

Tina Kakhniashvili (aka Tinatin Kakhniashvili) თინათინ კახნიაშვილი

Curriculum Vita

Personal Data

Contact Information

Address: Department of Cosmology and Gravitation, Space Research Institute, Ilia State University,
3-5 Kakutsa Cholokashvili eve, Tbilisi, GE-0179, Georgia
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Education & Training

- 2000: Doctor of Sciences (*Habilitation*) in Physical and Mathematical Sciences,
Thesis: “*Cosmic Microwave Background Anisotropies and Large Scale Structure Formation*”,
Lebedev Physics Institute (FIAN) of Russian Academy of Sciences, Russia
- 1999: Senior Doctorate Fellowship at Astro-Space Center of Russian Academy of Sciences
- 1988: Ph.D. in Physics, Space Research Institute of Russian Academy of Sciences, Russia
Thesis “*Gravitational Instability in the Universe with Weakly Interacting Particles*”
Supervisors: Profs. V.N. Lukash and I. D. Novikov,
- 1984: M.S. in Physics with Highest Honor (Theoretical Physics), Tbilisi State University,
Georgia
Thesis “*Gauge Invariant Theory of Gravitational Perturbations*”
Supervisor: Prof. V.N. Lukash, completed through Student Research (Diploma)
Fellowship at Space Research Institute (IKI) Russian Academy of Sciences, Russia
- 1984: B.S. in Physics with Highest Honor (Theoretical Physics), Tbilisi State University, Georgia

Affiliations

Current Positions

- 2013 (Jul) – present: Associate research professor, Carnegie Mellon University, USA
- 2010 (Oct) – present: Professor of physics and astronomy, Ilia State University, Georgia
- 2007 (Jan) – present: Main scientist, Abastumani Astrophysical Observatory, Georgia

Previous Positions

- 2008 – 2010: Associate professor, Department of Physics, Ilia State University, Georgia
- 2006 – 2008: Research scientist, CCPP, New York University, USA
- 2005 – 2006: Associate research professor, Department of Physics, Kansas State University, USA
- 2003 – 2005: Research associate, Department of Physics, Kansas State University, USA
- 2002 – 2007: Leading staff scientist, Abastumani Astrophysical Observatory, Georgia
- 1993 – 2002: Senior research-scientist, Abastumani Astrophysical Observatory, Georgia
- 1988 – 1993: Researcher, Abastumani Astrophysical Observatory, Georgia

Visiting Positions

- 2010 – 2012: Visiting research professor, Carnegie Mellon University, USA
- 2009 – 2010: Visiting professor, Department of Physics, Carnegie Mellon University, USA
- 2007 – 2008: Visiting professor, Department of Physics, Kansas State University, USA
- 2006 – 2021: Adjunct professor, Department of Physics, Laurentian University, Canada
- 2000 – 2002: Visiting professor, Department of Physics and Astronomy, Rutgers University, USA

1998 – 2000: Visiting scientist, Department of Physics, Geneva University, Switzerland

1996 – 1998: Visiting scientist, SISSA, Italy

1996 – 1997: Visiting scientist, International Center for Theoretical Physics, Italy

Memberships

American Physical Society

American Astronomical Society

International Astronomical Union (IAU)

Language Knowledge

Georgian (native), English, French, Russian

Research Interests

Theoretical Cosmology

Cosmic Microwave Background; Fundamental Symmetries Tests; Early Universe (Generation of Perturbations); Gravitational Waves; Cosmological Magnetic Fields; Large-Scale Structure Formation; Neutrinos in Cosmology; Dark Energy and Dark Matter Interactions; Modified Gravity

Astro-particle Physics/High Energy Astrophysics/Fluid Dynamics

Cosmic Magnetic Fields; Hydro and MHD Turbulence; Gamma Ray Bursts; Cosmic Rays

Awards and Fellowships

2023: Shota Rustaveli National Science Foundation of Georgia Award for Science Outreach for High Schools Students

2022: Shota Rustaveli National Science Foundation of Georgia Award for Science Outreach for High Schools Students

2022 – 2023: Institutional Development Award, Ilia State University, Georgia

2014 – 2021: Senior Associate Membership, International Center for Theoretical Physics (ICTP), Italy

2015 – 2019: Travel Awards, Shota Rustaveli National Science Foundation of Georgia

2013: American Physical Society, Outstanding Referee, USA

2013: Berkman Foundation for research project “New Physics at Hubble Horizon Scales”, USA

2006 – 2013: Regular Associate Membership, International Center for Theoretical Physics (ICTP), Italy

2006 – 2007: James Arthur Fellowship, CCPP, New York University, USA

2000 – 2001: COBASE NSF, Visiting Scientist Fellowship, Rutgers University, USA

Grants (while at IliaUni)

- **Principal Investigator:** National Science Foundation, Astronomy and Astrophysics Research Grants – AAG (USA); *“Collaborative Research: A Comprehensive Theoretical Study of Cosmological Magnetic Fields Magnetic Fields and Turbulence from the Early till Late Universe.”*, 2023 – 2026
- **Principal Investigator:** NASA Astrophysics Theory Program – ATP (USA); *“Gravitational Waves as a Probe of the Early Universe”*, 2022 – 2025
- **Co-Investigator:** Shota Rustaveli National Science Foundation of Georgia (Georgia); *“Testing Beyond the Standard Model of Cosmology: Fundamental Symmetries and Gravity”*, 2019 – 2022 (\$100K); PI: Michael Maziashvili
- **Co-Investigator:** Swedish National Council (Sweden); *“Stochastic Gravitational Waves from the Early Turbulent Universe”*, 2019 – 2023; PI: Axel Brandenburg

- Principal Investigator: Shota Rustaveli National Science Foundation of Georgia – SRNSF (Georgia); *“Cosmic Magnetic Fields and Gravitational Waves”*, 2019 - 2022
- Principal Investigator: National Science Foundation, Astronomy and Astrophysics Research Grants – AAG (USA); *“Collaborative Research: A Comprehensive Theoretical Study of Cosmic Magnetic Fields: Their Origin, Evolution, and Signatures”*, 2016 – 2019
- Principal Investigator: Shota Rustaveli National Science Foundation of Georgia – SRNSF (Georgia) *“Magnetic Fields in the Universe: Origin, Evolution, and Signatures”*, 2015 – 2018
- Co-Principal Investigator: Shota Rustaveli National Science Foundation of Georgia –SRNSF (Georgia); *“Testing Modified Gravity through Large-Scale Structure Observations”*, 2015 – 2018; PI: Lado Samushia
- Principal Investigator: Georgian team leader, Scientific Co-operation Program between Eastern Europe and Switzerland – SCOPES (Switzerland); *“Cosmological Magnetic Fields: Origin, Evolution, and Signatures”*, 2014 – 2018; Leading PI: Ruth Durrer
- Principal Investigator: National Science Foundation, Astronomy and Astrophysics Research Grants – AAG (USA); *“Collaborative research: Cosmic Magnetic Fields: Origin, Evolution, and Signatures”*, 2011 – 2015
- Principal Investigator, Berkman Foundation, CMU (USA); *“New Physics at Hubble Horizon Scales”*, 2014 – 2015
- Principal Investigator: NASA Astrophysics Theory – ATP (USA); *“Probing Cosmological Symmetry Breaking with the Cosmic Microwave Background”*, 2010 – 2012
- Principal Investigator: Georgian team leader, Scientific Co-operation Program between Eastern Europe and Switzerland – SCOPES (Switzerland); *“Testing Fundamental Physics with Cosmology”*, 2009 – 2012; Leading PI: Mikhail Shaposhnikov
- Principal Investigator: Georgian National Science Foundation – GNSF (Georgia) *“Cosmological Signatures of Symmetry Breaking in the Early Universe”*, 2009 – 2012
- Principal Investigator: Georgian team leader, INTAS (European Union); *“Testing Space-Time Symmetry Breaking in the Early Universe with the Cosmic Microwave Background and with Sources of High Frequency Radiation”* 2006 – 2010; Leading PI: Mark Hindmarsh

