

# Aram Azat Saharian

## Institute of Physics

Chair of Theoretical Physics named after Academician Gurgen Sahakyan  
Head of the chair, professor

☎ 23-48

✉ saharian@ysu.am



## 🌐 Language skills

Հայերեն Русский English

## 📖 Publications

*Article*

### **Observation of coherent Cherenkov radiation of electron bunches from a partially dielectric loaded waveguide**

L.Sh. Grigoryan, A.P. Potylitsyn, M.V. Shevelev, A.V. Vukolov, P.V. Karataev, S.B. Dabagov, A.S. Vardanyan, A.S. Yeremyan, M.M. Sukiasyan, A.A. Saharian, V.R. Kocharyan, T.R. Muradyan, M.L. Grigoryan, D.E. Baghdasaryan, V.Kh. Kotanjyan, A.V. Sargsyan, H.P. Harutyunyan, H.F. Khachatryan, A.R. Mnatsakanyan, A.H. Mkrtchyan

Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment  
2024 169177

*Article*

### **Electromagnetic vacuum stresses and energy fluxes induced by a cosmic string in de Sitter spacetime**

A.A. Saharyan, V.F. Manukyan, V. Kh. Kotanjyan, A. A. Grigoryan

International Journal of Modern Physics D 2023 2350042

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### **Surface-polariton excitation and energy losses by a charged particle in cylindrical waveguides**

A.A. Saharian, L.Sh. Grigoryan, A.S. Kotanjyan, H.F. Khachatryan

Physical Review A 2023 063513

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### **Fermionic condensate and the mean energy-momentum tensor in the Fulling-Rindler vacuum**

S. Bellucci, V.Kh. Kotanjyan, A.A. Saharian

Physical Review D 2023 085014

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### **Motion of a Particle in the Field of an Infinite Flat Slab**

R.M. Avagyan, A.A. Saharian, S.S. Jibilyan

Astrophysics 2023 411-422

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### **Topological Effects in a Fermionic Condensate Induced by a Cosmic String and**

**Compactification on the AdS Bulk**

Stefano Bellucci, Wagner Oliveira dos Santos, Eugenio R. Bezerra de Mello, Aram A. Saharian

Symmetry 2022 584

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**Fermionic vacuum polarization around a cosmic string in compactified AdS spacetime**

S. Bellucci, E. R. Bezerra de Mello, W. Oliveira dos Santos, A. A. Saharian

Journal of Cosmology and Astroparticle Physics 2022 010

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**Mean field squared and energy-momentum tensor for the hyperbolic vacuum in dS spacetime**

A. A. Saharian, T. A. Petrosyan, V. S. Torosyan

Annals of Physics 2022 168728

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**Cosmological Evolution With Negative Energy Densities**

A.A. SAHARIAN, R.M. AVAGYAN, E.R. BEZERRA DE MELLO, V.KH. KOTANJYAN, T.A. PETROSYAN,

H.G. BABUJYAN

Astrophysics 2022 427-440

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**Vacuum currents in partially compactified Rindler spacetime with an application to cylindrical black holes**

V. Kh. Kotanjyan, A. A. Saharian, M. R. Setare

Nuclear Physics B 2022 115838

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*Article*

**Cosmic string and brane induced effects on the fermionic vacuum in AdS spacetime**

S. Bellucci, W. Oliveira dos Santos, E. R. Bezerra de Mello, A. A. Saharian

Journal of High Energy Physics 2022 021

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**Vacuum densities and the Casimir forces for branes orthogonal to the AdS boundary**

S. Bellucci, A. A. Saharian, V. Kh. Kotanjyan

Physical Review D 2022 065021

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**Radiation of surface polaritons in cylindrical waveguides**

A. A. Saharian, L. Sh. Grigoryan, H. F. Khachatryan, A. S. Kotanjyan

Springer Proceedings in Physics (Optics and Its Applications) 2022 113-127

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**Finite temperature charge and current densities around a cosmic string in AdS spacetime with compact dimension**

E. R. Bezerra de Mello, W. Oliveira dos Santos, A. A. Saharian

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**Casimir Effect for Fermion Condensate in Conical Rings**

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**FLAP Collaboration: Tasks and Perspectives. Study of Fundamentals and New Applications of Controllable Generation of Electromagnetic Radiation by Relativistic Electrons Using Functional Materials**

L. Aloyan, A. Avetisyan, Y. Dalyan, L. Grigoryan, N. Karapetyan, V. Kocharyan, A. Mkrtchyan, A. Movsisyan, A. Saharian, A. Shahbazyan, A. Baldin, 37  
Physics of Particles and Nuclei Letters 2021 338-353

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**Vacuum fermionic currents in braneworld models on AdS bulk with a cosmic string**

