIII), (Rio de Janeiro, Brazil, 20-26 Jul 2003), gr-qc/0402115.
49. **Probing the Holography of Near Horizon ADS(5) X S(5) Geometry**, E. Papantonopoulos and V. Zamarias, JCAP 0404, 004 (2004), hep-th/0307144.
50. **Gravitational Collapse in Brane World Models with Curvature Corrections**, G. Kofinas and E. Papantonopoulos, JCAP 0412, 011 (2004), gr-qc/0401047.
51. **Chaotic Inflation on the Brane with Induced Gravity**, E. Papantonopoulos and V. Zamarias, JCAP 0410, 001 (2004) gr-qc/0403090.
52. **AdS/CFT Correspondence and the Reheating of the Brane- Universe**, E. Papantonopoulos and V. Zamarias, JHEP 0410, 051 (2004), hep-th/0408227.
53. **Braneworld Cosmological Models**, E. Papantonopoulos in the Proceedings of the at 10th International Symposium on Particles, Strings and Cosmology PASCOS 04 and Pran Nath Fest, Boston, (Massachusetts, 16-22 Aug 2004), gr-qc/0410032.

54. **Brane-bulk Matter Relations for a Purely Conical Codimension-2 Brane World**, E. Papantonopoulos and A. Papazoglou , JCAP 0507, 004 (2005), hep- th/0501112.
55. **The Need of Dark Energy for Dynamical Compactification of Extra Dimensions on the Brane**, Bertha Cuadros-Melgar and E. Papantonopoulos, Phys. Rev. D72, 064008 (2005), hep-th/0502169.
56. **Induced Curvature in Brane Worlds by Surface Terms in String Effective Actions with Higher Curvature Corrections**, N. Mavromatos and E. Papantonopoulos, Phys. Rev. D73, 026001 (2006), hep-th/0503243.
57. **Cosmological Evolution of the Purely Conical codimension-2 Brane World**, E. Papantonopoulos and A. Papazoglou , JHEP 0509, 012 (2005), hep- th/0507278.
58. **A Late-Accelerating Universe with no Dark Energy- and a Finite-Temperature Big Bang**, R. A. Brown, R. Maartens, E. Papantonopoulos and V. Zamarias, JCAP 0511, 008 (2005), gr-qc/0508116.
59. **Brane-bulk matter relations for a purely conical codimension-2 brane world**, E. Papantonopoulos in the Proceedings of Pascos05, Gyeongju, Korea, June 2005.
60. **Cosmology in Six Dimensions**, E. Papantonopoulos, Review article in the Proceedings at the 100 Years of Relativity, Sao Paulo, Brazil, August 2005, gr-qc/0601011.
61. **Geometrical Tachyon Dynamics in the Background of a Closed Tachyon Field**, E. Papantonopoulos, I. Pappa and V. Zamarias, JHEP 0605, 038 (2006), hep-th/0601152.
62. **Need of dark Energy for Dynamical Compactification of Extra Dimensions on the Brane**, B. Cuadros-Melgar, E. Papantonopoulos in the Proceedings at the 100 Years of Relativity, Sao Paulo, Brazil, August 2005.
63. **Quasi-normal Modes of Electromagnetic Perturbations of Four-Dimensional Topological Black Holes with Scalar Hair**, G. Koutsoumbas, S. Musiri, E. Papantonopoulos and G. Siopsis, JHEP 006, 10 (2006), hep-th/0606096.
64. **Curvaton Dynamics in Brane-worlds**, E. Papantonopoulos and V. Zamarias, JCAP 005 11 (2006), gr-qc/0608026.