Teaching Experience (while at IliaUni)

Graduate Level

- Introductory Astrophysics; Carnegie Mellon University, USA (2021, 2022)
- Introduction to Mathematical Physics I; Carnegie Mellon University, USA (2020, 2021, 2022)
- Introduction to Theoretical Physics II: Gravitational Waves, Carnegie Mellon University, USA (2020)
- Gravitational Waves Physics; Ilia State University, Georgia (2023)
- Mathematical Physics: Problems and Application, Ilia State University, Georgia (2020)
- Physical Cosmology II, Ilia State University, Georgia (2017, 2018, 2019, 2020)
- Physical Cosmology I, Ilia State University, Georgia (2015, 2017, 2018, 2019, 2020)
- General Relativity, Ilia State University, Georgia (2015, 2019, 2022)
- Advanced Topics in Cosmology, Ilia State University, Georgia (2013)
- Cosmology and Astrophysics through Problems, Ilia State University, Georgia (2012, 2014)
- Introduction to Astrophysics, Carnegie Mellon University, USA (2009)
- Astrophysics, Ilia State University, Georgia (2008, 2010)

Undergraduate Level

- Mathematical Methods in Physics (co-teaching), Carnegie Mellon University (2019)
- Introduction to Cosmology, Ilia State University, Georgia (2018)
- Brief Course in Cosmology, Ilia State University, Georgia (2017)
- General Relativity/Cosmology, special (un-formal) course, Carnegie Mellon University (2016)
- General Physics I and II, Ilia State University, Georgia (2011, 2012)
- Understanding Our Universe, Ilia State University, Georgia (2010, 2014)

Educational and Professional Activities (while at IliaUni)

Graduate Student Supervising

- 2023 – present: Ph. D. co-advisor – Vakhtang Tsintzabadze, Ilia State University, Georgia
- 2022 – present: Ph. D. advisor – Murman Gurgendize, Carnegie Mellon University, USA
- 2020 – present: Ph.D. advisor – Emma Clarke, Carnegie Mellon University, USA
- 2018 – present: Ph.D. advisor – Salome Mtchedlidze, Gottingen University, Germany & Ilia State University, Georgia
- 2019 – 2021: M.S. thesis advisor for Giorgi Vasadze, Ilia State University, Georgia
- 2017 – 2020: Ph.D. co-advisor – Alberto Roper Pol, University of Colorado at Boulder, USA
- 2016 – 2020: Ph.D. advisor – Sayan Mandal, Carnegie Mellon University, USA
- 2017 – 2018: Research advisor (Intro-Research II) – Olga Navros, Carnegie Mellon University, USA
- 2017 – 2018: M.S. advisor for Claire Huang, Carnegie Mellon University, USA
- 2014 – 2015: Research advisor (Intro-Research II) – Dacen Waters, Carnegie Mellon University, USA
- 2014 – 2015: Research advisor (Intro-Research II) – Victoria Merten, Carnegie Mellon University, USA
- 2014: Research advisor (Intro-Research II) – Alexa Johnson, Carnegie Mellon University, USA
- 2013 – 2019: Ph. D. advisor – Olga Avsajanishvili, Ilia State University, Georgia
- 2010 – 2011: M.S. co-advisor – Tyler August, Laurentian University, Canada

Undergraduate Student Supervising

- 2023 – present: Min Yeong Choi, Carnegie Mellon University, USA
- 2022 – present: Luke Sherozia, Trinity College, UK
- 2022 – present: Ved Kenjale, Carnegie Mellon University, USA
- 2022 – present: Jacob Magallanes, Carnegie Mellon University, USA
- 2022 – present: Guotong Sun, Carnegie Mellon University, USA
- 2020 – 2022: Jonathan Stepp, Carnegie Mellon University, USA
- 2020 – 2021: Saba Shalamberidze, Carnegie Mellon University, USA
- 2018 – 2019: Paul Rogozetski, Carnegie Mellon University, USA
- 2017 – 2018: Fabian Aristibal, Carnegie Mellon University, USA
- 2016 – 2017: Claire Huang, Carnegie Mellon University, USA
- 2016 – 2017: Research advisor for Claire Huang, Carnegie Mellon University, USA
- 2015 – 2016: Winston Yin, Carnegie Mellon University, USA
- 2013 – 2015: Arjun Kar, Carnegie Mellon University, USA
- 2012 – 2013: Andrew McKinney, Carnegie Mellon University, USA

Collaborations (while at IliaUni)

Post-Doctoral Collaborators

- 2017 – 2018: Andrea Bracco, NORDITA, Sweden (now scientist at Ecole Normale, France)
- 2014 – 2015: Simone Aiola, University of Pittsburgh (now research scientist at Flatiron Institute, USA)

2013 – 2015: Jennifer Schober, EPFL-Lausanne, Switzerland (now faculty at EPFL, Switzerland)
 2012 – 2013: Nick Battaglia, Carnegie Mellon University, USA (now faculty at Cornell, USA)
 2011 – 2015: Nishant Agarwal, Carnegie Mellon University, USA (now faculty at UMass Lowell, USA)
 2010 – 2014: Lado Samushia, KSU, USA (now faculty at Kansas State University, USA)
 2010 – 2013: Aravind Natarajan, Carnegie Mellon University, USA (now in industry, USA)
 2009 – 2013: Leonardo Campanelli, INFN Bari, Italy (now faculty in All Saints University, Canada)
 2008 – 2010: Grigol Gogoberidze, Ilia State University, Georgia (now faculty at Ilia State University, Georgia)

