Համլետ Կարոյի Ավետիսյան

Ֆիզիկայի գիտահետազոտական ինստիտուտ
Ուժեղ դաշտերի ֆիզիկայի կենտրոն
Կենտրոնի ղեկավար

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Կենտրոնի ղեկավար

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Կրթություն

Հաստատություն	Երևանի պետական համալսարան
Ֆակուլտետ	ֆիզիկայի ֆակուլտետ, տեսական ֆիզիկայի բաժին
Տարեթիվ	1962 - 1967
Աստիճան/կոչում	Դիպլոմավորված մասնագետ

Գիտական աստիճան/կոչում

Տարեթիվ	1991
Աստիճան/կոչում	Պրոֆեսոր

Տարեթիվ	1983
Աստիճան/կոչում	Գիտությունների դոկտոր
Գիտական թեմա	Լիցքավորված մասնիկների փոխազդեցությունը ինտենսիվ էլեկտրամագնիսական ճառագայթման հետ

Լեզուների իմացություն

Հայերեն Русский English

Աշխատանքային փորձ

Հաստատություն	Երևանի պետական համալսարան
Ժամանակահատված	1971 մինչ օրս
Պաշտոն	Ուժեղ դաշտերի ֆիզիկայի կենտրոնի տնօրեն, գիտական ղեկավար

Հրապարակումներ

Հոդված
High harmonic generation and wave mixing in graphene quantum dots by bichromatic laser fields of circular polarization

H. K. Avetissian, A. G. Ghazaryan, G. F. Mkrtchian, Kh. V. Sedrakian

Results in Physics 2026 108579

https://www.sciencedirect.com/science/article/pii/S2211379726000057

Հոդված

Zeptosecond electron pulse train via multiphoton inelastic Cherenkov diffraction
H. K. Avetissian, G. F. Mkrtchian

Scientific Reports 2026 13939

https://doi.org/10.1038/s41598-026-44500-w

Հոդված

Berry curvature and shift vector effects at high-order wave mixing in biased bilayer graphene
H.K. Avetissian, H.H. Matevosyan, G.F. Mkrtchian

Physical review. B./Physical review. B 2025 045415

Հոդված

High-harmonic spectroscopy of mobility edges in one-dimensional quasicrystals
H. K. Avetissian, B. R. Avchyan, A. Brown, G. F. Mkrtchian

New Journal of Physics 2025 124101

https://iopscience.iop.org/article/10.1088/1367-2630/ae298a

Գիտաժողովի նյութ

High-Order Harmonics Generation in Graphene Quantum Dots by Bichromatic Laser Fields of Circular Polarization
Kh. V. Sedrakian, H. K. Avetissian, A. G. Ghazaryan, G. F. Mkrtchian

2025 364-364

https://www.grapheneconf.com/2025/posters.php

Գիտաժողովի նյութ

High Harmonic Generation and Wave Mixing in Graphene Quantum Dots by Bichromatic Laser Fields of Circular Polarization
H. K. Avetissian, A. G. Ghazaryan, G. F. Mkrtchian, Kh. V. Sedrakian

2025 16 - 16

https://flatlands2025.org/

Գիտաժողովի նյութ

Symmetrically driven enhancement of high harmonic generation in graphene quantum dots
Armenuhi Gevorg Ghazaryan, Hamlet Karo Avetissian, Garnik Felix Mkrtchian, Khachik Vazgen Sedrakian

2025 ID#: 1486

https://ieeenap.org/scientific-program/

Հոդված

Интенсивная генерация высших гармоник в молекуле фуллерена C180 (INTENSE HIGH HARMONIC GENERATION IN FULLERENE MOLECULE C180)
Аветисян Г.К., Казарян А.Г., Матевосян Г.Г., Мкртчян Г.Ф.

Журнал Экспериментальной и Теоретической Физики 2024 25-31

Հոդված

Intense high-order harmonic generation in the giant fullerene molecule C240
H. K. Avetissian, S. Sukiasyan, T. M. Markosyan, G. F. Mkrtchian

Physical review. B./Physical review. B 2024 085401

Հոդված

Intense anomalous high harmonics in graphene quantum dots caused by disorder or vacancies
H. K. Avetissian, G. A. Musayelyan, G. F. Mkrtchian

Physical review. B./Physical review. B 2024 085417

Գիտաժողովի նյութ

Berry curvature effects in high-order wave mixing in biased bilayer graphene
H. K. Avetissian, H. H. Matevosyan, G. F. Mkrtchian

2024 1

https://www.grapheneconf.com/2024/index.php

Գիտաժողովի նյութ

High-order Harmonic Generation in the Giant Fullerene Molecules
H. K. Avetissian, A. G. Ghazaryan, H. H. Matevosyan, G. F. Mkrtchian

2024 E-FMN-1

https://nanomatsci-com-dot-radiant-century-424110-p9.uc.r.appspot.com/?c=1AZVXZ...

