

## Resume (CV)

**Name:** Zurab Tavartkiladze                      **Sex:** Male  
**Job Address:** Ilia State University, Cholokashvili 3-5, Tbilisi 0162, Georgia  
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e  
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**Present Positions:** (from 2010 to p.d.)

Associate Professor at Faculty of Natural Sciences and Medicine.

Ilia State University, Tbilisi, Georgia;

Member of Center of Elementary Particle Physics of Institute of Theoretical Physics  
at Ilia State University

**Membership:** Member of Physics Dept. Council, faculty for Natural Sci. & Medicine,  
Ilia State Univ. (Oct, 2014- p.d.);  
Member of the Academic Council, Ilia State Univ. (Jan, 2011- 2012);  
Member of the Representative Council, Ilia State Univ. (July- Nov, 2010 );  
Member of the PhD & MSc Scientific Council, Ilia State Univ. (Jan, 2011- p.d)

### Positions Held

2010-2015	Director of the Institute of Theoretical Physics, Ilia State University
2009-2011	Senior Scientific Researcher, E. Andronikashvili Inst. of Physics.
Mar 1 - Apr 15 2010	Invited Professor at Ilia State University, Tbilisi, Georgia.
Oct 2006 - Oct 2009	Postdoctoral research associate, Oklahoma State University, USA.
Oct 2004 - Oct 2006	Fellow in CERN Theory Division, Geneva, Switzerland.
Oct 2001 - Oct 2004	Postdoctoral research associate, Institute of Theoretical Physics, University of Heidelberg, Germany.
Oct 1998 - Oct 2001	Scientific Researcher in the E. Andronikashvili Inst. of Phys., GAS Dept. of Particle Physics, Tbilisi, Georgia.
Sep 1996 - Oct 1998	Postdoctoral research associate, INFN section of Ferrara, Italy.
Sep 1995 - Sep 1996	Junior Scien. Researcher in the E. Andronikashvili Inst. of Phys, GAS, Dept. of Particle Physics, Tbilisi, Georgia.
Sep 1993 - Sep 1996	PhD student in the E. Andronikashvili Institute of Physics GAS Dept. of Particle Physics, Tbilisi, Georgia.

### Education and Scientific Degrees

**Ph.D.** Thesis: "*U(1) Flavor Symmetry in MSSM and Beyond*"; (Nov 15, 1999).  
In E. Andronikashvili Institute of Physics, GAS, Tbilisi, Georgia.

**M.S.** In Particle Physics at the E. Andronikashvili Institute of Physics, GAS (1993)  
M.S. Thesis: "*Unification of Quarks and Leptons on Planck Mass Scale in  
SUSY SU(8) Model: With Standard Intermediate Unification*".

**B.S.** In Tbilisi State University, Dept. of Physics (1993).  
Specialization: Theoretical Physics; Qualification: Physicist, Physics teacher.

**Languages:** English, Georgian (native), Italian, Russian.

### Teaching Experience

From 2010 to present, at Ilia State University lecturing:

Year (Term)	Level	Course Name
2016,2018-2024 (Spring) 2012,2016 (Fall)	BA	Basics of Quantum Phys. Atomic and Nuclear Physics
2015, 2014 (Spring)	BA	Atomic and Nuclear Physics
2018,2020-2024 (Fall) 2013-2015 (Fall) 2017 (Spring)	BA	Quantum Mechanics 1
2021-2023,2019 (Spring) 2016, 2014 (Spring)	BA	Quantum Mechanics 2 (relativistic theory)
2016-2023 (Fall) 2023, 2024 (Spring) 2017-2021 (Spring)	BA	Structure of the Universe from large scales to short distances
2012-2015 (Spring)	BA	Macro and Micro Universe Puzzles
2022-2024 (Spring) 2019,2018,2016 (Fall) 2011,2010 (Fall)	MSc	Elementary Particle Physics I
2023,2018-20,2016 (Fall) 2022-2023 (Spring) 2011,2010 (Spring)	MSc	Elementary Particle Physics II
2020,2017,2015 (Fall)	MSc	Introduction in Particle and Fields
2018 (Fall)	PhD	Research Seminar I
2019 (Spring)	PhD	Research Seminar II
2019 (Fall)	PhD	Research Seminar III
2018,2016 (Spring)	PhD	PhD seminar I
2017 (Fall)	PhD	PhD seminar II
2012 (Spring)	PhD	Individual Course Project with PhD student (L. Megrelidze)
2018,2011 (Fall)	PhD	Theory of Particle Phys- Beyond the Standard Model