Senior Collaborators/Co-Authors

- Alexey Boyarsky, Leiden University, Netherlands
- Axel Brandenburg, Nordita, Sweden
- Gennady Chitov, Laurentian University, Canada
- Rupert Croft, Carnegie Mellon University, USA
- Ruth Durrer, Geneva University, Switzerland,
- Jurg Frohlich, ETH-Zurich, Switzerland
- Leonard Kisslinger, Carnegie Mellon University, USA
- Nathan Kleeorin, Ben-Gurion University, Israel
- Arthur Kosowsky, University of Pittsburgh, USA
- George Lavrelashvili, Mathematics Institute, Tbilisi State University, Georgia
- Andrew Long, Rice University, USA
- Yurii Maravin, Kansas State University, USA
- Shinji Mukohyama, Kyoto University, Japan
- Jens Niemeyer, Göttingen University, Germany
- Andrii Neronov, Geneva University, Switzerland
- Bharat Ratra, Kansas State University, USA
- Igor Rogachevski, Ben-Gurion University, Israel
- Oleg Rogachevski, Niels Bohr Institute, Denmark
- Alexander Tevzadze, Kutaisi International University, Georgia
- Lado Samushia, Kansas State University, USA
- Tanmay Vachaspati, Arizona State University, USA

Synergistic Activities (while at IliaUni)

Relevant Experience and Activities

2023 – 2024: Organization of the 15-Weeks School for High School Students, Georgia
 2022 – 2023: Organization of the 15-Weeks School for High School Students, Georgia
 2022: Lecturer, NORDITA Winter School “Waves in Astrophysics: Gravitational Waves”, Sweden
 2021 – present: Member of the Scientific Council at Abastumani Observatory, Georgia
 2021 – present: Lead Faculty of Cosmology and Gravitation Department, Ilia State University, Georgia
 2019: Scientific Organization Committee Member, TEXAS Symposium for Relativistic Astrophysics
 2019: Organization of NORDITA workshop “Gravitational Waves from the Early Universe”, Sweden
 2018 – present: Member of the Editorial Board of “Universe” Journal
 2017 – 2019: Guest Editor of Classical and Quantum Gravity, special issue “Cosmic Magnetic Fields”

- 2015: Chair for the parallel session “Cosmological Magnetic Fields” of the TEXAS Symposium on Relativistic Astrophysics
- 2015: Leading Guest Editor for *Advanced in Astronomy*, Special issue: “Cosmic Magnetism”
- 2015: Organization of NORDITA workshop “Cosmological Magnetic Fields: Origin, Evolution, and Signatures”, Sweden
- 2014 – 2021: Senior Associate Member, International Center for Theoretical Physics (ICTP), Italy
- 2012: Member of local organizing committee for the “Accelerated Universe”, USA
- 2010 – present: Member of Scientific NSF (Graduate Fellowships) Panels, USA
- 2010 – present: Member of Scientific NASA (ATP & Postgraduate Fellowship & ADAP) Panels, USA
- 2009 – 2011: Organization of Astro-Lunch seminars at CMU, USA
- 2007 – 2011: Member of Editorial Board “Open Astronomy” Journal
- 2006 – 2013: Regular Associate Member, International Center for Theoretical Physics (ICTP), Italy
- 2006 – 2007: Member of the Scientific Council at Abastumani Observatory, Georgia
- 2004 – present: Member of Ph.D. Degree Committee in Physics and Astronomy, Georgia
- 2004 – present: Referee for: *Physical Review D*, *Physical Review Letters*, *Science*, *MNRAS*, *JCAP*, *Physics Letters B*, *Astrophysical Journal*, *Annals of Physics*, *Advances in Astronomy*, *Universe*, and *Physics A*, *Nature*

Outreach Activities:

- 2022 – 2023 : Lecturer – *School “Understanding Our Universe”*, (for high School Students), Georgia
- 2021: Symposium for Cosmology and particle Physics, remote, Georgia
- 2020: CMU senior colloquium “*Understanding Our Universe*”, USA
- 2019: CMU undergraduate colloquium “*Mapping the Universe*”, USA
- 2019: Public lecture at Ilia State University “*How Do We Observe the Universe*”, Georgia
- 2018: Public lecture at Ilia State University “*The Early Universe Viewed in Gravitational Waves*”, Georgia
- 2018: CMU undergraduate colloquium “*Challenges of Modern Cosmology*”, USA
- 2018: Public lecture at Ilia State University “*The Beginning of the Universe*”, Georgia
- 2017: Six short lectures on “*Space-Time, Gravity, and Universe*”, Georgia
- 2017: Junior Colloquium “*Mapping the Universe*”, CMU, USA
- 2017: Public lecture at Ilia State University “*Turbulence: Earth, Sun, Galaxies, and Universe*”, Georgia
- 2017: Public lecture at Ilia State University “*The Birth of the Universe: Myths and Reality*”, Georgia
- 2017: Invited lecture at Georgian Academy of Sciences “*Gravitational Waves: A New Window to the Universe*”, Georgia
- 2016: Public lecture at Caucasus University “*The Universe: Looking Backward – Looking Forward*”, (Georgia)
- 2016: CMU Introduction to Research I Lecture: “*Challenges of the Early Universe Cosmology*”, USA
- 2016: White House Star Party (participant), Allegheny Observatory, USA
- 2016: Public lecture at Ilia State University “*Gravitational Radiation: A Window to the Universe*”, Georgia
- 2015: CMU Introduction to Research I Lecture “*Challenges of the Early Universe Cosmology*”, USA
- 2015: Public lecture at Ilia State University “*Origin of Cosmic Magnetism*”, Georgia
- 2014: CMU Introduction to Research I Lecture “*Challenges of the Early Universe Cosmology*”, USA
- 2014: Public lecture at Tbilisi State University “*Cosmic Magnetic Fields*”, Georgia
- 2014: CMU Undergrad Colloquium “*Mapping the Early Universe: Cosmic Microwave Background*”, USA
- 2014: Public lecture at Ilia State University, “*Reconstructing the Very Early Universe*”, Georgia
- 2013: CMU Introduction to Research I Lecture “*Reconstructing the Early Universe*”, USA
- 2013: Public lecture at Abastumani Observatory (Georgia) “*The Very Early Universe*”, Georgia

- 2012: CMU Introduction to Research I Lecture “*Understanding Cosmic Magnetism*”, USA
- 2012: Lectures for High School Science Camp “*The Brief History of the Universe*”, Georgia
- 2012: Public lectures at Allegheny Observatory “*Looking Backward – Looking Forward*”, USA
- 2012: CMU Undergrad Colloquium “*Understanding Cosmic Magnetism*”, USA)
- 2011: CMU Introduction to Research I Lecture “*Cosmic Magnetic Fields: Origin, Evolution, and Signatures*”, USA
- 2011: Public lecture at Georgian National Science Foundation “*Understanding Our Universe*”, Georgia
- 2010: Public lecture at Abastumani Astrophysical Observatory “*Looking Backward from Where Our Universe Begins*”, Georgia
- 2009: CMU Introduction to Research I Lecture “*The Early Universe Cosmology*”, USA

Collaboration Visits:

- 2023: NORDITA and Stockholm University, Sweden
- 2023: Kent University, USA
- 2023: University of Geneva, Switzerland
- 2022: NORDITA, Sweden
- 2020 & 2021: visits at ICTP (Italy), NORDITA (Sweden) have been cancelled due to COVID-19
- 2019: University of California at San Diego, USA
- 2019: Gottingen University, Germany
- 2019: NORDITA, Sweden
- 2019: International Center for Theoretical Physics, Italy
- 2018: NORDITA, Sweden
- 2018: International Center for Theoretical Physics, Italy
- 2018: Department of Theoretical Physics, Geneva University, Switzerland
- 2017: Department of Theoretical Physics, Geneva University, Switzerland
- 2017: Department of Physics, Laurentian University, Canada
- 2016: Department of Theoretical Physics, Geneva University, Switzerland
- 2016: Department of Physics, New York University, USA
- 2016: International Center for Theoretical Physics, Italy
- 2015: Department of Physics, New York University, USA
- 2014: NORDITA, Sweden
- 2014: Department of Theoretical Physics, Geneva University, Switzerland
- 2014: International Center for Theoretical Physics, Italy
- 2013: International Center for Theoretical Physics, Italy
- 2013: Theoretical Division, CERN, Switzerland
- 2013: Cosmology Initiative Center, Arizona State University, USA
- 2012: International Center for Theoretical Physics, Italy
- 2012: Department of Physics, New York University, USA
- 2011: International Center for Theoretical Physics, Italy
- 2011: Department of Physics, Bari University, Italy
- 2011: Saclay and AIP, France
- 2010: International Center for Theoretical Physics, Italy
- 2009: NORDITA, Sweden
- 2009: International Center for Theoretical Physics, Italy

Presentations (while at IliaUni)

Colloquia, Invited Guest Talks, and Seminars at Universities and National Laboratories

- 2023: “Probing Fundamental Symmetries through Cosmology”, Kent University, USA (seminar)
- 2023: “Probing Fundamental Symmetries through Cosmology”, NORDITA, Sweden (seminar)

- 2023: "Challenges and Puzzles of Understanding Gravitational Waves from the Early Universe", Geneva University, Switzerland (seminar)
- 2022: "Gravitational Waves from the Early Universe", Stockholm University, Sweden (colloquium)
- 2022: "Observational Signatures of Cosmological Magnetic Fields", Stony Brook University, USA (seminar via zoom)
- 2022: "Gravitational Waves from the Early Universe", Abastumani Astrophysical Observatory, Georgia (seminar)
- 2021: "Can We Observe QCD Phase Transitions Generated Gravitational Waves through Pulsar Timing Array: Part I: Modeling Turbulence", NANOGrav, USA (talk via zoom)
- 2021: "Gravitational Waves from the Early Universe Turbulence: LISA Prospects", Geneva University, Switzerland (seminar via zoom)
- 2021: "Gravitational Waves from the Early Universe Turbulent Sources: Part I", Geneva University, Switzerland (seminar via zoom)
- 2021: "Probing the Early Universe through Gravitational Waves", Arizona State University, USA (seminar via zoom)
- 2020: "Circular Polarization of Gravitational Waves", Theory Seminar, CMU, USA (via zoom)
- 2020: "Circular Polarization of Gravitational Waves from the Early-Universe Sources", ICTP, Italy (HEP/Cosmology seminar, via zoom)
- 2019: "Primordial Magnetic Fields: Origin, Evolution, and Signatures", Gottingen University, Germany (colloquium)
- 2019: "Gravitational Wave Signal from Early Universe Turbulence", UC San Diego, USA (seminar)
- 2018: "Challenges of Modern Cosmology", National Academy of Sciences, Georgia (invited talk)
- 2018: "Gravitational Waves from the Early Universe", Carnegie Mellon University, USA (seminar)
- 2018: "Gravitational Wave Signal from the Early Universe: Phase Transitions", UMass-Lowell, USA (seminar)
- 2017: "Gravitational Waves – A New Window to the Universe", University of Pittsburgh, USA (seminar)
- 2017: "Gravitational Waves: the Window to the Universe", Laurentian University, Canada (colloquium)
- 2017: "Inflationary Magnetic Fields and Its Signatures", Geneva University, Switzerland (seminar)
- 2016: "Cosmic Magnetic Fields: Origin, Evolution, and Signatures", Ilia State University, Georgia (colloquium)
- 2016: "Gravitational Waves – A New Window to the Universe", National Academy of Sciences, Georgia (invited talk)
- 2016: "Mapping the Early Universe through Gravitational Waves", Kent University, USA (colloquium)
- 2016: "Fundamental Symmetries, Gravity, and CMB", Kent University, USA (colloquium)
- 2016: "Evolution of Primordial Magnetic Field from Generation till Today", Geneva University, Geneva University, Switzerland (seminar)
- 2016: "Scale Invariant Helical Magnetic Fields and the Duration of Inflation", International Center for Theoretical Physics, Italy (seminar)
- 2016: "Gravitational Waves Induced by Cosmic Magnetic Fields", Arizona State University (seminar)
- 2015: "Cosmological Magnetic Fields", Abastumani Astrophysical Observatory, Georgia (colloquium)
- 2015: "Evolution of Primordial Magnetic Fields", University of Washington St. Louis, USA (seminar)
- 2015: "Cosmological Aspects of Massive Gravity", New York University, USA (seminar)
- 2015: "Cosmological Helical Magnetic Fields Evolution and Detection Prospects", Tbilisi State University, Georgia (seminar)
- 2015: "Accelerated Expansion of the Universe", Ilia State University, Georgia (colloquium)
- 2014: "Testing Fundamental Physics", Abastumani Astrophysical Observatory, Georgia (seminar)
- 2014: "Primordial Magnetic Helicity Effects on the CMB", NORDITA, Sweden (invited guest-speaker)
- 2014: "Cosmological Consequences of Massive Gravity", NORDITA, Sweden (invited guest-speaker)
- 2014: "Cosmic Magnetic Fields: Evolution and Signatures", Ilia State University, Georgia (colloquium)
- 2014: "Massive Gravity vs. Planck & BICEP2", CMU, USA (faculty lunch talk)
- 2014: "The Universe: Looking Backward – Looking Forward", Kansas State University, US (colloquium)

- 2013: "PLANCK Cosmology Results: Cosmological Magnetic Fields & CMB", City High Energy Physics and Cosmology Seminar, Tbilisi, Georgia (guest-speaker)
- 2013: "Cosmological Magnetic Fields: Theory and Observations", Arizona State University, USA (seminar)
- 2013: "Evolution of Cosmological Magnetic Fields", New York University, USA (seminar)
- 2012: "Are Extragalactic Magnetic Fields of Primordial?", University of Pittsburgh, USA (seminar)
- 2012: "Understanding Cosmic Magnetism: from the Very Early Universe till Today", Abastumani Observatory, Georgia (colloquium)
- 2012: "Cosmological Magnetic Fields", Astroparticle and Cosmology Center, France (guest-speaker)
- 2012: "Primordial MHD Turbulence", CEA-Saclay, France (seminar)
- 2011: "Precise Cosmology: Known Unknown", CMU, USA (faculty lunch talk)
- 2011: "Cosmic Magnetic Fields: Origin, Evolution, & Signatures" International Center for Theoretical Physics (ICTP), Italy (seminar)
- 2011: "Primordial Magnetic Field Signatures", Bari University, Italy (talk guest-speaker)
- 2010: "Primordial Magnetic Fields: Evolution and Observable Signatures", Case Western University, USA (seminar)
- 2009: "Testing Early Universe Physics through Gravitational Waves Astronomy", International Center for Theoretical Physics (ICTP), Italy (talk guest-speaker)
- 2009: "Phase Transition Generated Magnetic Fields", CMU, USA (seminar)
- 2009: "Gravitational Waves from the Early Universe", Laurentian University, Canada (seminar)

