



Merab Gogberashvili

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Elementary Particles and Quantum Fields

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Education:

- **University Diploma in Physics (Theoretical Physics), Javakhishvili Tbilisi State University**
- **Ph.D, in Theoretical and Mathematical Physics, Lomonosov Moscow State University**

Teaching Courses:

- **Gravitation and Cosmology**
- **Elementary Particles**

Research Interests:

- **Gravitation and Cosmology**
- **High Energy Physics**
- **Mathematical Physics**

Selected Publications:

1. **M. Gogberashvili**, “Conformal (2+4)-Braneworld” (*Int. J. Mod. Phys., D 26*, 1750125 (2017));
2. **M. Gogberashvili, A. Sakharov and E. Sarkisyan**, “Size of Shell Universe in Light of FERMI GBM Transient Associated with GW150914” (*Phys. Lett., B 763*, 397 (2016));
3. **M. Gogberashvili**, “Information-Probabilistic Description of the Universe” (*Int. J. Theor. Phys., 55*, 4185 (2016));
4. **M. Gogberashvili**, “Octonionic Geometry and Conformal Transformations” (*Int. J. Geom. Meth. Mod. Phys., 13*, 1650092 (2016));
5. **M. Gogberashvili** and P. Midodashvili, “Diffractions from the brane and GW150914” (*Euro. Phys. Lett. 114*, 50008 (2016));
6. **M. Gogberashvili, I. Mantidze, O. Sakhelashvili, and T. Shengelia**, “Standing waves braneworlds” (*Int. J. Mod. Phys., D 25*, 163001925 (2016));
7. **M. Gogberashvili** and O. Sakhelashvili, “Geometrical Applications of Split Octonions” (*Adv. Math. Phys., 2015*, 196708 (2015));
8. **M. Gogberashvili** and G. Tukhashvili, “Hierarchy of Fermion Masses in the 5D Standing Wave Braneworld” (*Int. J. Theor. Phys., 54*, 1154 (2015));
9. **M. Gogberashvili**, “Split Quaternions and Particles in (2+1)-Space” (*Eur. Phys. J., C 74*, 3200 (2014));
10. **M. Gogberashvili**, “On the Dynamics of the Ensemble of Particles in the Thermodynamic Model of Gravity” (*J. Mod. Phys., 5*, 1945 (2014));
11. **M. Gogberashvili** and P. Midodashvili, “Fermions in the 5D Gravity-Scalar Standing Wave Braneworld” (*Int. J. Mod. Phys., A 29*, 1450141 (2014));
12. **M. Gogberashvili, P. Midodashvili and G. Tukhashvili**, “New Class of N-dimensional Braneworlds” (*Gen. Rel. Grav., 46*, 1697 (2014));
13. **M. Gogberashvili** and I. Kanatchikov, “Cosmological Parameters from the Thermodynamic Model of Gravity” (*Int. J. Theor. Phys., 53*, 1779 (2014));
14. **M. Gogberashvili** and P. Midodashvili, “Gauge Fields in the 5D Gravity-Scalar Standing Wave Braneworld” (*Euro. Phys. Lett. 104*, 50002 (2013));
15. **M. Gogberashvili** and P. Midodashvili, “The 5D Standing Wave Braneworld With Real Scalar Field” (*Adv. High Energy Phys. 2013*, 873686 (2013));
16. **M. Gogberashvili, A. Herrera-Aguilar, D. Malagon-Morejon and R.R. Mora-Luna**, “Anisotropic inflation in a 5D standing wave braneworld and effective dimensional reduction” (*Phys. Lett. B 725*, 208 (2013));
17. **M. Gogberashvili, O. Sakhelashvili and G. Tukhashvili**, “Numerical Solutions in 5D Standing Wave Braneworld” (*Mod. Phys. Lett. A 28*, 1350092 (2013));
18. **M. Gogberashvili, A. Herrera-Aguilar, D. Malagon-Morejon, R.R. Mora-Luna and U. Nucamendi**, “Thick brane isotropization in the 5D anisotropic standing wave braneworld model” (*Phys. Rev. D 87*, 084059 (2013));