January, 2009: Lecturing course in Quantum Field Theory at Oklahoma State University;

From 2001 to 2004, In Heidelberg University tutoring:

Course in Quantum Mechanics (Summer term, 2004);

Tutored seminar talks of Statistical Mechanics (Winter term, 2003);

Quantum Field Theory II (Summer term, 2003);

Theoretical Mechanics (Winter term, 2002/2003)

Theoretical Mechanics (Summer term, 2002);

Electrodynamics (Winter term, 2001/2002).

Fall 1993: Teaching Physics in 2nd Experimental high school, Tbilisi, Georgia  
(after this I got the qualification: Physics teacher).

### Supervision of Students

2010-2018: PhD Student A. Achelashvili (PhD in 2019, at Ilia State Univ.);

Since 2016-p.d: PhD Student M. Gelenava (at Ilia State Univ.);

Since 2011-p.d: PhD Student L. Megrelidze (at Ilia State Univ.);

2012: MSc Diploma of D. Gordeladze (Ilia State Univ, Thesis: "Some Processes of SM. EW Precision Test");

2011: MSc Diploma of D. Mania (Ilia State Univ, Thesis: "Spontaneous Breaking of CP Parity").

### Collaboration with PhD and MS Students

- 2007-2009: Z. Murdock (PhD) at Oklahoma State University, with Prof. S. Nandi;  
topics: 4-th chiral generation, supersymmetry, electro-weak symmetry breaking, Higgs mass (led to publication [18])
- 2007-2009: Y. Meng (PhD) at Oklahoma State University, with Prof. K.S. Babu;  
topics: Neutrino masses & mixings, leptogenesis (led to publ. [17], [f])
- 2007-2009: B. Grossmann (PhD) at Oklahoma State University, with Prof. S. Nandi;  
topics: Hierarchy problem and the Higgs mass;
- 2007: A. Bachri (PhD) at Oklahoma State University, with Prof. K.S. Babu;  
topic: Inverted neutrino mass hierarchy & resonant leptogenesis (led to publ. [22]);
- 2001-04: F. Paccetti Correia (PhD) at Heidelberg University, with Prof. M.G. Schmidt;  
topics: supersymmetry and supergravity, extra dimensions, grand Unification, cosmology (led to publications [33, 36, 38, 42, 44], [i, l]);
- 2006: T. Zoeller (MS) at Heidelberg University, with Prof. M.G. Schmidt;  
topic: Extra dimensions and multi field Inflation;
- 2004: F. Brummer (MS) at Heidelberg University, with Prof. M.G. Schmidt;  
topics: Worldlines, orbifolds, the Fayet-Iliopoulos term (led to publication [31]);
- 2003: M. Ahlers (MS) at Heidelberg University, with Prof. M.G. Schmidt;  
topic: Fermion mass hierarchies in extra dimensions;
- 2002: L. Reichl (MS) at Heidelberg University, with Prof. M.G. Schmidt;  
topic: Extra dimensions and composite gauge fields;
- 2002: Jiangyang You (MS) at Heidelberg University, with Prof. M.G. Schmidt;  
topic: Pseudo Goldstone Higgs potential.

