

# Rafayel Hrayr Barkhudaryan

**University administration**  
Vice-rector for Scientific Affairs

☎ 11-07  
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## Education

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<b>Institution</b>	Institute of mathematics NAS RA
<b>Faculty</b>	Faculty of Mathematics
<b>Date</b>	2004 - 2007
<b>Degree name</b>	PhD student

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<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Faculty of Mathematics
<b>Date</b>	2002 - 2004
<b>Degree name</b>	Masters

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<b>Institution</b>	Yerevan State University
<b>Faculty</b>	Faculty of Mathematics
<b>Date</b>	1998 - 2002
<b>Degree name</b>	Bachelor

## Scientific Rank/degree

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<b>Institution</b>	Yerevan State University
<b>Date</b>	2007
<b>Degree name</b>	Candidate
<b>Specialty</b>	Physico-mathematical sciences
<b>Scientific Supervisor</b>	Anry Nersessian
<b>Research Topic</b>	Convergence acceleration of expansions by eigenfunctions of some boundary value problems.

## Language skills

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Հայերեն English Русский

## Work experience

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<b>Institution</b>	Yerevan State University
<b>Period of time</b>	2019 till now
<b>Rank/degree</b>	Vice-rector for scientific affairs

<b>Institution</b>	Institute of Mathematics NAS RA
<b>Period of time</b>	2014 - 2019
<b>Rank/degree</b>	Director

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<b>Institution</b>	Institute of Mathematics NAS RA
<b>Period of time</b>	2011 - 2014
<b>Rank/degree</b>	Deputy Director

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<b>Institution</b>	Institute of Mathematics NAS RA
<b>Period of time</b>	2007 - 2011
<b>Rank/degree</b>	Scientific Secretary

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<b>Institution</b>	Institute of Mathematics NAS RA
<b>Period of time</b>	2005 - 2007
<b>Rank/degree</b>	Junior researcher

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<b>Institution</b>	Boomerang Software LLC
<b>Period of time</b>	2000 - 2005
<b>Rank/degree</b>	programmer

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## Scientific interests

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- Numerical analysis
  - Free boundary problems
  - Obstacle type problems
  - Convergence acceleration
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## Participation in international conferences and seminars

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<b>01/02/2014 - 30/04/2014</b>	Visiting Fellow of the Isaac Newton Institute for Mathematical Sciences, programm "Free Boundary Problems and Related Topics" University of Cambridge United Kingdom of Great Britain and Northern Ireland (the)
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<b>21/09/2013 - 27/09/2013</b>	International Conference of Numerical Analysis and Applied Mathematics(ICNAAM 2013) Greece
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<b>25/04/2016</b>	International Conference "Modern Methods, Problems and Applications of Operator Theory and Harmonic Analysis VI" Russian Federation (the)
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## Membership

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<b>Institution</b>	Board of trustees, CANDLE Synchrotron Research Institute
<b>Period of time</b>	2025 till now
<b>Institution</b>	Board of trustees, A. Alikhanyan national science laboratory (Yerevan Physics Institute)
<b>Period of time</b>	2023 till now
<b>Institution</b>	Scientific council of the Yerevan State University
<b>Period of time</b>	2019 till now
<b>Institution</b>	Scientific council of the Institute of Mathematics
<b>Period of time</b>	2007 till now
<b>Institution</b>	Editorial board of the Armenian Journal of Mathematics
<b>Period of time</b>	2008 till now
<b>Institution</b>	Armenian Mathematical Union
<b>Period of time</b>	2011 till now
<b>Institution</b>	Scientific council of the Faculty of Mathematics, Yerevan State University
<b>Period of time</b>	2015 till now
<b>Institution</b>	European Mathematical Society
<b>Period of time</b>	2018 till now
<b>Institution</b>	American Mathematical Society(Reviewer)
<b>Period of time</b>	2019 till now

## Publications

*Article*

### **On an Exact Convergence of Quasi-Periodic Interpolations for the Polyharmonic-Neumann Eigenfunctions**

Poghosyan Arnak, Poghosyan Lusine, Barkhudaryan Rafayel

Algorithms 2024 497

*Article*

### **System of variational inequalities with interconnected obstacles**

R. Barkhudaryan, D.A. Gomes, M. Salehi, H. Shahgholian

Applicable Analysis 2022 605-628

*Article*

### **On the Convergence of the Quasi-Periodic Approximations on a Finite Interval**

R. Barkhudaryan, A. Poghosyan, L. Poghosyan

*Article*

**System of variational inequalities with interconnected obstacles**

Barkhudaryan R., Gomes D.A., Shahgholian H., Salehi M.