19. **M. Gogberashvili**, “Localization of Matter Fields in the 5D Standing Wave Braneworld” (*JHEP*, **2012**, 56 (2012));
20. **M. Gogberashvili**, P. Midodashvili and L. Midodashvili, “Localization Problem in the 5D Standing Wave Braneworld” (*Int. J. Mod. Phys., D* **21**, 1250081 (2012));
21. **M. Gogberashvili** and I. Kanatchikov, “Machian origin of the entropic gravity and cosmic acceleration” (*Int. J. Theor. Phys.*, **51**, 985 (2012));
22. **M. Gogberashvili**, P. Midodashvili and L. Midodashvili, “Localization of gauge bosons in the 5D standing wave braneworld” (*Phys. Lett., B* **707**, 169 (2012));
23. **M. Gogberashvili**, A. Herrera-Aguilar and D. Malagon-Morejon, “An anisotropic standing wave braneworld and associated Sturm–Liouville problem” (*Clas. Quant. Grav.* **29**, 025007 (2012));
24. **M. Gogberashvili**, P. Midodashvili and L. Midodashvili, “Localization of scalar and tensor fields in the standing wave braneworld with increasing warp factor” (*Phys. Lett., B* **702**, 276 (2011));
25. **M. Gogberashvili**, “Thermodynamic Gravity and the Schrodinger Equation” (*Int. J. Theor. Phys.*, **50**, 2391 (2011));
26. **M. Gogberashvili** and D. Singleton, „Anti-de-Sitter Island-Universes from 5D Standing Waves“ (*Mod. Phys. Lett., A* **25**, 2131 (2010));
27. **M. Gogberashvili**, Sh. Myrzakul and D. Singleton, “Standing Gravitational Waves from Domain Walls” (*Phys. Rev.*, **D 80**, 024040 (2009));
28. **M. Gogberashvili**, “Topological Solution to the Cylindrical Einstein-Maxwell Equations” (*Int. J. Mod. Phys., D* **18**, 1765 (2009));
29. **M. Gogberashvili**, “Rotations in the Space of Split Octonions” (*Adv. Math. Phys.*, **2009**, 483079 (2009));
30. **M. Gogberashvili** and R. Khomeriki, “Trapping of Nonlinear Gravitational Waves by Two-Fluid Systems” (*Mod. Phys. Lett., A* **24**, 2761 (2009));
31. **M. Gogberashvili**, “Universal' FitzGerald Contractions” (*Eur. Phys. J., C* **63**, 317 (2009));
32. **M. Gogberashvili**, “Gravitational Field of Spherical Branes”(*Mod. Phys. Lett., A* **23**, 2979 (2008));
33. **M. Gogberashvili**, “A Machian Solution of Hierarchy Problem” (*Eur. Phys. J., C* **54**, 671 (2008))
34. **M. Gogberashvili**, D. Singleton, and P. Midodashvili, “Fermion Generations from ‘Apple-Shaped’ Extra Dimensions” (*JHEP*, **08**, 033 (2007));
35. **M. Gogberashvili**, “Speed Limit on the Brane” (*Europhys. Lett.*, **77**, 20004 (2007));
36. **M. Gogberashvili**, A. Sakharov and E. Sarkisyan, “Probing Brane-World Scenarios with Vacuum Refraction of Light Using Gamma-Ray Bursts” (*Phys. Lett., B* **644**, 179 (2007));
37. **M. Gogberashvili**, A. Kobakhidze and A. Tureanu, “Localizing Gravity in Extra Dimensions” (*Eur. Phys. J., C* **47**, 857 (2006));
38. **M. Gogberashvili**, “Octonionic Electrodynamics” (*J. Phys., A* **39**, 7099 (2006));