### Further Qualification and Activities

1. Citation index (as of May 6, 2024):  
according to iNSPIRE HEP: Total number of citations: 1984  
10 top cited papers: 152, 147, 103, 102, 99, 99, 78, 73, 62, 55; h index= 26
2. I have 63 papers published in referred journals; and 18 papers are published in various proceedings and reports.
3. 9 citations in the "*Review of Particle Physics*".
4. Referee for journals: Phys.Rev.D, Phys.Rev.Lett., Phys.Lett.B, Nucl.Phys.B, Eur.Phys.J. C, Int.J.Mod.Phys.A, Advances in High Energy Phys.
5. Referee of two PhD Thesis: Z. Kepuladze (2012), J. Jejelava (2011).
6. Local co-organizer of International Workshop "Strong and Electroweak Matter 2002" (<http://www.thphys.uni-heidelberg.de/ws/sewm/>).
7. Collaboration with: 11 professors, 6 Postdocs, 9 PhD students, 7 Diploma students.
8. Member of jury of: "IX International Young Physicists' Tournament", 1996 - Kutaisi, Georgia;  
"VIII Republic Young Physicists' Tournament", 1999 - Tbilisi, Georgia.

### Knowledge of Computing and software

"Mathematica", "Root", "Gnuplot", "LaTeX", "Microsoft Office".

### Scientific Interests

Physics beyond the Standard Model: Unified gauge theories (GUTs), supersymmetric Grand Unification and proton decay, the minimal supersymmetric standard model (MSSM) and its extensions. Attacking the problems of fermion flavor and CP violation, and building models of neutrino

oscillations. Addressing issues which arise in the context of supersymmetry (SUSY), supergravity, SUSY GUTs, and SUSY breaking mechanisms. I am also interested in problems involving topological defects, the idea of extra dimensions: large and small, TeV scale quantum gravity, non-factorizable geometry, Orbifold GUTs, and higher dimensional supergravities. In cosmology, my interests include building models of natural Inflation, and addressing issues such as baryogenesis via leptogenesis in this context. In each case I am interested in sharpening the various phenomenological, cosmological and astrophysical implications of my ideas for facilities such as the large hadron collider (LHC), Wilkinson Microwave Anisotropy Probe (WMAP) and the underground detectors in planning.

### **Scientific Visits**

1. High Energy Physics Group, Oklahoma State University, Stillwater, USA; July 15-21, 2023;
2. European Organization for Nuclear Research (CERN), Theory Division (Geneva, Switzerland), 29.07-26.09, 2017;
3. High Energy Physics Group, Oklahoma State University, Stillwater, USA; November 2-6, 2015;
4. European Organization for Nuclear Research (CERN), Theory Division, 27.07 - 15.10, 2015;
5. Theoretical Physics Department, Stanford Linear Accelerator Laboratory (SLAC), Stanford, USA, May 27-30, 2013;
6. Institute for Theoretical Physics, Heidelberg University, Germany, 15.11 - 19.11, 2011;
7. European Organization for Nuclear Research (CERN), Theory Division, 14.10 - 14.11, 2011;
8. High Energy Physics Group, Oklahoma State University, Stillwater, USA; 10.07 - 30.07, 2011;
9. European Organization for Nuclear Research (CERN), Theory Division, 01.07 - 31.07, 2008;
10. European Organization for Nuclear Research (CERN), Theory Division, 13.06 - 13.07, 2007;
11. Bartol Research Institute, Univ. Delaware, Bartol - USA, 19.01-9.02, 2006;
12. Orsay Laboratory of Theoretical Physics (Universite Paris-Sud), 21.11 - 27.11, 2005;
13. Physics Department, University of Porto, 6.11 - 13.11, 2005;
14. European Organization for Nuclear Research (CERN), Theory Division, 15.10 - 15.12, 2003;
15. Bartol Research Institute, Univ. Delaware, Bartol - USA, 22.02 - 08.03, 2003;
16. European Organization for Nuclear Research (CERN), Theory Division, 21.01 - 21.02, 2000;
17. Bartol Research Institute, Univ. Delaware, Bartol - USA, 01-30.11, 1998; 04.10-04.11, 1999;
18. International Center for Theoretical Physics (ICTP), Trieste - Italy, 12.11.1995 - 12.02.1996.