65. **Regularization of Conical Singularities in Warped Six-dimensional Compactifications**, E. Papantonopoulos, A. Papazoglou and V. Zamarias, JHEP 0703:002,2007 hep-th/0611311.
66. **UV Stable, Lorentz-violating Dark Energy with Transient Phantom Era**, M. Libanov, V. Rubakov, E. Papantonopoulos, M. Sami and S. Tsujikawa, JCAP 0708 010 (2007), arXiv:0704.1848 [hep-th].
67. **Observational Constrains on the DGP Brane-world Model with a Gauss-Bonnet Term in the Bulk**, J. H. He, B. Wang, E. Papantonopoulos, Phys. Lett. B.654 133 (2007), arXiv:0707.1180 [gr-qc].
68. **Induced Cosmology on a Regularized Brane in Six-dimensional Flux Compactification**, E. Papantonopoulos, A. Papazoglou, V. Zamarias, Nucl. Phys. B797, 520 (2008), arXiv:0707.1396 [hep-th].
69. **BTZ Like-String on Codimension-2 Braneworlds in the Thin Brane Limit**, B. Cuadros-Melgar, E. Papantonopoulos, M. Tsoukalas, V. Zamarias, Phys. Rev. Lett. 100, 221601 (2008), arXiv:0712.3232 [hep-th].
70. **Phase Transitions in Charged Topological-AdS Black Holes**, G. Koutsoumbas, E. Papantonopoulos, G. Siopsis, JHEP 0805, 107 (2008), arXiv:0801.4921 [hep-th].
71. **Black Holes on Thin 3-branes of Codimension-2 and their Extension into the bulk** B. Cuadros-Melgar, E. Papantonopoulos, M. Tsoukalas, V. Zamarias, Nucl. Phys. B810, 246 (2009), arXiv:0804.4459 [hep-th].
72. **Discontinuities in Scalar Perturbations of Topological Black Holes**, G. Koutsoumbas, E. Papantonopoulos, G. Siopsis, Clas. Quat. Grav. 26 105004 (2009), arXiv:0806.1452 [hep-th].
73. **Shear Viscosity and Chern-Simons Diffusion Rate from Hyperbolic Horizons**, G. Koutsoumbas, E. Papantonopoulos, G. Siopsis, Phys. Lett. B 677, 74 (2009), arXiv:0809.3388 [hep-th].
74. **Black Holes and Black String-like Solutions in Codimension-2 Braneworlds**, E. Papantonopoulos, talk given at 7<sup>th</sup> Friedmann International Seminar on Gravitation and Cosmology, Joao Pessoa, Brazil, July 2008 arXiv:0809.4148 [hep-th].
75. **Hawking radiation via Gravitational Anomalies in Non-spherical Topologies**, E. Papantonopoulos, P. Skamagoulis, Phys. Rev. D 79, 084022 (2009), arXiv:0812.1759 [hep-th].

76. **Exact Gravity Dual of a Gapless Superconductor**, G. Koutsoumbas, E. Papantonopoulos, G. Siopsis, *JHEP* 0907, 026 (2009), Xiv:0902.0733 [hep-th].
77. **Charged C-metric with conformally coupled scalar field**, C. Charmousis, T. Kolyvaris, E. Papantonopoulos, *Clas. Quat. Grav.* 26 175012 (2009), arXiv:0906.5568 [hep-th].
78. **A New Class of Exact Hairy Black Hole Solutions**, T. Kolyvaris, G. Koutsoumbas, E. Papantonopoulos, G. Siopsis, to be published in *Gen. Relativ. Gravit.*, arXiv:0911.1711 [hep-th].
79. **Holographic Superconductors with various condensates in Einstein-Gauss-Bonnet gravity**, Q. Pan, B. Wang, E. Papantonopoulos, J. Oliveira, A. Pavan, *Phys. Rev. D* 81, 106007 (2010), arXiv:0912.2475 [hep-th].
80. **Quasi-normal modes of scalar perturbations, mass and area spectrum of Chern-Simons black holes**, P. Gonzalez, E. Papantonopoulos, J. Saavedra, *JHEP* 1008, 050 (2010), arXiv:1003.1381 [hep-th].
81. **Black Hole Solutions in 5D Horava-Lifshitz Gravity**, G. Koutsoumbas, E. Papantonopoulos, P. Pasipoularides, M. Tsoukalas, *Phys. Rev. D* **D81, 124014, 2010**, *Phys. Rev. D* 81, 124014 (2010), arXiv:1004.2289 [hep-th].
82. **BTZ Solutions on Codimension-2 Braneworlds**, B. Cuadros-Melgar, E. Papantonopoulos, M. Tsoukalas, V. Zamarias, J. *Phys. Conf. Ser.* 189, 012009 (2009), arXiv:1005.3533 [hep-th].
83. **Holographic Charge Density Waves**, A. Aperis, P. Kotetes, E. Papantonopoulos, G. Siopsis, P. Skamagoulis, G. Varelogiannis, arXiv:1009.6179 [hep-th].