39. **M. Gogberashvili**, “Acceleration of a Spherical Brane-Universe” (*Phys. Lett., B* **636**, 147 (2006));
40. **M. Gogberashvili**, “Octonionic Version of Dirac Equations” (*Int. J. Mod. Phys., A* **21**, 3513 (2006));
41. **M. Gogberashvili**, “Octonionic Geometry” (*Adv. in Appl. Clif. Alg.*, **15(01)**, 55 (2005));
42. **M. Gogberashvili** and M. Maziashvili, “Dark Matter in the Framework of Shell-Universe” (*Gen. Rel. Grav.*, **37**, 1129 (2005));
43. **M. Gogberashvili** and D. Singleton, “Nonsingular Increasing Gravitational Potential for the Brane in 6D” (*Phys. Lett., B* **582**, 95 (2004));
44. **M. Gogberashvili** and D. Singleton, “Brane in 6D with Increasing Gravitational Trapping Potential” (*Phys. Rev.*, **D 69**, 026004 (2004));
45. **M. Gogberashvili** and P. Midodashvili, “Localization of Fields on a Brane in Six Dimensions” (*Europhys. Lett.*, **61**, 308 (2003));
46. **M. Gogberashvili**, “Brane Gravity from Bulk Vector Field” (*Phys. Lett., B* **553**, 284 (2003));
47. **M. Gogberashvili**, “Brane Gravity” (*Springer Proc. Phys.*, **98**, 251 (2003));
48. **M. Gogberashvili**, “Coriolis Force and Sagnac Effect” (*Found. Phys. Lett.*, **15**, 487 (2002));
49. **M. Gogberashvili**, “Gravitational Trapping for Extended Extra Dimensions” (*Int. J. Modern. Phys., D* **11**, 1639 (2002));
50. **M. Gogberashvili**, “Hierarchy Problem in the Shell Universe Model” (*Int. J. Modern. Phys., D* **11**, 1635 (2002));
51. **M. Gogberashvili**, “Embedding of the Brane into Six Dimensions” (*J. Math. Phys.*, **43**, 4886 (2002));
52. **M. Gogberashvili** and P. Midodashvili, “Brane Universe in Six-Dimensions” (*Phys. Lett., B* **515**, 447 (2001));
53. **M. Gogberashvili**, “Brane Universe in Six-Dimensions with Two Times” (*Phys. Lett., B* **484**, 124 (2000));
54. **M. Gogberashvili**, “Our World as an Expanding Shell” (*Europhys. Lett.*, **49**, 396 (2000));
55. **M. Gogberashvili**, “Four Dimensionality in Noncompact Kaluza-Klein Model” (*Mod. Phys. Lett., A* **14**, 2025 (1999));
56. A. Barnaveli and **M. Gogberashvili**, “Gravitational Repulsion of Spherical Domain walls” (*GRG*, **26**, 1117 (1994));
57. **M. Gogberashvili**, “Cosmic Strings in Harmonic Coordinates and Gravitational Lens Effect” (*Phys. Rev.*, **D 50**, 4791 (1994));
58. A. Barnaveli and **M. Gogberashvili**, “Cosmological 'Arrow of Time' and Baryon Asymmetry of the Universe” (*Phys. Lett., B* **316**, 57 (1993));
59. **M. Gogberashvili** and **G. Dvali**, “Hierarchy at Yukawa Constants and KK, BB Oscillations in the Model with Two Higgs Doublets” (*Sov. J. Nucl. Phys.*, **53**, 491 (1991) in Russian);
60. G. Sardanashvily and **M. Gogberashvili**, “Translation Gauge Fields and Space-Time Dislocations” (*Annalen Phys.*, **45**, 297 (1988));
61. G. Sardanashvily and **M. Gogberashvili**, “The Dislocation Treatment of Gauge Fields of Space-Time Translations” (*Mod. Phys. Lett., A* **2**, 609 (1987)).