## **Grants and Awards**

### **After 2013**

- 2014-1017– Research Grant from Sh. Rustaveli Science Foundation, contr. # DI/12/6-200/13,  
 ”Space-time symmetries in particle phys. & cosmology: new aspects & applications”;
- 2013 – Travel Grant for CETUP\* conference (Deadwood, SD, USA),  
 from Shota Rustaveli Science Foundation, contract # 03/113;

- 2013-1016 – Research Grant from Sh. Rustaveli Science Foundation, contr. # 31/89.  
 ”Towards Realistic Unification of Elementary Forces Beyond Standard Model: Some Physical and Astrophysical Consequences”;
- Before 2013**
- 2012 – Travel Grant for participation in CETUP conference (in USA),  
 from Rustaveli Science Foundation, project 2012\_tr\_330;
- 2011 – Travel Grant for participation in CETUP conference (in USA),  
 from Rustaveli Science Foundation, project 11\_tr\_090;
- 2008-2010 – GNSF- Georgian National Scientific Foundation Grant, GNSF/ST07/4-186;
- 2006-2009 – Grant of US Department of Energy (DOE):  
 DE-FG02-04ER41306, DE-FG02-ER46140;
- 2000-01, 2001-02 – Georgian president’s stipend for young researchers -awarded 2 times;
- 2000-2001 – Grant of the Georgian Academy of Sciences;
- 1998-1999 – Grant of the Georgian Acad. of Sci.; 1995-1996 – J. Soros ISF grant;
- 1991-1993 – Special Stipend in Theoretical Physics, named after V. Mamasakhlisov  
 (Tbilisi State University);
- 1985-1988 – In various inter-school Physical-Mathematical Olympiads won prizes:  
 I Diploma (highest prize) of Republic Olympiad in Physics;  
 II Diploma of Republic Olympiad in Mathematics;  
 II Diploma of Republic Olympiad in Physics;  
 Diploma of Honor of Soviet Union Olympiad in Physics;  
 Diploma of International Journal “Kvant” (Physics section).

### Talks at International Schools and Conferences

#### After 2013

1. ”Gauged Flavor  $U(1)$ . Fermion Masses and Leptogenesis”, at Neutrino Physics Workshop; 2023.07.03-14; CETUP 2023, Lead (South Dakota, USA);
2. ”SM Extension with Gauged Flavor  $U(1)$ ”, at Tbilisi, Workshop - ”Recent Advances in Fundamental Physics”; 2022.09.27-30
3. ”Inflation From The MSSM.  $N=1$  Supergravity Setup”, at ”Alternative Gravities and Fundamental Cosmology”; September 6–10, 2021; Szczecin, Poland (held online, on ZOOM platform) <https://indico.cern.ch/event/873762/>
4. ”Light Pseudo-Goldstone Higgs from SUSY  $SO(10)$  GUT”, at SUSY 2021; 23-28 August, 2021; China (held online, on ZOOM platform) <https://indico.cern.ch/event/875077/program>
5. ”SM Extension with Anomaly Free Flavor  $U(1)$ ”, at 2021 Meeting of the Division of Particles and Fields of the American Physical Society; Jul 12 - 14, 2021; Florida, USA (held online, on ZOOM platform) <https://indico.cern.ch/event/1034469/sessions/396602/#20210714>
6. ”Inflation From The MSSM ”, at Phenomenology 2021 Symposium Pittsburgh, USA; May 24-26, 2021 (held online, on ZOOM platform) <https://indico.cern.ch/event/982783/registrations/67320/>
7. ”Higgs-Sparticle Inflation In The MSSM”; PPC2021, Norman, Oklahoma, May 17-22, 2021; (held online, on ZOOM platform) <https://indico.cern.ch/event/822029/timetable/#20210519>
8. “Leptonic CP Violation and Leptogenesis” on workshop: Neutrino Physics/Unification: ”From Grand Unification to String Theory and Back” session II: June 20-July 1, 2016; CETUP 2016, Deadwood, South Dakota, USA;
9. “Predicting Leptonic CP Violation and Leptogenesis,” at conf: Exploring the Energy Ladder of the Universe; 30 May - 10 June 2016; Mainz Institute for Theoretical Physics, Johannes Gutenberg University, Germany;

