

CURRICULUM VITAE

PERSONAL INFORMATION

Name and Surname : Özay GÜRTUĞ
Date of Birth : 1 August 1965
Place of Birth : Lefkoşa/KKTC
Citizenship : KKTC
Academic Status : Professor of Physics
Address : Physics Department, Eastern Mediterranean University (EMU)
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ACADEMIC QUALIFICATIONS

Ph.D. : Physics, EMU (1997)
Theses : New Extensions of the Colliding Wave Solutions in General Relativity
M.Sc. : Physics, EMU (1992)
Theses : Study on the Feasibility of a Capacitative Transducers
B.Sc. : Electric and Electronic Engineering, EMU (1997)

RESEARCH INTERESTS

- Nonlinear interaction of gravitational waves
- Singularities in black holes and colliding gravitational wave spacetimes
- Analysis of timelike naked singularities with quantum fields
- Nonlinear electrodynamics

CHRONOLOGY

- September 1999 – April 2004, Assistant Professor, Department of Physics (EMU)
- April 2004 –February 2005, Associate Professor, Department of Physics (EMU)
- March 2005 – September 2005, Visiting Scholar, Boğaziçi University
- September 2005 – April 2011, Associate Professor, Department of Physics (EMU)
- April 2011 – To date, Professor , Department of Physics (EMU)

TEACHING EXPERIENCE

Taught Courses

- PHYS 101 (Physics I, mechanics)
- PHYS 102 (Physics II, electricity, magnetism and thermodynamics)
- PHYS 1001 (Physics I, mechanics, Marmara University)
- PHYS 1002 (Physics II, electricity and magnetism, Marmara University)
- PHYS 106 (Physics for Architectures)
- PHYS 522 (Electromagnetic Theory I)
- PHYS 511 (Advanced Mathematical Methods For Engineers and Scientists I)
- PHYS 611 (Advanced Mathematical Methods For Engineers and Scientists II)
- PHYS 612 (Mathematical Methods for Physicists II)
- PHYS 622 (Electromagnetic Theory II)

SUPERVISED Ph. D and M.Sc. THESES

Ph. D. Theses

1. **“Quantum Singularities in (2+1)- Dimensional Matter Coupled Black Hole Spacetimes”** (with O. Unver, completed in December 2011)
2. **“Exact Solutions and their Physical Properties in a model of f(R)-Gravity”** (with T. Tahamtan, completed in February 2013)

M.Sc. Theses

1. **“A Solution of Source Free Maxwell Equation in the Background Field of a Stationary Cosmic String”**. (with Hanifa Teimourian, graduated in February, 2008).
2. **“Low Frequency Electromagnetic Fields and Its Possible Effects on Health”**. (with Ali Dayı, graduated in January 2011).
3. **“Self-Adjoint Extensions of the Operators and their Applications in Physics”**, (Kıymet Emral, graduated in September 2012).
4. **“Seismic AVO Attributes and Rock Physics in Hydrocarbon Exploration”**, (Vajihah Jalali ,graduated in January 2014).
5. **“The Effect of Probe Pressure on In Vivo Single Fiber Reflectance Spectroscopy”**, (Ali Akbar Shakibaei, graduated in January 2014).
6. **“Effect of Extremely Low Frequency Magnetic Field on the Growth Rate of Bacteria”**, (Akhink Akram Hassan, graduated in September 2015).

ATTENDED NATIONAL/INTERNATIONAL SCHOOLS AND WORKSHOPS

- 10th Brazilian School, Cosmology and Gravitation. Rio de Janeiro, Brazil, 2002
- Advanced School and Conference on Sources of Gravitational Waves, ICTP, Trieste, Italy, 2003.
- Quantization, Dualities and Integrable Systems, Ankara University, Ankara-Turkey, 23-25 April, 2009.
Title of My Presentation: Quantum Singularities in Higher Dimensional Einstein-Yang-Mills-Dilaton Black Holes
- Gravity - New Perspectives from Strings and Higher Dimensions, Centro de Ciencias de Benasque Pedro Pascual, Benasque-Spain, 12-24 July, 2009.
- Quantization, Dualities and Integrable Systems, Yeditepe University, Istanbul-Turkey, 23-25 April, 2010.
Title of My Presentation: Theorem to Generate Einstein - Nonlinear Maxwell Fields.
- Quantization, Dualities and Integrable Systems, Koç University, Istanbul-Turkey, 19-20 April, 2014.
Title of My Presentation: Remarkable Consequences of Colliding Gravitational and Electromagnetic Plane Waves in general relativity.