Conferences and Workshops

- 2023: "Chiral Plasma Instability in the Early Universe", PHENO2023, Pittsburgh, USA (talk)
- 2023: "Cosmological Magnetic Fields, Turbulence, and Gravitational Waves", NORDITA program (workshop and conference) "Toward Understanding Cosmic Magnetism", Stockholm, Sweden (invited talk)
- 2023: "Messengers from the Early Universe: Cosmological Magnetic Fields, Turbulence, Gravitational Waves", Bologna, Italy (invited talk)
- 2022: "Chiral Magnetic Fields from the Early Universe", 6th International Conference on Chirality, Vorticities and Magnetic Fields", Stony Brook, USA (invited talk)
- 2021: "Gravitational Waves from Early Universe Turbulence", DPF21 (talk via zoom)
- 2021: "Circularly Polarized Gravitational Waves from the Early Universe", COSMO21, UK (talk, zoom)
- 2021: "Can We Observe QCD Phase Transitions Generated Gravitational Waves through Pulsar Timing Array", PHENO21, Pittsburgh, USA (talk, zoom)
- 2020: "Gravitational Waves from the Early-Universe Turbulent Sources", PHENO20, Pittsburgh, USA (talk, zoom)
- 2019: "Turbulent Sources for Gravitational Waves", NORDITA 2019 workshop on "Gravitational Waves from the Early Universe", (invited talk)
- 2019: "Gravitational Waves from Early Universe Turbulence", PHENO2019, USA (talk)
- 2019: "Origins and Structure of Magnetic Fields in the Universe", Axel Brandenburg's 60th Birthday Anniversary Conference (invited talk)
- 2018: "Primordial Helical magnetic Fields: Evolution and Signatures", NORDITA 2018 workshop on "Quantum Anomalies and Chiral Magnetic Phenomena", (invited talk)
- 2018: "Magnetism in the Early Universe", IAU XXX Symposium, FM8 "New Insight in the Extragalactic Magnetic Fields" (invited talk)
- 2018: "Gravitational Wave Signal from Phase Transitions: Turbulence and Magnetic Fields", 12th International LISA Symposium (talk)
- 2017: "Cosmic Magnetic Fields: Generation, Evolution, and Signatures", TEXAS 2017 Symposium on Relativistic Astrophysics (invited talk)
- 2017: "Hydrodynamic and Magnetohydrodynamic Turbulence", Solar Conference "Our Mysterious Sun", (invited talk)

- 2017: "Cosmological Consequences of Massive Gravity", Beyond the Standard Model, Tbilisi, Georgia (invited talk)
- 2017: "Observational Signatures of Primordial MHD Turbulence", TMB2017, ICTP, Italy (invited talk)
- 2017: "Observational Signatures of Primordial Turbulence", PHENO2017, USA (invited talk/parallel session)
- 2016: "Scale Invariant Helical Magnetic Fields and the Duration of Inflation", PHENO2016, USA (talk)
- 2015: "Cosmic Magnetic Fields", summary talk for the Cosmic Magnetic Fields Session at Texas 2015 Symposium for Relativistic Astrophysics, Switzerland (invited talk)
- 2015: "Evolution of Primordial Magnetic Fields", NORDITA workshop "Cosmological Magnetic Fields: Origin, Evolution, and Signatures", Sweden (invited talk)
- 2015: "Cosmological Consequences of Massive Gravity", PHENO2015 symposium, USA (talk)
- 2014: "Constraints on Magnetic Fields from Ly-alpha Forest", ICTP workshop on "Cosmology from baryons at high redshift", Italy (ICTP senior guest scientist talk)
- 2014: "Evolution and Observational Signatures of primordial Turbulence", ICTP Workshop/School on Turbulence Mixing and Beyond, Italy (plenary invited talk)
- 2014: "Cosmological Imprints of Massive Gravity", PHENO2014 symposium, Pitt-PACC, USA (talk)
- 2013: "CMB Sky at Large Scales: Imprints of New Physics (?)" ICTP workshop "New Light in Cosmology from the CMB", Italy (ICTP regular associate member talk)
- 2013: "Large Scale Anomalies: Magnetic Fields and Massive Gravity", CERN workshop on "Cosmology and Fundamental Physics after Planck" (invited talk)
- 2013: "Cosmological Magnetic Field Effects on CMB anisotropies", Neighborhood workshop on "Cosmology and Astrophysics", USA (talk)
- 2011: "Evolution and Signatures of Primordial Magnetic Fields", ASU workshop on "Primordial Magnetic Fields", Tempe, USA (invited talk)
- 2010: "Primordial Magnetic Field Effects on the CMB", International conference on "Extragalactic Magnetic Fields", Paris, France (invited talk)
- 2010: "Evolution of Cosmological Magnetic Fields", ICTP workshop on "Plasma Physics", Italy (talk)
- 2009: "Gravitational Radiation from Electroweak Phase Transitions", NORDITA workshop on "Electroweak Phase Transitions", Sweden (invited talk)
- 2009: "Magnetic Helicity Effects", Conference "Cosmic Magnetism", Switzerland (invited talk)

Selected Referred Publications

1. S. Mchedlidze, P. Dominguez-Fernandez, X. Du, W. Schmidt, A. Brandenburg, J. Niemeyer and **T. Kahniashvili**, "Inflationary and phase-transitional primordial magnetic fields in galaxy clusters," *Astrophys. J.* **944**, 100 (2023)
DOI:[10.3847/1538-4357/acb04d](https://doi.org/10.3847/1538-4357/acb04d)
2. S. Mchedlidze, P. Dominguez-Fernandez, X. Du, A. Brandenburg, **T. Kahniashvili**, S. O'Sullivan, W. Schmidt and M. Bruggen, "Evolution of primordial magnetic fields during large-scale structure formation," *Astrophys. J.* **929**, 127 (2022);
DOI:[10.3847/1538-4357/ac5960](https://doi.org/10.3847/1538-4357/ac5960)
3. **T. Kahniashvili**, E. Clarke, J. Stepp and A. Brandenburg, "Big bang nucleosynthesis limits and relic gravitational-wave detection prospects" *Phys. Rev. Lett.* **128**, 22 (2022)
DOI:[10.1103/PhysRevLett.128.221301](https://doi.org/10.1103/PhysRevLett.128.221301)
4. A. Roper Pol, S. Mandal, A. Brandenburg, and **T. Kahniashvili**, "Polarization of gravitational waves from helical MHD turbulent sources," *JCAP* **04**, 019 (2022)
DOI:[10.1088/1475-7516/2022/04/019](https://doi.org/10.1088/1475-7516/2022/04/019)

