

Valeri Vardanyan

Curriculum Vitae

Instituut-Lorentz
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Personal Information

Born: **November 20, 1992 in Yerevan, Armenia.**
Citizenship: **Republic of Armenia.**
Gender: **Male.**
Marital Status: **Married.**

Education

September 2015 - present **PhD, de Sitter fellow**, *Lorentz Institute and Sterrewacht Leiden, The Netherlands.*
Supervisors: Ana Achucarro and Alessandra Silvestri (Lorentz Institute, Leiden)
October 2013 - April 2015 **MSc in physics (with honors)**, *University of Heidelberg, Germany.*
Supervisor: Luca Amendola (ITP, Heidelberg)
September 2009 - May 2013 **BSc in physics (with honors)**, *Yerevan State University, Armenia.*
Supervisors: Daniel Weedman (Cornell), Aram Saharian (Yerevan State University)
2004 - 2009 **Yerevan Special Physical-Mathematical high school**, *Yerevan, Armenia.*

Work Experience

July 17 - Sep 6, 2012 **Summer student**, *DESY summer student programme 2012, Hamburg, Germany.*
December 2010 - June 2014 **Undergraduate research student**, *Byurakan Astrophysical Observatory, Armenia.*
Cosmology, Extragalactic astronomy; worked on several aspects of Active Galactic Nuclei
July 2010 - July 2013 **Undergraduate research student**, *Yerevan Physics Institute, Theory Division.*
Theoretical studies of radiation from charged particles; completed several small-scale projects
2012 - 2013 **Private teacher of sciences for high school students**, *Yerevan, Armenia.*

Main Academic Publications

11. **Y. Akrami, R. Kallosh, A. Linde, V. Vardanyan.**
"The landscape, the swampland and the era of precision cosmology",
Fortsch. Phys. (in press), arXiv:1808.09440
10. **S. Bellucci, A. A. Saharian, D. Simonyan, V. Vardanyan.**
"Fermionic currents in topologically nontrivial braneworlds",
Phys. Rev. D 98, 085020 (2018), arXiv:1808.01577
9. **Y. Akrami, Ph. Brax, A.-C. Davis, V. Vardanyan.**
"Neutron star merger GW170817 strongly constrains doubly-coupled bigravity",
Phys. Rev. D 97, 124010 (2018), arXiv:1803.09726
8. **Y. Akrami, R. Kallosh, A. Linde, V. Vardanyan.**
"Dark energy, α -attractors, and large-scale structure surveys",
JCAP 1806 (2018) 041, arXiv:1712.09693
7. **S. Bellucci, A. A. Saharian, V. Vardanyan.**
"Fermionic currents in AdS spacetime with compact dimensions",
Phys. Rev. D 96, 065025 (2017), arXiv:1707.08878

6. **V. Vardanyan, Y. Akrami, L. Amendola, A. Silvestri.**

"On nonlocally interacting metrics, and a simple proposal for cosmic acceleration",
JCAP 1803, 048 (2018), arXiv:1702.08908

5. **S. Bellucci, A. A. Saharian, V. Vardanyan.**

"Hadamard function and the vacuum currents in braneworlds with compact dimensions: Two-branes geometry",
Phys. Rev. D 93, 084011 (2016), arXiv:1512.06569

4. **S. Bellucci, A. A. Saharian, V. Vardanyan.**

"Vacuum currents in braneworlds on AdS bulk with compact dimensions",
JHEP 11 (2015) 092, arXiv:1508.07255

3. **V. Vardanyan, L. Amendola.**

"How can we tell whether dark energy is composed of multiple fields?",
Phys. Rev. D 92, 024009 (2015), arXiv:1502.05922

2. **E. R. Bezerra de Mello, A. A. Saharian, V. Vardanyan.**

"Induced vacuum currents in anti-de Sitter space with toral dimensions",
Phys. Lett. B **741** (2015) p. 155, arXiv:1410.2860

1. **V. Vardanyan, D. Weedman, L. Sargsyan.**

"Seeking the Epoch of Maximum Luminosity for Dusty Quasars",
The Astrophysical Journal, **790:88**, (2014), arXiv:1406.2002