NATIONAL AND INTERNATIONAL CONFERENCES

1. **“Üniversite Birinci Sınıf Öğrencilerinde Maddenin Yapısı ile İlgili Kavramlar ve Yanılgılar”**, I. Semiz, A.Bilsel ve **O. Gurtug**, IV. Ulusal Eğitim Bilimleri Kongresi, Eskişehir, 10-12 Eylül 1997.
2. **“Effect of NUT Parameter on the Analytic Extension of the Cauchy Horizon that Develop in Colliding Wave Spacetimes”**, **O. Gurtug**, V. Topical Conference on Elementary Particles, Astrophysics and Cosmology, Miami 2008, Fort Lauderdale, Florida, 16-21 December 2008.

3. **"2+1 Dimensional Magnetically Charged Solutions in Einstein - Power - Maxwell Theory"**, **O. Gurtug**, VII. Topical Conference on Elementary Particles, Astrophysics and Cosmology, Miami 2010, Fort Lauderdale, Florida, 14-19 December 2010.
4. **"A wavy way leading to the Kerr metric and its quantum singularity analysis"**, **O. Gurtug**, Topical Conference on Theoretical Physics, Iran IPM, 2015

ADMINISTRATIVE DUTIES

- Feb. 2003 – Feb 2005. Coordinator of the Academic Affairs of the Rector's Office.
- Elected member of Senate (2003-2005 Academic Years)
- Academic Advisor, North Cyprus Education Foundation, Board of Trustees (from September 2006 - October 2009)
- Rector Advisor, (from October 2009- October 2014)
- Member, Techno-Park Governing Board, (from February 2012 – To date)
- Elected member of Senate (2014-2016 Academic Years)

PUBLICATIONS IN PEER REVIEWED JOURNALS

1. M.Halilsoy and **O. Gurtug**, "**On Some Properties of NUT-Curzon Space Time**". Il Nuovo Cimento, Vol: **109 B**, No:9, pp: 963-971, (1994).
2. **O. Gurtug**, "**A New Extension of The Ferrari-Ibanez Colliding Wave Solution**". General Relativity and Gravitation Vol: **27**. No : 6, pp:651-655, (1995).
3. **O.Gurtug** and M. Halilsoy, "**New Colliding Wave Solutions in the Einstein-Abelian Gauge and Einstein-Maxwell-Dilaton Theories**". Il Nuovo Cimento Vol. **113 B**, No:1, pp: 69-80, (1998).
4. **O.Gurtug** and M. Halilsoy, "**Effect of Sources on the Inner Horizon of Black Holes.**" Physical Review **D** . Vol: **64** , 084023, (2001).
5. **O.Gurtug** and M. Halilsoy, "**Failure of a Stability Conjecture in General Relativity**". Il Nuovo Cimento Vol: **117 B** , No: 5, pp: 493 – 499, (2002).
6. **O.Gurtug** and I. Sakalli, "**Cosmic Strings Coupled With a Massless Scalar Field**", International Journal of Theoretical Physics, Vol. **42**, No: 8, pp:1863 – 1876, (2003).
7. **O. Gurtug**, M. Halilsoy and I. Sakalli, "**New Singular and Nonsingular Colliding Wave Solutions in the Einstein – Maxwell – scalar Theory**", General Relativity and Gravitation, Vol.**35**, No: 12, pp:2159 – 2170, (2003).
8. **O. Gurtug**, M. Halilsoy and O. Unver, "**Reflection of Electromagnetic Waves From Mixtures of Plane Gravitational and Scalar Waves**" Physical Review **D** . Vol: **74** , 044020, (2006).
9. M.Halilsoy and **O. Gurtug**, "**Search For Gravitational Waves Through The Electromagnetic Faraday Rotation.**" Physical Review **D** . Vol: **75** , 124021, (2007).
10. **O. Gurtug** and M.Halilsoy, "**Colliding Wave Solutions in a Symmetric Non-Metric Theory.**" International Journal of Theoretical Physics, Vol. **48**, pp:139 – 149, (2009).
11. **O. Gurtug** and M.Halilsoy, "**Effect of NUT Parameter on the Analytic Extension of the Cauchy Horizon that Develop in Colliding Wave Space – Times**", Int. Jour. Mod. Phys. **A**, Vol:24, pp:3171-3190, (2009) .