10. “*Aspects of a realistic SUSY SO(10)*,” - Plenary talk at International Workshop for the Next Generation Nucleon Decay and Neutrino Detectors (NNN15); October 28-31, 2015; State University of New York at Stony Brook, USA;
11. “*Natural Inflation from 5D SUGRA*,” at Selected Topics in Theoretical High Energy Physics, Tbilisi, 21-27 September, 2015;
12. “*TeV scale SUSY radiative neutrino mass models and phenomenology*,” at CETUP\*, Neutrinos and Beyond the Standard Model Physics session, Deadwood, South Dakota, USA; July 6-17, 2015;
13. “*Neutrino mass model building*,” at CETUP\*, Neutrinos and Beyond the Standard Model Physics session, Deadwood, South Dakota, USA; July 6-17, 2015;
14. “*Twin-Unified SU(5) × SU(5)' GUT & Phenomenology*,” [skype talk] at Int. Workshop on Unification & Cosmology after Higgs Discovery and BICEP2, Dept. of Phys, Panjab Uni, Chandigarh, India, 1315 May, 2014;
15. “*Phenomenology of SU(5) × SU(5)' GUT*,” at Physics in the LHC era, October 13-19, 2013, Tbilisi, Georgia;
16. “*Twinification and D2 Parity*,” at First Autumn School & Workshop on Particle Phenomenology, September 23-24, 2013, Tbilisi, Georgia;
17. “*Grand unification and Low Scale Implications: D<sub>2</sub> Parity for Unification and Neutrino Masses*,” at CETUP\* Neutrino Physics and Astrophysics session, July 15-26, 2013, Black Hills, SD, USA;
18. “*Grand Unification and Low Scale Implications: Predictive SO(10) GUT for Fermion Masses, Neutrino Oscillations, and Proton Decay*” at VII-th International Conference on Interconnections between Particle Physics and Cosmology: July 8-13, 2013, Deadwood, SD, USA;

### Before 2013

19. “*Baryon Asymmetry of the Universe from Neutrino Sector*,” at Int. Conf. “The Dark Universe”, October 15-20, 2012; Abastumani Astrophysical Observatory, Georgia;
20. “*Neutrino Mixings and Grand Unification*,” at CETUP (Center for Theoretical Underground Physics and Related Areas) conf, July 10- Aug 1, 2012, Black Hills, South Dakota, USA;
21. “*Realistic Grand Unification and Nucleon Decay*,” at Bethe Forum - LHC, Dark Matter and Unification, Nov 8-12, 2011, Bonn, Germany;
22. “*Three Family SU(5) GUT*,” at Low Dimensional Physics and Gauge Principles, Andronikashvili Institute of Physics, Sept 28-29, 2011, Tbilisi, Georgia;
23. “*New Flavor Symmetry and Grand Unification*,” at CETUP (Center for Theoretical Underground Physics and Related Areas) summer program, June 20-July 8, 2011, Black Hills, South Dakota, USA;
24. “*Particle Physics and its Future: Probing Super-High Energies in Laboratories*,” Invited lecture at “Young Researchers 1-st International Camp”, July 26-August 1, 2010, Bakuriani, Georgia;
25. “*Realistic SO(10) GUT and Phenomenology*,” at Summer institute 2009 on “Particle Physics Phenomenology”, August 13-20, 2009, Fujiyoshida, Japan;
26. “*Natural SUSY Leptogenesis Scenarios*,” at SUSY 2009 - SUSY'09 at Northeastern. June 5-10, 2009, Boston, USA;
27. “*Cosmology of a minimal SUSY SO(10)*,” at PPC 2009 - 3rd Int. Workshop on the Interconnection Between Particle Physics and Cosmology, May 18-22, 2009, Norman, Oklahoma, USA;
28. “*Cosmology of a minimal SUSY SO(10)*,” at PHENO 09 Symposium: “LHC Alive!”, May 11-13, 2009, Wisconsin-Madison, USA;
29. “*Nucleon decay in realistic GUTs*,” at Workshop on Underground Detectors Investigating Grand Unification (UDiG), October 16-17, 2008, Brookhaven National Laboratory;