5. A. Brandenburg, E. Clarke, Y. He, and **T. Kahniashvili**, “Can we observe the QCD phase transition-generated gravitational waves through pulsar timing arrays?”, *Phys. Rev. D.* **104**, 043513 (2021)
DOI: [10.1103/PhysRevD.104.043513](https://doi.org/10.1103/PhysRevD.104.043513)
6. A. Brandenburg, G. Gogoberidze, **T. Kahniashvili**, S. Mandal, A. Roper Pol, and N. Shenoy, “The scalar, vector, and tensor modes in gravitational wave turbulence simulations”, *CQG* **38**, 145002 (2021) DOI: [10.1088/1361-6382/ac011c](https://doi.org/10.1088/1361-6382/ac011c)
7. **T. Kahniashvili**, A. Brandenburg, G. Gogoberidze, S. Mandal, and A. Roper Pol, “Circular polarization of gravitational waves from early-universe helical turbulence”, *Phys. Rev. Res.* **3**, 013193 (2021) DOI: [10.1103/PhysRevResearch.3.013193](https://doi.org/10.1103/PhysRevResearch.3.013193)
8. A. Brandenburg, Y. He, **T. Kahniashvili**, and J. Schober, “Relic gravitational waves from the chiral magnetic effect”, *Astrophys. J.* **911**, 110 (2021)
DOI: [10.3847/1538-4357/abe4d7](https://doi.org/10.3847/1538-4357/abe4d7)
9. S. Mandal, G. Chitov, O. Avsajanishvili, B. Sigha, **T. Kahniashvili**, “Mass varying neutrinos with different quintessential potentials”, *JCAP* **05** 018 (2021)
DOI: [10.1088/1475-7516/2021/05/018](https://doi.org/10.1088/1475-7516/2021/05/018)
10. Roper Pol, S. Mandal, T. Brandenburg, **T. Kahniashvili**, A. Kosowsky, “Numerical simulations of gravitational waves from early-universe turbulence”, *Phys. Rev. D* **102**, 083512 (2020)
DOI: [10.1103/PhysRevD.102.083512](https://doi.org/10.1103/PhysRevD.102.083512)
11. A. Roper Pol, A. Brandenburg, **T. Kahniashvili**, A. Kosowsky, S. Mandal, “The timestep constraint in solving the gravitational wave equations sourced by hydromagnetic turbulence”, *Geophys. Astrophys. Fluid Dyn.* **134**, 130 (2020)
DOI: [10.1080/03091929.2019.1653460](https://doi.org/10.1080/03091929.2019.1653460)
12. A. Brandenburg, R. Durrer, Y. Huang, **T. Kahniashvili**, et al. “Primordial magnetic helicity evolution with a homogeneous magnetic field from inflation”, *Phys. Rev. D* **102** 023536 (2020)
DOI: [10.1103/PhysRevD.102.023536](https://doi.org/10.1103/PhysRevD.102.023536)
13. A. Brandenburg, **T. Kahniashvili**, S. Mandal, A. Roper Pol, A. G. Tevzadze, T. Vachaspati, “The dynamo effect in decaying helical turbulence”, *Phys. Rev. Fluid*, **4** 024608 (2019)
DOI: [10.1103/PhysRevFluids.4.024608](https://doi.org/10.1103/PhysRevFluids.4.024608)
14. A. Brandenburg, A. Bracco, **T. Kahniashvili**, S. Mandal, A. Roper Pol, G. D. Petrie, N. K. Singh, “E and B polarizations from inhomogeneous and solar surface turbulence”, *Astrophys. J.* **870**, 87 (2019)
DOI: [10.3847/1538-4357/aaf383](https://doi.org/10.3847/1538-4357/aaf383)
15. O. Avsajanishvili, C. Huang, L. Samushia, **T. Kahniashvili**, “The observational constraints on the flat Λ CDM model”, *Eur. Phys. J. C* **78**, 773 (2018)
DOI: [10.1140/epjc/s10052-018-6233-y](https://doi.org/10.1140/epjc/s10052-018-6233-y)
16. A. Brandenburg, R. Durrer, **T. Kahniashvili**, S. Mandal, W. W. Yin, “Statistical properties of scale-invariant helical magnetic fields and applications to cosmology”, *JCAP* **1808**, 034 (2018)
DOI: [10.1088/1475-7516/2018/08/034](https://doi.org/10.1088/1475-7516/2018/08/034)
17. A. Brandenburg, **T. Kahniashvili**, S. Mandal, A. Roper Pol, A. G. Tevzadze, T. Vachaspati, “Evolution of hydromagnetic turbulence from electroweak phase transitions”, *Phys. Rev. D* **96**, 123528 (2017) DOI: [10.1103/PhysRevD.96.123528](https://doi.org/10.1103/PhysRevD.96.123528)
18. A. Brandenburg, J. Schober, I. Rogachvski, **T. Kahniashvili**, et al. “The turbulent chiral magnetic cascade in the early Universe”, *Astrophys. J. Lett.* **845**, L21 (2017)
DOI: [10.3847/2041-8213/aa855d](https://doi.org/10.3847/2041-8213/aa855d)
19. **T. Kahniashvili**, A. Brandenburg, R. Durrer, A. Tevzadze, W. Yin “Scale-invariant magnetic field evolution and the duration of inflation”, *JCAP* **1712**, 002 (2017)
DOI: [10.1088/1475-7516/2017/12/002](https://doi.org/10.1088/1475-7516/2017/12/002)
20. A. Brandenburg and **T. Kahniashvili**, “Classes of hydrodynamic and magnetohydrodynamic turbulence decay”, *Phys. Rev. Lett.* **118**, 055102 (2017)
DOI: [10.1103/PhysRevLett.118.055102](https://doi.org/10.1103/PhysRevLett.118.055102)
21. **T. Kahniashvili**, A. Brandenburg and A. G. Tevzadze, “The evolution of primordial magnetic fields since its generation”, *Phys. Scripta* **91**, 104008 (2016)