12. **O. Gurtug** and M.Halilsoy, "Restricted Class of Colliding Einstein – Yang – Mills Plane Waves", Int. Jour. Mod. Phys. **A**, Vol:24, pp:5579-5585, (2009).
13. S. Habib Mazharimousavi, **O. Gurtug** and M. Halilsoy, " **Generating Static, Spherically Symmetric Black Holes in Lovelock Gravity**", Int. Jour. Mod. Phys. **D**, Vol:18, pp:2061-2082, (2009).
14. S. Habib Mazharimousavi, M. Halilsoy, İ. Sakalli and **O. Gurtug** " **Dilatonic Interpolation between Reissner-Nordstrom and Bertotti-Robinson Spacetimes with Physical Consequences**", Classical and Quantum Gravity, **27**, 105005, (2010).
15. S. Habib Mazharimousavi, M. Halilsoy and **O. Gurtug** " **Theorem to generate Einstein-nonlinear Maxwell fields** ", Classical and Quantum Gravity, **27**, 205022, (2010).
16. O.Unver and **O. Gurtug**, " **Quantum singularities in (2+1)- dimensional matter coupled black hole spacetimes.**" Physical Review **D** . Vol: **82** , 084016, (2010).
17. S. Habib Mazharimousavi, **O. Gurtug** , M. Halilsoy and O. Unver, " **2+1 dimensional magnetically charged solutions in Einstein - Power - Maxwell theory**" Physical Review **D** . Vol: **84** , 124021, (2011).
18. **O. Gurtug**, S. Habib Mazharimousavi, and M. Halilsoy, " **2+1-dimensional electrically charged black holes in Einstein - Power - Maxwell theory**" Physical Review **D** . Vol: **85** , 104004, (2012).
19. **O. Gurtug** and T. Tahamtan, " **Quantum singularities in a model of f(R) gravity**", European Physical Journal **C**, Vol:**72**, 2091, (2012).
20. M. Halilsoy, **O. Gurtug** and S. Habib Mazharimousavi, " **Rindler Modified Schwarzschild Geodesics**", General Relativity and Gravitation. Vol. 45, 2363 (2013).
21. S. Habib Mazharimousavi, M. Halilsoy and **O. Gurtug** " **A new Einstein-nonlinear electrodynamic solution in 2+1-dimensions**", Eur. Phys. J. C 74, 2735 (2014).
22. **O. Gurtug**, M. Halilsoy and S. Habib Mazharimousavi, " **Quantum probes of timelike naked singularities in the weak field regime of f(R) global monopole spacetime**", Journal of High Energy Physics, 01, 178, (2014).
23. M. Halilsoy, S. Habib Mazharimousavi and **O. Gurtug**, " **Emergent cosmological constant from colliding electromagnetic waves** " Journal of Cosmology and Astroparticle Physics, 11, 010, (2014).
24. M. Halilsoy, **O. Gurtug** and S. Habib Mazharimousavi, " **Modified Rindler acceleration as a nonlinear electromagnetic effect** ", Astroparticle Physics 68, 1 (2015).
25. **O. Gurtug**, M. Halilsoy and S. Habib Mazharimousavi, " **Quantum probes of timelike naked singularities in 2+1- dimensional power-law spacetimes**", Advances in High Energy Physics, dx.doi.org/10.1155/2015/684731 (2015).