A. A. Saharian, S. Bellucci, W. Oliveira dos Santos, E. R. Bezerra de Mello  
Journal of High Energy Physics 2021 190

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*Article*

**Casimir densities induced by a sphere in the hyperbolic vacuum of de Sitter spacetime**

A. A. Saharian, T. A. Petrosyan  
Physical Review D 2021 065017

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**The Holographic cosmology with axion field**

A. A. Saharian, A. V. Timoshkin  
International Journal of Geometric Methods in Modern Physics 2021 2150174

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**Dynamics of a cosmological model with a conformally-coupled scalar field**

R. M. Avagyan, G. H. Harutunyan, A. S. Kotanjyan, A. V. Hovsepian, A. A. Saharian  
Astrophysics 2021 355-369

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**Fermionic condensate in de Sitter spacetime**

A. A. Saharian, E. R. Bezerra de Mello, A. S. Kotanjyan, T. A. Petrosyan  
Astrophysics 2021 529-543

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**Fermionic vacuum currents in topologically nontrivial braneworlds: Two-brane geometry**

S. Bellucci, A. A. Saharian, H. G. Sargsyan, V. V. Vardanyan  
Physical Review D 2020 045020(1-23)

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**The Casimir effect for fermionic currents in conical rings with applications to graphene ribbons**

S. Bellucci, I. Brevik, A. A. Saharian, H. G. Sargsyan  
European Physical Journal C 2020 281(1-22)

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**Electromagnetic Casimir densities for planar boundaries in AdS spacetime**

A. A. Saharian, A. S. Kotanjyan, A. A. Saharyan, H. G. Sargsyan  
International Journal of Modern Physics A 2020 2040029(1-5)

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**Synchrotron radiation from a charge circulating around a cylinder with negative permittivity**  
A.A. Saharian, A.S. Kotanjyan, L.Sh. Grigoryan, H.F. Khachatryan, V.Kh. Kotanjyan

International Journal of Modern Physics B 2020 2050065(1-18)

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**The Casimir densities for a sphere in the Milne universe**

Aram A. Saharian, Tigran A. Petrosyan

Symmetry 2020 619(1-30)

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**Scalar Field Modes in de Sitter Spacetime with Negative Curvature Spatial Foliation**

A.A. Saharian, T.A. Petrosyan, S.S. Chitchyan, A.Kh. Grigoryan

Armenian Journal of Physics 2020 316-329

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**Quantum vacuum effects in braneworlds on AdS bulk**

Aram A. Saharian

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**Electromagnetic field correlators and the Casimir effect for planar boundaries in AdS spacetime with application in braneworlds**

A. A. Saharian, A. S. Kotanjyan, H. G. Sargsyan

Physical Review D 2020 105014

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**Cherenkov radiation and emission of surface polaritons from charges moving paraxially outside a dielectric cylindrical waveguide**

A. A. Saharian, L. Sh. Grigoryan, A. Kh. Grigorian, H.F. Khachatryan, A.S. Kotanjyan

Physical Review A 2020 063517

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**Angular distribution of high power radiation from a charge rotating around a dielectric ball**

T.A. Petrosyan, L.Sh. Grigoryan, A.A. Saharian, H.F. Khachatryan, M.L. Grigoryan, A.V. Sargsyan

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**Angular Distribution of Intensive Radiation from a Charge Rotating Around a Conductive Ball**

L.Sh. Grigoryan, A.A. Saharian, A.H. Mkrtchyan, H.F. Khachatryan, M.L. Grigoryan, T.A. Petrosyan,

H.P. Harutyunyan

Armenian Journal of Physics 2020 105 -113

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**ИНДУЦИРОВАННАЯ ГРАНИЦЕЙ ПОЛЯРИЗАЦИЯ ВАКУУМА В ПРОСТРАНСТВЕ ДЕ СИТТЕРА С КОМПАКТНЫМИ ИЗМЕРЕНИЯМИ**

А.С. КОТАНДЖЯН, А.А. СААРЯН, Д.А. СИМОНЯН

Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2019 3-15

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**СИНХРОТРОННОЕ ИЗЛУЧЕНИЕ ЗАРЯДА НА СОБСТВЕННЫХ МОДАХ ДИЭЛЕКТРИЧЕСКОГО ЦИЛИНДРА**

А. С. Котанджян, А. А. Саарян, В. Х. Котанджян

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**Generation of surface polaritons in dielectric cylindrical waveguides**

A. S. Kotanjyan, A. R. Mkrtchyan, A. A. Saharian, V. Kh. Kotanjyan

Physical Review Special Topics-Accelerators and Beams 2019 040701(1-10)

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**Vacuum fluxes from a brane in de Sitter spacetime with compact dimensions**

A.A. Saharian, D.H. Simonyan, T.A. Petrosyan

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**Transition radiation on a superlattice in finite thickness plate generated by two acoustic waves**

