

## Publications

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*Article*

**ГЕНЕРАЦИЯ ВЫСШИХ ГАРМОНИК С УЧЕТОМ МНОГОЧАСТИЧНОГО КУЛОНОВСКОГО  
ВЗАИМОДЕЙСТВИЯ В ГРАФЕНОВОЙ КВАНТОВОЙ ТОЧКЕ**

Х. В. Седракян, А. Г. Казарян, Б. Р. Авчян, Г. А. Мусаелян, Т. М. Маркосян

Журнал экспериментальной и теоретической физики (Journal of Experimental and Theoretical Physics)  
2023 56–65

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*Article*

**High Harmonic Generation with Many-Particle Coulomb Interaction in Graphene Quantum Dot**

Kh. V. Sedrakian, A. G. Ghazaryan, B. R. Avchyan, G. A. Musayelyan, T. M. Markosyan

Журнал экспериментальной и теоретической физики (Journal of Experimental and Theoretical Physics)  
2023 47–54

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*Article*

**ГАРМОНИКИ ВЫСШЕГО ПОРЯДКА В ГЕКСАГОНАЛЬНЫХ ГРАФЕНОВЫХ КВАНТОВЫХ ТОЧКАХ**

Х.В. Седракян, А. Г. Казарян, Б. Р. Авчян, К.С. Погосян, Т.М. Маркосян

Журнал экспериментальной и теоретической физики (Journal of Experimental and Theoretical Physics)  
2023 457–466

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*Article*

**Higher-Order Harmonics in Hexagonal Graphene Quantum Dots**

Kh. V. Sedrakian, A. G. Ghazaryan, B. R. Avchyan, Q. S. Poghosyan, T. M. Markosyan

Journal of Experimental and Theoretical Physics 2023 395–403

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*Article*

**Генерация высоких гармоник в треугольных квантовых графеновых точках**

Б. Р. Авчян, А. Г. Казарян, К. А. Саргсян, Х. В. Седракян

Журнал экспериментальной и теоретической физики (Journal of Experimental and Theoretical Physics)  
2022 155–165

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*Article*

**High Harmonic Generation in Triangular Graphene Quantum Dots**

B. R. Avchyan, A. G. Ghazaryan, K. A. Sargsyan, Kh. V. Sedrakyan

Journal of Experimental and Theoretical Physics 2022 125–134

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*Article*

**High harmonic generation with many-body Coulomb interaction in rectangular graphene quantum dots of armchair edge**

Babken R. Avchyan, Armenuhi G. Ghazaryan, Samvel S. Israelyan, Khachik V. Sedrakian

*Article*

**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 2022 033107/1-8

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*Article*

**On Laser-Induced High-Order Wave Mixing and Harmonic Generation in a Graphene Quantum Dot**

B. R. Avchyan, A. G. Ghazaryan, K. A. Sargsyan, Kh. V. Sedrakian

JETP Letters 2022 428-435

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*Article*

**О лазерно-индуцированной генерации высших гармоник и смещении волн высокого порядка в графеновой квантовой точке**

Авчян Б. Р., Казарян А. Г., Саргсян К.А., Седракиян Х. В.

Письма в Журнал экспериментальной и теоретической физики (Journal of Experimental and Theoretical Physics Letters)  
2022 426-433

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*Article*

**Free-electron nanolaser based on graphene plasmons**

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

Laser Physics 2021 055801

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*Article*

**ОТКЛИК ВЫСШИХ ГАРМОНИК ИНТЕНСИВНОГО КОГЕРЕНТНОГО ЭЛЕКТРОМАГНИТНОГО ПОЛЯ НА ИЗМЕНЕНИЕ ТОПОЛОГИИ ПОВЕРХНОСТИ ФЕРМИ В ГРАФЕНОПОДОБНЫХ НАНОСИСТЕМАХ**

Авчян Б. Р., Казарян А. Г., Саргсян К. А., Седракиян Х. В.

Журнал экспериментальной и теоретической физики (Journal of Experimental and Theoretical Physics)  
2021 1003-1012

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*Article*

**Fermi Surface Topology Signature on the High Harmonics Generation in Graphene-Like Nanostructure**

B. R. Avchyan, A. G. Ghazaryan, K. A. Sargsyan, Kh. V. Sedrakian

Журнал экспериментальной и теоретической физики (Journal of Experimental and Theoretical Physics)  
2021 883-891

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*Article*

**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)

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Article

**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 2019 035434(1-8)

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Article

**Microscopic nonlinear quantum theory of absorption of strong electromagnetic radiation in doped graphene**

Ara Karapet Avetissian, Armenuhi Gevorg Ghazaryan, Khachik Vazgen Sedrakian,

Babken Ruben Avchyan

Journal of Nanophotonics 2018 016006/12

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

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Article

**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)

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Article

**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)

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Article

**Induced nonlinear cross sections of conductive electrons scattering on the charged impurities in doped graphene**

Avetissian Ara K., Ghazaryan Armenuhi G., Sedrakian Khachik V., Avchyan Babken R.

Journal of Nanophotonics 2017 036004: 1-12

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

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Article

**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 2017 045206/6

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

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Article

**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 2016 013856/7

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

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Article

**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

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*Conference*

**Radiation Induced Nonlinear Cross Sections of Conductive Electrons Scattering on Charged Impurities in Doped Graphene**

A.K. Avetissian, B.R. Avchyan, A.G. Ghazaryan, Kh.V. Sedrakian

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*Conference*

**Nonlinear Absorption Coefficient of Doped Graphene at Conductive Electrons Scattering on Charged Impurities**

A.G. Ghazaryan, B.R. Avchyan, H.H. Matevosyan, Kh.V. Sedrakian

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*Conference*

**Impact of Electron-ion Coulomb Interaction in Above Threshold Ionization of Atom in Strong Medium Infrared Laser Field**

Avetissian A.K., Ghazaryan A.G., Sedrakian Kh.V., Avchyan B.R.

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*Conference*

**High harmonics generation with 2D metallic carriers of topological insulators**

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

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*Conference*

**Radiation induced nonlinear cross sections of conductive electrons scattering on charged impurities in bilayer graphene**

A. K. Avetissian, B. R. Avchyan, A. G. Ghazaryan, Kh. V. Sedrakian

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*Conference*

**High-Harmonic Generation in Bilayer Graphene with an Electric Field Induced Band Gap**

A. K. Avetissian, B. R. Avchyan, A. G. Ghazaryan, Kh. V. Sedrakian

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*Conference*

**High harmonic generation in plane graphene quantum dots with different shapes and edges**

B. R. Avchyan, K. A. Sargsyan, A. G. Ghazaryan, Kh. V. Sedrakian

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*Conference*

**High harmonic generation on graphene quantum dots with collective scattering of electrons**

B. Avchyan, A. Ghazaryan, S. Israelyan, Kh. Sedrakian

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*Conference*

**Optical anisotropy of high-order harmonic generation in rectangular graphene quantum dots**

B. R. Avchyan, A. G. Ghazaryan, Q. S. Poghosyan, Kh. V. Sedrakian

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*Conference*

**High Harmonic Generation in (3+1)-dimensional Weyl Semimetals**

Hamlet Avetissian Karo, Vagharshak Avetisyan Narek, Babken Avchyan Ruben, Garnik Mkrtchian Felix

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