- DOI: [10.1088/0031-8949/91/10/104008](https://doi.org/10.1088/0031-8949/91/10/104008)
22. S. Aiola, B. Wang, A. Kosowsky, **T. Kahniashvili**, A. Firoujahi, “*Microwave background correlations from dipole modulation*”, Phys. Rev. D **92**, 063008 (2015)
DOI: [10.1103/PhysRevD.92.063008](https://doi.org/10.1103/PhysRevD.92.063008)
 23. L. Kisslinger and **T. Kahniashvili**, “*Polarized gravitational waves from cosmological phase transitions*”, Phys. Rev. D **92**, 043006 (2015)
DOI: [10.1103/PhysRevD.92.043006](https://doi.org/10.1103/PhysRevD.92.043006)
 24. **T. Kahniashvili**, A. Kar, G. Lavrelashvili, N. Agarwal, L. Heisenberg, and A. Kosowsky, “*Cosmic expansion in extended quasidilaton massive gravity*”, Phys. Rev. D Rapid Communications, **91**, 041301 (2015)
DOI: [10.1103/PhysRevD.91.041301](https://doi.org/10.1103/PhysRevD.91.041301)
 25. A. Brandenburg, **T. Kahniashvili**, A. G. Tevzadze, “*Non-helical inverse transfer of a decaying magnetic field*”, Phys. Rev. Lett. **114**, 075001 (2015)
DOI: [10.1103/PhysRevLett.114.075001](https://doi.org/10.1103/PhysRevLett.114.075001)
 26. **T. Kahniashvili**, Yu. Maravin, G. Lavrelashvili, and A. Kosowsky, “*Primordial magnetic helicity constraints from WMAP nine-years data*”, Phys. Rev. D **90**, 083004 (2014)
DOI: [10.1103/PhysRevD.90.083004](https://doi.org/10.1103/PhysRevD.90.083004)
 27. O. Avsajanishvili, N. Arhipova, L. Samushia, **T. Kahniashvili**, “*Growth rate in dynamical dark energy models*”, Eur. Phys. J. C **74**, 11, 3127 (2014)
DOI: [10.1140/epjc/s10052-014-3127-5](https://doi.org/10.1140/epjc/s10052-014-3127-5)
 28. **T. Kahniashvili**, A. G. Tevzadze, A. Brandenburg, and A. Neronov, “*Evolution of primordial magnetic fields from phase transitions*”, Phys. Rev. D **87**, 083007 (2013)
DOI: [10.1103/PhysRevD.87.083007](https://doi.org/10.1103/PhysRevD.87.083007)
 29. **T. Kahniashvili**, Yu. Maravin, A. Natarajan, N. Battaglia, A. Tevzadze, “*Constraining primordial magnetic fields through large scale structure*”, Astrophys. J. **770**, 47 (2013)
DOI: [10.1088/0004-637X/770/1/47](https://doi.org/10.1088/0004-637X/770/1/47)
 30. L. Campanelli, G. Fogli, **T. Kahniashvili**, A. Marrone, and B. Ratra, “*Galaxy cluster number count data constraints on dark energy*”, The European Phys. J. C **72**, 2218 (2012)
DOI: [10.1140/epjc/s10052-012-2218-4](https://doi.org/10.1140/epjc/s10052-012-2218-4)
 31. **T. Kahniashvili**, A. Brandenburg, L. Campanelli, B. Ratra, A. G. Tevzadze, “*Evolution of inflation-generated magnetic field through phase transitions*”, Phys. Rev. D **86**, 103005 (2012)
DOI: [10.1103/PhysRevD.86.103005](https://doi.org/10.1103/PhysRevD.86.103005)
 32. G. Tevzadze, L. Kisslinger, A. Brandenburg, and **T. Kahniashvili**, “*Magnetic fields from QCD phase transitions*”, Astrophys. J. **759**, 54 (2012)
DOI: [10.1088/0004-637X/759/1/54](https://doi.org/10.1088/0004-637X/759/1/54)
 33. A. Kosowsky and **T. Kahniashvili**, “*The signature of local motion in the microwave sky*”, Phys. Rev. Lett. **106**, 191301 (2011)
DOI: [10.1103/PhysRevLett.106.191301](https://doi.org/10.1103/PhysRevLett.106.191301)
 34. G. Chitov, T. August, A. Natarajan, and **T. Kahniashvili**, T., “*Mass varying neutrinos, quintessence, and the accelerating expansion of the Universe*”, Phys. Rev. D **83**, 045033 (2011)
DOI: [10.1103/PhysRevD.83.045033](https://doi.org/10.1103/PhysRevD.83.045033)
 35. **T. Kahniashvili**, A. G. Tevzadze, and B. Ratra, “*Phase transition generated magnetic field at large scales*”, Astrophys. J. **726**, 78 (2011)
DOI: [10.1088/0004-637X/726/2/78](https://doi.org/10.1088/0004-637X/726/2/78)
 36. **T. Kahniashvili**, A. G. Tevzadze, S. Sethi, K. Pandey, and B. Ratra, “*Primordial magnetic field limits from cosmological data*”, Phys. Rev. D **82**, 083005 (2010)
DOI: [10.1088/0004-637X/726/2/78](https://doi.org/10.1088/0004-637X/726/2/78)
 37. **T. Kahniashvili**, A. Brandenburg, A. G. Tevzadze, and B. Ratra, “*Numerical simulations of the decay of primordial magnetic turbulence*”, Phys. Rev. D **81**, 123002 (2010)
DOI: [10.1103/PhysRevD.81.123002](https://doi.org/10.1103/PhysRevD.81.123002)