[has been highlighted in Nature: Nature 514, 43-44 (02 October 2014), doi:10.1038/514043a]

Other (minor) publications

- **L. Gevorgian, V. Vardanyan.**

"Doppler effect in the oscillator radiation process in the medium",
Il Nuovo Cimento C, vol. 34, N. 4, (2011), p. 311, arXiv:1102.5281
(Proceedings of Channeling 2010)

- **V. Vardanyan, B. Faatz.**

"FLASH Reaching the Transition Metals",
TESLA-FEL Report 2012-03
http://flash.desy.de/reports_publications/tesla_fel_reports/tesla_fel_2012

- **L. Gevorgian, V. Vardanyan.**

"Radiation of the electron bunch moving in non-regular fields",
Proceedings of International Conference on Electron, Positron, Neutron and X-Ray Scattering
Under External Influences, (2012) p. 79, arXiv:1201.2815

- **L. Gevorgian, V. Vardanyan.**

"On the possibility of medium-energy compact x-ray free-electron laser",
Armenian Journal of Physics, vol. 5, issue 4, (2012), p. 176, arXiv:1301.5262

Conference and Seminar Talks

October 2018 **Cosmology seminar at IPhT-Saclay, Paris.**

Talk Title: " α -attractor realization of quintessential inflation in the era of precision cosmology."

June 2018 **Cosmology and Particle Physics seminar at ITP, Heidelberg.**

Talk Title: " α -attractor realization of quintessential inflation in the era of precision cosmology."

April 2018 **Euclid Theory Working Group meeting, Paris.**

Talk Title: "Propagation of gravitational waves in doubly-coupled bigravity"

December 2017 **Theory seminar at Faculty of Physics, Yerevan State University, Yerevan.**

Talk Title: "Topology and geometry induced effects on QFTs in AdS spacetimes"

May 2017 **Hot topics in Modern Cosmology, Spontaneous Workshop XI, Cargese, France.**

Talk Title: "Non-local Modifications of Gravity and Cosmic Acceleration"

- September 2016 **Cosmology and the Quantum Vacuum, Benasque, Spain.**
Talk Title: "Vacuum currents in braneworlds on AdS bulk with compact dimensions"
- June 2016 **Poster on multifield dark energy at ICTP Cosmology School, Trieste, Italy.**
- May 2016 **Theory seminar at Yerevan Physics Institute, Yerevan, Armenia.**
Talk Title: "Vacuum currents in braneworlds on AdS bulk with compact dimensions"
- May 2015 **ITP Local Interactions 2015: Gravity Beyond Einstein, ITP, Heidelberg.**
Talk title: "On some effects of extra dimensions in QFT and cosmology"
- May 2015 **Bielefeld Kosmologietag 2015, University of Bielefeld, Germany.**
Talk Title: "How can we tell whether dark energy is composed by multiple fields?"
- April 2014 **Cosmology and Particle Physics seminar at ITP, Heidelberg.**
Talk Title: "Seeking the Epoch of Maximum Luminosity for Dusty Quasars"
- June 2012 **Theory seminar at Yerevan Physics Institute, Yerevan, Armenia.**
Talk title: "Radiation of the electron bunch in irregular microundulators"
- November 2011 **Conference of young scientists from CIS countries, Yerevan, Armenia.**
- October 2011 **Electron, positron, neutron and X-ray scattering under external influences, Yerevan-Meghri, Armenia.**
Talk title: "Radiation of the electron bunch in irregular microundulators"
- October 2010 **Poster on anomalous Doppler effect at "Channeling 2010", Ferrara, Italy.**

Major Schools/Conferences/etc.