30. “*Predictive Scheme for Neutrino Oscillations and Resonant Leptogenesis,*” at Cosmo 08, August 25-29, 2008, Madison, Wisconsin, USA;
31. “*Generation Symmetry and  $E_6$  Unification,*” at PHENO 08 Symposium: “LHC Turn On”, April 28-30, 2008, Wisconsin-Madison, USA;
32. “*Predictive Model of Inverted Neutrino Mass Hierarchy and Resonant Leptogenesis,*” at SUSY 07 - The 15th International Conference on Supersymmetry and the Unification of Fundamental Interactions. July 26 - August 1, 2007, Karlsruhe, Germany;
33. “*Proton stability in supersymmetric  $SU(5)$  (by split multiplet mechanism),*” at Planck 07, 10th European Meeting “From The Planck Scale To The Electroweak Scale”, June 9-13, 2007, Warsaw, Poland;
34. “*Proton Stability in  $SUSY SU(5)$ ,*” at PHENO 07 Symposium: “Prelude to the LHC”, May 7-9, 2007, Wisconsin-Madison, USA;
35. “*Bi-large neutrino mixing and prediction for  $\theta_{13}$ ,*” at Planck 06, 9th European Meeting “From The Planck Scale To The Electroweak Scale”, May 29 - June 2, 2006, Paris, France;
36. “*Large tensor perturbations: road to 5D inflation,*” at First Workshop in “Transfer of Knowledge” (TOK), April 29-May 3, 2006, Warsaw, Poland;
37. “*Supersymmetric  $SO(10)$  and a prediction for  $\theta_{13}$ ,*” at 5th Meeting EuroGDR Supersymmetry 2005, Nov. 2-5, 2005, Barcelona, Spain;
38. “*Gauge and modulus inflation from 5D orbifold SUGRA,*” at Planck 05, 8th European Meeting “From The Planck Scale To The Electroweak Scale”, May 23-28, 2005, Trieste, Italy;
39. “*Gauge inflation from 5D orbifold SUGRA,*” at XVII Workshop - Beyond the Standard Model, March 14-17, 2005, Bad Honnef, Germany;
40. “*Bilarge neutrino mixings and suppressed  $\theta_{13}$  in a democratic approach,*” at Planck 04, 7th European Meeting “From The Planck Scale To The Electroweak Scale”, May 24-28, 2004, Bad Honnef, Germany;
41. “*Why is the  $\theta_{13}$  small?,*” at XVI Workshop - Beyond the Standard Model, March 8-11, 2004, Bad Honnef, Germany;
42. “*Phenomenology of Orbifold GUTs,*” Invited talk at DESY Theory Workshop “GUTs & Branes”, September 23-26, 2003. DESY, Hamburg, Germany.
43. “*Orbifold GUTs And Some Phenomenological Implications,*” at Planck 03, 6th European Meeting “From The Planck Scale To The Electroweak Scale”, May 26-31, 2003, Madrid, Spain;
44. “*Large neutrino mixings in MSSM and beyond,*” at 3<sup>rd</sup> Tropical Workshop on Particle Physics and Cosmology. August 19-23, 2002, San Juan, Puerto Rico;
45. “*Orbifold Constructions - a Natural Way for Building GUTs,*” at SUSY’02 - The 10<sup>th</sup> International Conference on Supersymmetry and Unification of Fundamental Interactions. June 17-23, 2002, DESY Hamburg, Germany;
46. “*Phenomenology and unification of some orbifold 5D SUSY models,*” at XIV Workshop - Beyond the Standard Model, March 11-14, 2002, Bad Honnef, Germany;
47. “*Predictive texture of realistic neutrino mixings,*” at The 3<sup>rd</sup> Workshop on “Neutrino Oscillations and their Origin” (NOON2001). Tokyo, Kashiwa, Japan, Dec. 5-8, 2001;
48. “*Low scale theories: Light neutrinos and unification of gauge couplings,*” at SUSY’01 - The 9<sup>th</sup> international Conference on Supersymmetry and Unification of Fundamental Interactions. Dubna (JINR), Russia, June 11-17, 2001;
49. “*Axionic domain wall and warped geometry,*” at Workshop: SUSY Models and String Theory in Cosmology, April 4-7, 2001, Heidelberg, Germany;
50. “*Flavor problem, proton decay and neutrino oscillations in SUSY models with anomalous  $U(1)$ ,*” at Modern trends in Cosmology and Particle Physics; Sept. 10-15, 2000, Tbilisi, Georgia;