A. R. Mkrtchyan, V. V. Parazian, A. A. Saharian

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**Radiation of surface waves from a charge rotating around a dielectric cylinder**

A. S. Kotanjyan, A. R. Mkrtchyan, A. A. Saharian, V. Kh. Kotanjyan

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**Scalar Casimir densities and forces for parallel plates in cosmic string spacetime**

E. R. Bezerra de Mello, A. A. Saharian, S. V. Abajyan

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**Induced cosmological constant in brane models with a compact dimension**

A. A. Saharian, H. G. Sargsyan

Astrophysics 2018 375-390

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**Electromagnetic vacuum densities induced by a cosmic string**

A. A. Saharian, V. F. Manukyan, N. A. Saharyan

Particles 2018 175-193

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**Models of Compact Stars in the Bimetric Scalar-Tensor Theory of Gravitation**

Levon Sh. Grigorian, Hrant F. Khachatryan, Aram A. Saharian

Particles 2018 203-211

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**Fermionic currents in topologically nontrivial braneworlds**

S. Bellucci, A. A. Saharian, D. H. Simonyan, V. V. Vardanyan

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**Scalar Casimir effect in a linearly expanding universe**

A. A. Saharian, T. A. Petrosyan, S. V. Abajyan, B. B. Nersisyan

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**Induced Cosmological Constant in Braneworlds with Compact Dimensions**

A. A. Saharian, H. G. Sargsyan

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**Qualitative Analysis of Cosmological Models in  $f(R)$ -Gravity**

R. M. Avagyan, E. V. Chubaryan, G. H. Harutyunyan, A. A. Saharian

Communications of the Byurakan Astrophysical Observatory 2018 291-302

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**Superdense Stellar Configurations in the Bimetric Scalar-Tensor Theory of Gravity**

L. Sh. Grigorian, H. F. Khachatryan, A. A. Saharian

Communications of the Byurakan Astrophysical Observatory 2018 327-337

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**The Casimir effect for parallel plates in Friedmann-Robertson-Walker universe**

E.R. Bezerra de Mello, A.A. Saharian, M.R. Setare

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**Fermionic condensate and the Casimir effect in cosmic string spacetime**

A.Kh. Grigoryan, A.R. Mkrtchyan, A.A. Saharian

International Journal of Modern Physics D 2017 1750064

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**Electromagnetic Quantum Effects in Anti-De Sitter Spacetime**

A. S. Kotanjyan, A. A. Saharian

Physics of Atomic Nuclei 2017 562-571

<http://link.springer.com/journal/11450>

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**Synchrotron and Smith-Purcell radiations from a charge rotating around a cylindrical grating**

A.A. Saharian, A.S. Kotanjyan, A.R. Mkrtchyan, B.V. Khachatryan

NUCLEAR INSTRUMENTS & METHODS IN PHYSICS RESEARCH SECTION B-BEAM INTERACTIONS WITH MATERIALS AND ATOMS

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**Radiation from a charge rotating inside a cylindrical grating**

A.S. Kotanjyan, A.R. Mkrtchyan, A.A. Saharian

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2017 173-176

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**Electromagnetic vacuum fluctuations around a cosmic string in de Sitter spacetime**

A. A. Saharian, V. F. Manukyan, N. A. Saharyan

European Physical Journal C 2017 478, 13

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**Излучение заряда, вращающегося вокруг идеально проводящего цилиндра**

Саарян, А. А., Котанджян, А. С., Варданян, Т. С.

Известия НАН РА. Физика (Journal of Contemporary Physics (Armenian Academy of Sciences) 2017  
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**Fermionic currents in AdS spacetime with compact dimensions**

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

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**Electromagnetic Casimir Effect in AdS Spacetime**

Anna S. Kotanjyan, Aram A. Saharian, Astghik A. Saharyan

Galaxies 2017 102(1-11)

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**Casimir forces in models with non-trivial topology**

T. Sh. Navasardyan, A. A. Saharian

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**Vacuum Densities for a Charged Scalar Field in de Sitter Space-Time with Compact Dimensions**

E. V. Chubaryan, A. S. Kotanjyan, A. A. Saharian, D. H. Simonyan

Gravitation & Cosmology 2016 187-192

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**Qualitative evolution in f(R) cosmologies**

R.M. Avagyan, E.V.Chubaryan, G.H. Harutyunyan, A.A.Saharian

General Relativity and Gravitation 2016 1-21

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**Casimir effect in hemisphere capped tubes**

E. R. Bezerra de Mello, A. A. Saharian

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**Induced fermionic current by a magnetic flux in a cosmic string spacetime at finite temperature**