Գիտաժողովի նյութ

HIGH HARMONIC GENERATION BY STRONG LASER RADIATION IN FULLERENE MOLECULE C180
H. K. Avetissian, A. G. Ghazaryan, H. H. Matevosyan, G. F. Mkrtchian

2024 25-25

https://nano2024.gtu.ge/

Հոդված

Graphene valley polarization as a function of carrier-envelope phase in few-cycle laser pulses and its footprints in harmonic signals
H. K. Avetissian, V. A. Sedrakyan, Kh. V. Sedrakian, G. F. Mkrtchian

Physical review. B./Physical review. B 2023 205403

Հոդված

Disorder-induced effects in high-harmonic generation process in fullerene molecules
H.K. Avetissian, S. Sukiasyan, H.H. Matevosyan, G.F. Mkrtchian

Results in Physics 2023 106951/8

Հոդված

Long-range correlation-induced effects at high-order harmonic generation on graphene quantum dots
H. K. Avetissian, A. G. Ghazaryan, Kh. V. Sedrakian, G. F. Mkrtchian

Physical review. B./Physical review. B 2023 165410

Գիտաժողովի նյութ

Disorder-Induced Effects in High-Harmonic Generation Process in Fullerene Molecules
H. K. Avetissian, S. Sukiasyan, H. H. Matevosyan, G. F. Mkrtchian

2023 125 - 125

https://flatlands2023.com/

Հոդված

High-order harmonic generation in three-dimensional Weyl semimetals with broken time-reversal symmetry
H. K. Avetissian, V. N. Avetisyan, B. R. Avchyan, G. F. Mkrtchian

Physical review. A/Physical review, A 2022 033107/1-8

Հոդված

Efficient high-harmonic generation in graphene with two-color laser field at orthogonal polarization
Hamlet K. Avetissian, Andreas Knorr, Garnik F. Mkrtchian

Physical review. B./Physical review. B 2022 195405

Հոդված

Saddle-point exciton signature on high-order harmonic generation in two-dimensional hexagonal nanostructures
H. K. Avetissian, S. S. Israelyan, H. H. Matevosyan, G. F. Mkrtchian

Physical review. A/Physical review, A 2022 063504/1-9

Գիտաժողովի նյութ

High Harmonic Generation in (3+1)-dimensional Weyl Semimetals
Hamlet Avetissian Karo, Vagharshak Avetisyan Narek, Babken Avchyan Ruben, Garnik Mkrtchian Felix

2022 187 - 187

https://ieeenap.org/ieee-nap22/#:~:text=The%202022%20IEEE%2012th%20Internationa...

Հոդված

Free-electron nanolaser based on graphene plasmons
H. K. Avetissian, B. R. Avchyan, H. H. Matevosyan, G.F. Mkrtchian

Laser Physics 2021 055801

Հոդված

High harmonic generation in fullerene molecules
H. K. Avetissian, A. G. Ghazaryan, G. F. Mkrtchian

Physical review. B./Physical review. B 2021 125436

Գիտաժողովի նյութ

High harmonic generation at particle-hole multiphoton excitation in gapped bilayer graphene
H. Avetissian, A. Avetissian, A. Ghazaryan, G. Mkrtchian, Kh. Sedrakian

2021 10

http://www.nano2020.gtu.ge/

Հոդված

High-harmonic generation at particle–hole multiphoton excitation in gapped bilayer graphene
Hamlet K. Avetissian, Ara K. Avetissian, Armenuhi G. Ghazaryan, Garnik F. Mkrtchian,

Khachik V. Sedrakian
Journal of Nanophotonics 2020 026004(1-15)

Հոդված

Many-body effects for excitonic high-order wave mixing in monolayer transition metal dichalcogenides
H. K. Avetissian, G. F. Mkrtchian, K. Z. Hatsagortsyan

Physical Review Research 2020 023072(1-9)

Հոդված

On the extreme nonlinear optics of graphene nanoribbons in the strong coherent radiation fields

Hamlet K. Avetissian, Babken R. Avchyan, Garnik F. Mkrtchian, Karine A. Sargsyan

Journal of Nanophotonics 2020 026018(1-9)