51. “*Bi-maximal neutrino mixing and anomalous flavor  $U(1)$ ,*” at NATO Advanced Study Institute 2000, Recent Developments in Particle Physics and Cosmology, Cascais - Portugal, 26.06-7.07, 2000;
52. “ *$U(1)$  flavor symmetry: natural fermion mass hierarchies and large neutrino mixings,*” at I. Vashakidze Workshop in Theoretical Physics, Tbilisi - Georgia, 1999;
53. “*Missing doublet multiplet as the origin of the  $DT$  splitting in  $SUSY SU(6)$ ,*” at International Workshop “Standard Model and Beyond”, Tbilisi - Georgia, 1996;
54. “ *$SUSY SU(6)$  GUTs with no gauge hierarchy problem,*” at International Seminar Quarks-96, Yaroslavl - Russia, 1996.

### Attending Schools and Workshops

1. ISOUPS 2013 (International Symposium: Opportunities in Underground Physics for Snowmass), 24-27 May, 2013, Asilomar, California;
2. DUSEL Theory Workshop. April 4-6, 2008, Ohio, USA;
3. Cosmo-03, International Workshop on Particle Physics and the Early Universe. August 25-29, 2003, Ambleside, Lake District, UK;
4. XV Workshop - Beyond the Standard Model, March 9-13, 2003, Bad Honnef, Germany;
5. International Workshop “Strong and Electroweak Matter 2002”. October 2-5, 2002 (local co-organizer), Heidelberg, Germany;
6. Strings 2002, Cambridge, July 15-20, 2002;
7. Summer School in High Energy Physics and Cosmology, Trieste - Italy, 1998;
8. Summer School in High Energy Physics and Cosmology, Trieste - Italy, 1997.

### Talks and Seminars

Popular lecture in Particle Physics at Ilia State University (December 2, 2023);  
 Popular lecture at Komarov high school (November 24, 2023)  
 High Energy Seminar, Oklahoma St. Univ., Stillwater, USA. (July 18, 2023);  
 Popular Lecture at Academy of Modern Education, Tbilisi (June 6, 2022);  
 Physics Colloquium at Ilia State University (December 1, 2015);  
 Physics Colloquium at Oklahoma State University (November 5, 2015);  
 Oklahoma High Energy Physics Seminar (November 5, 2015);  
 Colloquium at Ilia State university (November 29, 2013);  
 Public (popular) lecture at Ilia State University (February 2, 2013);  
 Faculty of Arts & Sci, Ilia State university (April 26, 2012);  
 Institute for Theoretical Physics, Heidelberg, Germany (Nov 16, 2011);  
 IPNL, Universite’ de Lyon, France, (Nov 2, 2011);  
 High Energy Physics Group, Oklahoma State University, Stillwater, USA (July 19, 2011);  
 Andronikashvili Inst. of Physics, Tbilisi, Georgia (March 7, 2011; March 4, 2010);  
 Bartol Research Inst., Univ. of Delaware, Newark, DE, USA (Oct 13, 2008);  
 Oklahoma State University, Stillwater, OK, USA (Oct. 4 & 23, 2007; Sept. 9, Oct 23, 2008);  
 University of New Mexico, Albuquerque, NM, USA (March 23, 2007);  
 Oklahoma State University, Stillwater, OK, USA (October 3, November 16, 2006);  
 Catholic University of Louvain, Louvain-la-Neuve, Belgium, (February 22, 2006);  
 Bartol Research Inst., Univ. of Delaware, Newark, DE, USA (Jan, 06; Oct, 99; Nov, 98);  
 University of Valencia, Spain (January 16, 2006);  
 University of Milan, INFN, Milan, Italy (January 12, 2006);  
 The Theoretical Physics Center at University of Porto, Portugal (November 11, 2005);  
 CERN Theory Division, Geneva, Switzerland (March 3, 2005; February 18, 2000);  
 Institute of Physics, Tbilisi, Georgia (2003, 2000, 1997, 1995);



