Tina Kahniashvili

Curriculum Vitae

Personal Data

Contact Information

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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 High Honor (Theoretical Physics), Tbilisi State University, Georgia
Thesis "Gauge Invariant Theory of Gravitational Perturbations"
Supervision of Prof. V.N. Lukash, completed through Student Research (Diploma)
Fellowship at Space Research Institute (IKI) Russian Academy of Sciences, Russia
1984: M.S. in Physics Education with High Honor, Tbilisi State University, Georgia
1983: B.S. in Physics with High 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
2008 (Jan) – present: Adjunct professor, Department of Physics, Laurentian University, Canada

Previous Positions

2010 – 2012: Visiting research professor, Carnegie Mellon University, USA
2009 – 2010: Visiting professor, Department of Physics, Carnegie-Mellon University, USA
2008 – 2010: Associate professor, Department of Physics, Ilia State University, Georgia
2007 – 2008: Visiting professor, Department of Physics, Kansas State University, USA
2006 – 2007: 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
2000 – 2002: Visiting professor, Department of Physics and Astronomy, Rutgers University, USA
1998 – 2000: Visiting professor, Department of Physics, Geneva University, Switzerland
1996 – 1998: Visiting scientist, SISSA, Italy
1996 – 1997: Visiting scientist, International Center for Theoretical Physics, Italy
1993 – 2002: Senior research-scientist, Abastumani Astrophysical Observatory, Georgia
1988 – 1993: Researcher, Abastumani Astrophysical Observatory, Georgia

Memberships

American Physical Society, American Astronomical Society

Language Knowledge

English, French, Russian, Georgian (native)

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 (since 2000)

2014 – 2020 Senior Associate Membership, International Center for Theoretical Physics (ICTP), Italy
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 (last 5 years)

Current Grants:

- Principal Investigator, National Science Foundation, Astronomy and Astrophysics,
  "Collaborative Research: A Comprehensive Theoretical Study of Cosmic Magnetic Fields: Their Origin, Evolution, and Signatures", 2016-2019 (725K)
  Co-Pi/Instituional PI: Axel Brandenburg, Co-I: Rupert Croft; Collaborators: Marco Ajello, Alexey Boyarsky, Francesco Miniati, Andrii Neronov, Oleg Rouchaysky, Alexander Tevzadze
- Principal Investigator, Georgian National Science Foundation (Georgia)
  "Magnetic Fields in the Universe: Origin, Evolution, and Signatures", 2015 – 2018 (100K)
- Co-Principal Investigator, Georgian National Science Foundation (Georgia)
  "Testing Modified Theories of Gravity through Large-Scale Structure Observations",
  PI: Lado Samushia, 2015 – 2018 (100K)
- Principal Investigator, Georgian team leader, Scientific Co-operation Program between Eastern Europe and Switzerland (SCOPES); Leading PI: Ruth Durrer; Joint research project
  "Cosmological Magnetic Fields: Origin, Evolution, and Signatures", 2014 – 2017 ($260K)
- Principal Investigator, Berkman Foundation, CMU
  Research project: *"New Physics at Hubble Horizon Scales",* 2014-2015 ($3K)

Previous Grants:

- Principal Investigator, National Science Foundation (USA), Astronomy & Astrophysics
  Collaborative research: *"Cosmic Magnetic Fields: Origin, Evolution, and Signatures",*
  Co-PI/Institional PIs: Arthur Kosowsky and Bharat Ratra; Collaborators: Marco Ajello, Axel Brandenburg, Francesco Miniati, Andrii Neronov, Alexander Tevzadze, 2011-2015 ($600K)
- Principal Investigator, NASA Astrophysics Theory
  "Probing Cosmological Symmetry Breaking with the Cosmic Microwave Background",
  Co-PI Arthur Kosowsky, 2010-2012 ($450K)
- Principal Investigator, Georgian team leader, Scientific Co-operation Program between Eastern Europe and Switzerland (SCOPES); Leading PI: Mikhail Shaposhnikov Joint research project
  "Testing Fundamental Physics with Cosmology, 2009 - 2012 ($240K)
- Principal Investigator, Georgian National Science Foundation
  "Cosmological Signatures of Symmetry Breaking in the Early Universe", 2009 – 2012 ($100K)
- Principal Investigator, Georgian team leader, INTAS (European Union)
  Leading PI: Mark Hindmarsh (UK)
  "Testing Space-Time Symmetry Breaking in the Early Universe with the Cosmic Microwave Background and with Sources of High Frequency Radiation" 2006 – 2009 ($150K)