Հոդված

High laser harmonics induced by the Berry curvature in time-reversal invariant materials

H. K. Avetissian, G. F. Mkrtchian

Physical review. B./Physical review. B 2020 245422

Հոդված

Microscopic quantum description of second-order nonlinearities in two-dimensional hexagonal nanostructures beyond the Dirac cone approximation

H. K. Avetissian, G. F. Mkrtchian, K. G. Batrakov, S. A. Maksimenko

Physical review. B./Physical review. B 2020 165406

Հոդված

Higher harmonic generation by massive carriers in buckled two-dimensional hexagonal nanostructures

H. K. Avetissian, G. F. Mkrtchian

Physical review. B./Physical review. B 2019 085432(1-10)

Հոդված

Wave mixing and high harmonic generation at two-color multiphoton excitation in two-dimensional hexagonal nanostructures

H. K. Avetissian, A. K. Avetissian, B. R. Avchyan, G. F. Mkrtchian

Physical review. B./Physical review. B 2019 035434(1-8)

Հոդված

Impact of electron-electron Coulomb interaction on the high harmonic generation process in graphene

H. K. Avetissian, G. F. Mkrtchian

Physical review. B./Physical review. B 2018 115454(1-9)

Հոդված

Multiphoton excitation and high-harmonics generation in topological insulator

H. K. Avetissian, A. K. Avetissian, B. R. Avchyan, G. F. Mkrtchian

JOURNAL OF PHYSICS-CONDENSED MATTER 2018 185302(1-7)

Հոդված

Laser synthesis of hybrid nanoparticles for biomedicine

A.A. Lalayan, H.K. Avetissian

Proceedings of SPIE-Progress in Biomedical Optics and Imaging 2018 10582(1-4)

Հոդված

Multiphoton excitation and harmonic generation from the quantum electrodynamic vacuum

H. K. Avetissian, A. K. Avetissian, B. R. Avchyan, G. F. Mkrtchian

Laser Physics Letters 2018 126003(1-7)

Գիտաժողովի նյութ

High harmonics generation with 2D metallic carriers of topological insulators
H. K. Avetissian, A. K. Avetissian, B. R. Avchyan, G. F. Mkrtchian

2018 38

https://indico.jinr.ru/internalPage.py?pageId=10&confId=468

Հոդված

High harmonic generation in Landau-quantized graphene subjected to a strong electromagnetic radiation
Hamlet K. Avetissian, Armenuhi G. Ghazaryan, Garnik F. Mkrtchian, Khachik V. Sedrakian

Journal of Nanophotonics 2017 016004: 1- 9

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Հոդված

Collective two-boson decay of excitons in a Bose-Einstein condensate and generation of coherent photon-phonon radiation
H. K. Avetissian, A. K. Avetissian, G. F. Mkrtchian, B. R. Avchyan

Physical review. B./Physical review. B 2017 045206/6

http://journals.aps.org/prb/

Հոդված

Coherent nonlinear optical response of graphene in the quantum Hall regime
H.K. Avetissian, G.F. Mkrtchian

Physical review. B./Physical review. B 2016 045419/7

http://journals.aps.org/prb/

Հոդված

Enhanced high-order-harmonic generation and wave mixing via two-color multiphoton excitation of atoms and molecules
H.K. Avetissian, B.R. Avchyan, G.F. Mkrtchian

Physical review. A/Physical review, A 2016 013856/7

http://journals.aps.org/pra/

Հոդված

Electron diffraction on a traveling wave: “Inelastic Kapitza–Dirac effect”
H.K. Avetissian
Laser and Particle Beams 2016 1-13

http://iopscience.iop.org/journal/1612-202X

Հոդված

Generation of high energy electron and positron beams in solid-plasma-nanolayers under relativistic laser pulses
H.K. Avetissian, A.K. Avetissian, H.H. Matevosyan, G.F. Mkrtchian, Kh.V. Sedrakian

News and Reports from High Energy Density generated by Heavy Ion and Laser Beams 2015 2016 Էջ-77

https://repository.gsi.de/record/194814/files/HEDP_report__2k15_web-version.pdf

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Հոդված

Nonlinear absorption of high-intensity x-ray radiation in ultradense plasma
H.K. Avetissian, A.K. Avetissian, A.G. Ghazaryan, H.H. Matevosyan, G.F. Mkrtchian

News and Reports from High Energy Density generated by Heavy Ion and Laser Beams 2015 2016 Էջ -78