Institute of Theoretical Physics, Heidelberg University, Germany (2003; October 31, 2001);  
Ecole Polytechnique, Center of Theoretical Physics (February, 2000);  
Orsay Theoretical Physics Laboratory, Univ. Paris-Sud 11, Paris (February 2000);  
A. Razmadze Mathematical Institute, Tbilisi, Georgia (1999);  
INFN Section, University of Ferrara, Italy, (1997, 1995);  
International Centre for Theoretical Physics, Trieste, Italy (1995).

## List of Publications

### Articles in Referred Journals

#### After 2013

1. Z. Tavartkiladze, "SM extension with a gauged flavor  $U(1)_F$  symmetry," Phys. Rev. D **106** (2022) no.11, 115002.
2. Z. Tavartkiladze, "Higgs-Squark-Slepton Inflation from the MSSM," Phys. Rev. D **101** (2020) no.5, 055027.
3. Z. Tavartkiladze, "Chaotic Inflation from the MSSM Along Flat  $D$ -Term Trajectory," Phys. Rev. D **100** (2019) no.9, 095027.
4. Z. Tavartkiladze, "Light Pseudo-Goldstone Higgs Boson from  $SO(10)$  GUT with Realistic Phenomenology," Phys. Rev. D **98** (2018) no.1, 015013.
5. A. Achelashvili and Z. Tavartkiladze, "Texture Zero Neutrino Models and Their Connection with Resonant Leptogenesis," Nucl. Phys. B **929** (2018), 21-57.
6. A. Achelashvili and Z. Tavartkiladze, "Calculable Cosmological CP Violation and Resonant Leptogenesis," Phys. Rev. D **96** (2017) no.1, 015015.
7. L. Megrelidze and Z. Tavartkiladze, "Soft See-Saw: Radiative Origin of Neutrino Masses in SUSY Theories," Nucl. Phys. B **914** (2017) 553.
8. A. Achelashvili and Z. Tavartkiladze, "Neutrino mass matrices from two zero  $3 \times 2$  Yukawa textures and minimal  $d = 5$  entries," Int. J. Mod. Phys. A **31** (2016) no.13, 1650077.
9. Z. Tavartkiladze, "Twin-unified  $SU(5)$   $SU(5)$  GUT and phenomenology," Pramana **86** (2016) no.2, 281.
10. F. Paccetti Correia, M. G. Schmidt and Z. Tavartkiladze, "Natural Inflation from 5D SUGRA and Low Reheat Temperature," Nucl. Phys. B **898** (2015) 173.
11. Z. Tavartkiladze, " $SU(5) \times SU(5)'$  unification and  $D_2$  parity: Model for composite leptons," Phys. Rev. D **90** (2014) 1, 015022.
12. Z. Tavartkiladze, "Three Family  $SU(5)$  GUT and Inverted Neutrino Mass Hierarchy," Phys. Rev. D **87** (2013) 075026.

#### From 1995 to 2013

13. K. S. Babu, B. Bajc and Z. Tavartkiladze, "Realistic Fermion Masses and Nucleon Decay Rates in SUSY  $SU(5)$  with Vector-Like Matter," Phys. Rev. D **86** (2012) 075005.
14. Z. Tavartkiladze, "New Flavor  $U(1)_F$  Symmetry for SUSY  $SU(5)$ ," Phys. Lett. B **706** (2012) 398.

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