38. **T. Kahniashvili**, L. Kisslinger, T. Stevens, “*Gravitational radiation generated by the cosmological phase transitions magnetic fields*”, Phys. Rev. D **81**, 023004 (2010)
DOI: [10.1103/PhysRevD.81.023004](https://doi.org/10.1103/PhysRevD.81.023004)
39. **T. Kahniashvili**, Yu. Maravin, A. Kosowsky, “*Faraday rotation limits on a primordial magnetic field from WMAP 5-years data*”, Phys. Rev. D **80**, 023009 (2009)
DOI: [10.1103/PhysRevD.80.023009](https://doi.org/10.1103/PhysRevD.80.023009)
40. **T. Kahniashvili**, L. Campanelli, G. Gogoberidze, Yu. Maravin, and B. Ratra, “*Gravitational radiation from primordial MHD turbulence*”, Phys. Rev. D. **78**, 123006 (2008)
DOI: [10.1103/PhysRevD.78.123006](https://doi.org/10.1103/PhysRevD.78.123006)
41. **T. Kahniashvili**, R. Durrer, and Yu. Maravin, “*Testing Lorentz invariance through WMAP five years data*”, Phys. Rev. D **78** 123009 (2008)
DOI: [10.1103/PhysRevD.78.123009](https://doi.org/10.1103/PhysRevD.78.123009)
42. **T. Kahniashvili**, G. Lavrelashvili, and B. Ratra, “*CMB temperature two-point correlation functions in the universe with broken Isotropy*”, Phys. Rev. D **78**, 063012 (2008)
DOI: [10.1103/PhysRevD.78.063012](https://doi.org/10.1103/PhysRevD.78.063012)
43. **T. Kahniashvili**, A. Kosowsky, G. Gogoberidze, and Yu. Maravin, “*Detectability of gravitational waves from phase transitions*”, Phys. Rev. D **78** 043003 (2008)
DOI: [10.1103/PhysRevD.78.043003](https://doi.org/10.1103/PhysRevD.78.043003)
44. **T. Kahniashvili**, G. Gogoberidze, and B. Ratra, “*Gravitational radiation from primordial MHD turbulence*”, Phys. Rev. Lett. **100**, 231301 (2008)
DOI: [10.1103/PhysRevLett.100.231301](https://doi.org/10.1103/PhysRevLett.100.231301)
45. G. Gogoberidze, **T. Kahniashvili**, and A. Kosowsky, “*The spectrum of gravitational radiation from primordial turbulence*”, Phys. Rev. D **76**, 083002 (2007)
DOI: [10.1103/PhysRevD.76.083002](https://doi.org/10.1103/PhysRevD.76.083002)
46. V. Baukh, A. Zhuk, and **T. Kahniashvili**, “*Extra dimensions and Lorenz invariance violation*”, Phys. Rev. D **76**, 027502 (2007)
DOI: [10.1103/PhysRevD.76.027502](https://doi.org/10.1103/PhysRevD.76.027502)
47. **T. Kahniashvili**, and B. Ratra, “*CMB anisotropies due to cosmological magnetosonic waves*”, Phys. Rev. D **75**, 023002 (2007)
DOI: [10.1103/PhysRevD.75.023002](https://doi.org/10.1103/PhysRevD.75.023002)
48. **T. Kahniashvili**, G. Gogoberidze, and B. Ratra, “*Gamma ray burst constraints on ultraviolet Lorentz invariance violation*”, Phys. Lett. B **643**, 81 (2006)
DOI: [10.1016/j.physletb.2006.10.041](https://doi.org/10.1016/j.physletb.2006.10.041)
49. **T. Kahniashvili** and T. Vachaspati, “*On the detection of magnetic helicity*”, Phys. Rev. D **73** 063507 (2006)
DOI: [10.1103/PhysRevD.73.063507](https://doi.org/10.1103/PhysRevD.73.063507)
50. **T. Kahniashvili**, “*Effects of cosmological magnetic helicity*”, Astr. Nach. **327**,414 (2006)
DOI: [10.1002/asna.200610544](https://doi.org/10.1002/asna.200610544)
51. **T. Kahniashvili**, G. Gogoberidze, and B. Ratra, “*Polarized cosmological gravitational waves from primordial helical turbulence*”, Phys. Rev. Lett. **95**, 151301 (2005)
DOI: [10.1103/PhysRevLett.95.151301](https://doi.org/10.1103/PhysRevLett.95.151301)
52. **T. Kahniashvili**, and B. Ratra, “*Effects of cosmological magnetic helicity on the cosmic microwave background radiation*”, Phys. Rev. D **71**, 103006 (2005)
DOI: [10.1103/PhysRevD.71.103006](https://doi.org/10.1103/PhysRevD.71.103006)
53. **T. Kahniashvili**, “*Cosmological magnetic fields vs. CMB*”, New Astron. Rev. **49**, 79 (2005)
DOI: [10.1016/j.newar.2005.01.006](https://doi.org/10.1016/j.newar.2005.01.006)
54. **T. Kahniashvili**, “*Effects of primordial helicity on CMB*”, New Astron. Rev. **50**, 1015 (2005)
DOI: [10.1016/j.newar.2006.09.005](https://doi.org/10.1016/j.newar.2006.09.005)
55. **T. Kahniashvili**, E. von Toerne, N. Arhipova, and B. Ratra, “*Neutrino mass limit from galaxy cluster number density evolution*”, Phys. Rev. D **71**, 125009 (2005)
DOI: [10.1103/PhysRevD.71.125009](https://doi.org/10.1103/PhysRevD.71.125009)

56. A. Kosowsky, A., **T. Kahniashvili**, G. Lavrelashvili, and B. Ratra, "*Faraday rotation of cosmic microwave radiation polarization by stochastic magnetic field*", Phys. Rev. D **71**, 043006 (2004)
DOI: [10.1103/PhysRevD.71.043006](https://doi.org/10.1103/PhysRevD.71.043006)
57. G. Chen, P. Mukharjee, **T. Kahniashvili**, B. Ratra, and Yu. Wang, "*Looking for cosmological Alfvén waves in WMAP data*", Astrophys. J. **611**, 655 (2004)
DOI: [10.1086/422213](https://doi.org/10.1086/422213)
58. C. Caprini, R. Durrer, and **T. Kahniashvili**, "*Cosmic microwave background and helical magnetic fields: the tensor mode*", Phys. Rev. D **69**, 063006 (2004)
DOI: [10.1103/PhysRevD.69.063006](https://doi.org/10.1103/PhysRevD.69.063006)
59. A. Kosowsky, A. Mack, and **T. Kahniashvili**, "*Gravitational radiation from cosmological turbulence*", Phys. Rev. D **66**, 024030 (2002)
DOI: [10.1103/PhysRevD.66.024030](https://doi.org/10.1103/PhysRevD.66.024030)
60. N. Arkhipova, **T. Kahniashvili**, and V. N. Lukash, "*Abundance and evolution of galaxy clusters in cosmological models with massive neutrinos*", Astron. Astroph. **386**, 775 (2002)
DOI: [10.1051/0004-6361:20020271](https://doi.org/10.1051/0004-6361:20020271)
61. A. Mack, **T. Kahniashvili**, and A. Kosowsky, "*Vector and tensor microwave background signatures of a primordial magnetic field*", Phys. Rev. D **65**, 123004 (2002)
DOI: [10.1103/PhysRevD.65.123004](https://doi.org/10.1103/PhysRevD.65.123004)
62. R. Durrer, P. Ferreira, and **T. Kahniashvili**, "*Tensor microwave anisotropies from a stochastic magnetic field*", Phys. Rev. D **61**, 043001 (2000)
DOI: [10.1103/PhysRevD.61.043001](https://doi.org/10.1103/PhysRevD.61.043001)
63. R. Valdarnini, **T. Kahniashvili**, and B. Novosyadlyj, "*Large scale structure formation in mixed dark matter models with a cosmological constant*", Astron. Astroph. **336**, 11 (1998)
Bibcode: [1998A&A...336...11V](https://ui.adsabs.org/1998A&A...336...11V)
64. R. Durrer, **T. Kahniashvili**, and A. Yates, "*Microwave background anisotropies from Alfvén waves*", Phys. Rev. D., **58**, 123004 (1998)
DOI: [10.1103/PhysRevD.58.123004](https://doi.org/10.1103/PhysRevD.58.123004)
65. R. Durrer, and **T. Kahniashvili**, "*CMB anisotropies caused by gravitational waves: a parameter study*", Hel. Phys. Acta **71**, 445 (1998)
Bibcode: [1998AcHPh..71..445D](https://ui.adsabs.org/1998AcHPh..71..445D)
66. **T. Kahniashvili**, G. Z. Machabeli, and I. Nanobashvili, "*Generation of the electrostatic field in the pulsar magnetosphere plasma*", Phys. Plasma, **4**, 1132 (1997)
DOI: [10.1063/1.872573](https://doi.org/10.1063/1.872573)
67. **T. Kahniashvili**, B. Novosyadlyj, B., and R. Valdarnini, "*Primordial inhomogeneities spectra in mixed dark matter models with a cosmological constant*", Hel. Phys. Acta **69**, 219 (1996)
Bibcode: [1996AcHPh..69..219K](https://ui.adsabs.org/1996AcHPh..69..219K)
68. O. Chedia, **T. Kahniashvili**, G. Z. Machabeli, and I. Nanobashvili, "*On the kinematics of a co-rotating relativistic plasma stream in the perpendicular rotator model of a pulsar magnetosphere*" Astrophys. Spa. Sci., **239**, 54 (1996)
DOI: [10.1007/BF00653766](https://doi.org/10.1007/BF00653766)