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Հոդված

Nonlinear response of the quantum Hall system to a strong electromagnetic radiation
H.K. Avetissian, G. F. Mkrtchian

Physics Letters A 2016 3924–3927

http://www.journals.elsevier.com/physics-letters-a

Գիտաժողովի նյութ

X-ray Absorption via Electron-ion SB in Maxwellian Plasma at the Exact Consideration of Coulomb Potential
H.K. Avetissian, A.K. Avetissian, A.G. Ghazaryan, G.F. Mkrtchian

2016 1P- 1

http://icops2016.ece.ualberta.ca/

Գիտաժողովի նյութ

Landau-quantized graphene in strong radiation field and high harmonic generation
H.K. Avetissian, A.G. Ghazaryan, G.F. Mkrtchian, Kh.V. Sedrakian

2016 78

http://www.nano2016.gtu.ge/

Գիտաժողովի նյութ

High Energy-Density Positrons and Gamma-Quanta Fluxes from Nanotargets under Laser Beams of Ultrarelativistic Intensities
H.K. Avetissian
2016 1

http://www.lasphys.com/workshops/lasphys16/

Գիտաժողովի նյութ

Influence of excitonic effects on high harmonic generation by strong laser field in gated graphene
H.K. Avetissian, G.F. Mkrtchian

2016 1

Գիտաժողովի նյութ

Nonlinear response of graphene quantum Hall system to a strong laser radiation
H.K. Avetissian, G.F. Mkrtchian

2016 1

http://iht.univ.kiev.ua/nanoqt2016/

Գիտաժողովի նյութ

Role of Coulomb Forces and Radiation Friction in Laser Production of High Density Electron Beams from Solid-Plazma-Targets
H.K. Avetissian, S. S. Israelyan, G. F. Mkrtchian, Kh. V. Sedrakian

2016 3P-41

http://icops2016.ece.ualberta.ca/

Մենագրություն

Relativistic Nonlinear Electrodynamics: The QED Vacuum and Matter in Super-Strong Radiation Fields

H.K. Avetissian
2016 506

Հոդված

Microscopic nonlinear relativistic quantum theory of absorption of powerful x-ray radiation in plasma

H. K. Avetissian, A. G. Ghazaryan, H. H. Matevosyan, G. F. Mkrtchian

Physical review. E 2015 043103/8

https://journals.aps.org/pre/

Հոդված

Multiphoton interaction of a qutrit with single-mode quantized field in the ultrastrong and deep strong coupling regimes

H.K. Avetissian, A.K. Avetissian, G. F. Mkrtchian, O.V. Kibis

Journal of Nanophotonics 2015 093064/14

https://spie.org/publications/journals/journal-of-nanophotonics

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Հոդված

Gamma-ray laser based on the collective decay of positronium atoms in a Bose-Einstein condensate

H.K. Avetissian, A.K. Avetissian, G. F. Mkrtchian

Physical review. A/Physical review, A 2015 023820/10

http://journals.aps.org/pra/

Հոդված

Multiphoton dynamics of qutrits in the ultrastrong coupling regime with a quantized photonic field

H.K. Avetissian, A. K. Avetissian, G.F. Mkrtchian, O.V. Kibis

Journal of Experimental and Theoretical Physics 2015 925-933

http://link.springer.com/journal/11447

Հոդված

Production of high energy-solid density electron bunches and hard γ-quanta and positron fluxes by ultrarelativistic lasers in solid-plasma targets

H.K. Avetissian, H. H. Matevosyan, G. F. Mkrtchian, Kh. V. Sedrakian

Physical Review Special Topics-Accelerators and Beams 2015 121301/7

http://journals.aps.org/prab/about

Հոդված

Multiphoton Excitations and Harmonics Generation in Quantum Electrodynamic Vacuum

Avetissian H.K., Avetissian A.K., Avchyan B.R., Mkrtchian G.F.

News and Reports from High Energy Density generated by Heavy Ion and Laser Beams 2015 2015 62

https://repository.gsi.de/record/194814/files/HEDP_report__2k15_web-version.pdf

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Հոդված

Intense Coherent Gamma-Ray Source Based on the Collective Radiation of Positronium Atoms in a Bose-Einstein Condensate

Avetissian H.K., Avetissian A.K., Mkrtchian G.F.

News and Reports from High Energy Density generated by Heavy Ion and Laser Beams 2015 2015 61

https://repository.gsi.de/record/194814/files/HEDP_report__2k15_web-version.pdf

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