- 16 Sept. - 16 Oct., 2018 **Research Stay at IPhT-Saclay, Paris, France.**
- 12 - 18 July, 2018 **Research Visit to INFN-Frascati, Theory Group, Rome.**
- 10 - 15 August, 2017 **Research Stay at IPM, Tehran, Iran.**
- 5 - 10 August, 2017 **Tehran Meeting on Cosmology, Tehran, Iran.**
- 30 Jan. - 10 Feb., 2017 **DRSTP THEP school, Dalfsen, The Netherlands.**
- 25 Jan. - 5 Feb., 2016 **DRSTP THEP school, Dalfsen, The Netherlands.**
- October - December, 2015 **Solvay PhD School on QFT, Strings and Gravity, Paris-Amsterdam-Geneva.**
- 11 - 16, March 2013 **43rd Saas-Fee Advanced Course, Villars-sur-Ollon, Switzerland (full grant).**
- 15 - 23, September 2012 **4th Byurakan international summer school for young astronomers, Armenia.**
- Feb. 20 - Mar. 2, 2012 **ICTP advanced school on scientific software development, Trieste (full grant).**
- Sep. 12 - Oct. 2, 2010 **32nd international school for young astronomers, Byurakan, Armenia.**
- 15 - 19, January 2009 **5th international Zhautikov olympiad in physics, Alma-Ata, Kazakhstan.**
- 13 - 21, October 2008 **13th international astronomy olympiad, ICTP, Trieste, Italy.**
- Sep. 29 - Oct. 7, 2007 **12th international astronomy olympiad, Ukraine.**

Selected Awards

- Aug. 2013 - Sep. 2015 **DAAD full scholarship for master studies in Germany.**
- July 2013 **BCGS scholarship for Master at the University of Bonn, Germany - declined.**
- Sep. 2012 - June 2013 **Ambartsumian nominal scholarship of the Faculty of Physics, YSU.**
- 2012 **Annual presidential award, nomination: "Best Bachelor Student".**
- 2010 **Bronze medal of the Ferrara University, Italy.**
(Given for a poster at "Channeling 2010")
- 2009 **Honourable mention of the minister of science and education for achievements in astronomy olympiads, Armenia.**
- 2009 **Honourable mention at 40th International Physics Olympiad, Merida, Mexico.**
- 2008 **First place at 11th International Astronomy Olympiad of CIS Countries, Yerevan.**

- September - December 2008 **Tigran Petrossian Scholarship.**
(Scholarship given to a few of the best students of the Yerevan Physical-Mathematical school)
- 2007 - 2009 **A large number of awards at Armenian national science olympiads in Physics, Astronomy and Informatics.**

Language Skills

- Armenian** Native.
- English** Full Professional Proficiency.
- Russian** Full Professional Proficiency.
- German** B1 Level.

Computer Skills

- Languages** C++, Python, Fortran, Visual Basic.
- Other** Mathematica, LabView, etc.
- Cosmological** Familiarity with CAMB/CosmoMC and EFTCAMB/EFTCosmoMC.

Teaching Activities

- Spring 2016 **TA for Classical Electrodynamics, University of Leiden.**
- Spring 2017 and Fall 2017 **TA for Effective Field Theory, University of Leiden.**
- Spring 2017 **TA for Quantum Field Theory, University of Leiden.**
- Spring 2018 **TA for Quantum Mechanics - 2, University of Leiden.**
- 2017 - 2019 **Co-supervision of three master students, University of Leiden.**

Professional Activities

- Referee: **PRL, PRD, CQG (including a special issue paper), Physics of the Dark Universe (Certificate of outstanding contribution in reviewing, January, 2017).**
- External reviewer **Indio-French Center for Promotion of Advanced Research.**
Particularly I have reviewed a grant proposal for organizing an astrophysics workshop
- 2018, Co-organizer **Gravitational wave meetings, University of Leiden, The Netherlands.**
- 2017, Co-organizer **De Sitter cosmology meetings, University of Leiden, The Netherlands.**
- 2015, Local Organizer **ITP Local Interactions 2015: Gravity Beyond Einstein, ITP, Heidelberg.**
- 2012, Local Organizer **4th Byurakan international summer school, Byurakan Observatory, Armenia.**

Other

- 2009 - 2013, Jury member **Armenian national high school olympiads in physics and astronomy.**
- 2010, Co-organizer **Student seminar on philosophy and history of science, YSU, Faculty of Physics.**
- 2012, Jury member **15th international astronomy olympiad for CIS countries, Byurakan.**