E. R. Bezerra de Mello, A. A. Saharian, A. Mohammadi

International Journal of Modern Physics A 2016 1641021,10

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**Transition radiation on a dynamical periodical interface**

A. R. Mkrtchyan, A. P. Potylitsyn, V. R. Kocharyan, A. A. Saharian

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**Finite temperature fermion condensate, charge and current densities in a (2+1)-dimensional conical space**

S. Bellucci, E. R. Bezerra de Mello, E. Braganca, A. A. Saharian

European Physical Journal C 2016 76-350

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**Hadamard function and the vacuum currents in braneworlds with compact dimensions: Two-branes geometry**

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

Physical Review D 2016 084011,20

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**Radiation from a longitudinal oscillator moving along a circular trajectory**

A S Kotanjyan, A A Saharian

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**The study of undulator radiation of transversal oscillator**

A S Kotanjyan, A A Saharian

Journal of Physics: Conference Series 2016 012010/1-6

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**Quantum effects in anti-de Sitter spacetime for the electromagnetic vacuum**

A. S. Kotanjyan, A. A. Saharian, H. G. Sargsyan, D. H. Simonyan

Proceedings of Science 2016 021/1-13

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A S Kotanjyan, A A Saharian

Journal of Physics: Conference Series 2016 012009/7

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**ELECTROMAGNETIC CASIMIR DENSITIES FOR A PLATE IN ANTI-DE SITTER SPACETIME**

A. A. Saharian, A. S. Kotanjyan, A. A. Saharyan

Proceedings of the YSU. Physical and Mathematical Sciences 2016 37-41

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**Induced fermionic charge and current densities in two-dimensional rings**

S. Bellucci, A.A. Saharian, A.Kh. Grigoryan

Physical Review D 2016 105007

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**Electromagnetic Casimir densities for a cylindrical shell on de Sitter space**

A.A. Saharian, V.F. Manukyan, N.A. Saharyan

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**Electromagnetic Casimir effect for conducting plates in de Sitter spacetime**

A. S. Kotanjyan, A. A. Saharian, H. A. Nersisyan

Physica Scripta 2015 065304/1-9

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**Scalar Casimir densities induced by a cylindrical shell in de Sitter spacetime**

A. A. Saharian, V. F. Manukyan

Classical and Quantum Gravity 2015 025009,23

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**Induced fermionic currents in de Sitter spacetime in the presence of a compactified cosmic string**

A. Mohammadi, E. R. Bezerra de Mello, A. A. Saharian

Classical and Quantum Gravity 2015 135002,25

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**Induced vacuum currents in anti-de Sitter space with toral dimensions**

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

Physics Letters B 2015 155-162

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**Vacuum currents induced by a magnetic flux around a cosmic string with finite core**

E. R. Bezerra de Mello, V. B. Bezerra, A. A. Saharian, H. H. Harutyunyan

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A. Mohammadi, E. R. Bezerra de Mello, A. A. Saharian

Journal of Physics A-Mathematical and Theoretical 2015 185401

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**Casimir effect for scalar current densities in topologically nontrivial spaces**

S. Bellucci, A. A. Saharian, N. A. Saharyan

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**Vacuum currents in braneworlds on AdS bulk with compact dimensions**

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

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**Wightman function and the Casimir effect for a Robin sphere in a constant curvature space**

S. Bellucci, A. A. Saharian, N. A. Saharyan

European Physical Journal C 2014 3047,19

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*Conference*

**Quantum effects in anti-de Sitter spacetime for electromagnetic vacuum state**

KOTANJYAN Anna, Prof. SAHARIAN Aram, Mr. SARGSYAN Hayk, Mr. SIMONYAN David

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*Conference*

**Electromagnetic Casimir densities for a cylindrical boundary in de Sitter spacetime**

V. F. Manukyan, A. A. Saharian

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*Conference*

**Electromagnetic quantum effects in anti-de Sitter spacetime**

A.S. Kotanjyan, A.A. Saharian

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*Conference*

**The Synchrotron Radiation of the Transversal Oscillator**

A. Kotanjyan, A. Saharian

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*Conference*

**On a possible interference of synchrotron and Smith-Purcell radiation**

A.R. Mkrtvhyan, B.V. Khachatryan, A.A. Saharian, A. S. Kotanjyan

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*Conference*

**The study of undulator radiation of transversal oscillator**

Anna Kotanjyan, Aram Saharian

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*Conference*

**Synchrotron radiation from a relativistic charged particle rotating around a cylindrical diffraction grating**

Anna Kotanjyan, A. Saharian, B. Khachatryan

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*Conference*

**On the Features of Radiation from a Charge Rotating Around Dielectric and Conductive Ball**

L.Sh. Grigoryan, A.A. Saharian, H.F. Khachatryan, M.L. Grigoryan, A.V. Sargsyan, T.A. Petrosyan

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