Applicable Analysis 2020 1-25

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*Article*

**On some quasi-periodic approximations**

R. Barkhudaryan, L. Poghosyan, A. Poghosyan

Armenian Journal of Mathematics 2020 1-27

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*Article*

**Numerical treatment to a non-local parabolic free boundary problem arising in financial bubbles**

A. Arakelyan, R. Barkhudaryan, H. Shahgholian, M. Salehi

Bulletin of the Iranian Mathematical Society 2019 59-73

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*Article*

**FINITE DIFFERENCE SCHEME FOR A GENERAL CLASS OF THE SPATIAL SEGREGATION OF REACTION-DIFFUSION SYSTEMS WITH TWO POPULATION DENSITIES**

A. Arakelyan, R. Barkhudaryan, L. Poghosyan

Вестник Казанского государственного энергетического университета 2017 28-35

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*Article*

**Iterative scheme for an elliptic non-local free boundary problem**

Barkhudaryan, R., Juráš, M., Salehi, M.

Applicable Analysis 2016 2794-2806

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*Article*

**A Numerical Approach for a General Class of the Spatial Segregation of Reaction-Diffusion Systems Arising in Population Dynamics**

Avetik Arakelyan, Rafayel Barkhudaryan

Computers and Mathematics with Applications 2016 2823-2838

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*Article*

**Numerical Solution of the Two-Phase Obstacle Problem by Finite Difference Method**

Avetik Arakelyan, Rafayel Barkhudaryan, Michael Poghosyan

Armenian Journal of Mathematics 2015 164-182

<http://www.flib.sci.am/eng/journal/Math/>

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*Article*

**Arshag Hajian: By the 85th Anniversary**

V. Arzumanyan, R. Barkhudaryan, S. Eigen, A. Nersessian

Armenian Journal of Mathematics 2015 80-84

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*Article*

**On the Gibbs phenomenon for expansions by eigenfunctions of the boundary problem for Dirac system**

R. H. Barkhudaryan,

*Article*

**Finite difference method for two-phase obstacle problem**

Rafayel Barkhudaryan

AIP Conference Proceedings 2013 2249-2252

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*Article*

**An error estimate for the finite difference scheme for one-phase obstacle problem**

A. Arakelyan, R. Barkhudaryan, M. Poghosyan

Journal of Contemporary Mathematical Analysis (Armenian Academy of Sciences) 2011 131 - 141

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*Article*

**Asymptotic behavior of Eckhoff's method for Fourier series convergence acceleration**

A. Barkhudaryan, R. Barkhudaryan, A. Poghosyan

Analysis in Theory and Applications 2007 228-242

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*Article*

**Convergence acceleration of eigenfunction expansions of the one-dimensional Dirac system**

R. Barkhudaryan

AIP Conference Proceedings 2007 86-89

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*Article*

**О сходимости одного квазиполиномиального приближения**

Р. Г. Бархударян, А. В. Погосян

Reports of NAS RA 2007 13-19

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*Article*

**Ускоренная сходимость рядов Фурье**

А. Нерсесян, А. Погосян, Р. Бархударян

Известия НАН РА. Математика (Journal of Contemporary Mathematical Analysis (Armenian Academy of Sciences))  
2006 43-56

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*Article*

**Ускорение сходимости разложений по собственным функциям системы Дирака**

Р. Г. Бархударян

Մաթեմատիկան բարձրագույն դպրոցում 2006 54-62

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*Article*

**Convergence Acceleration of Decomposition by Eigenfunctions of a Model Boundary Value Problem with a Discontinuous Coefficient**

A. B. Nersessian, R.H. Barkhudaryan

Reports of NAS RA 2006 5-12

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*Conference*

**System of variational inequalities with interconnected obstacles**

Barkhudaryan R.H.

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*Conference*

**On a non-local parabolic free boundary problem arising in a theory of financial bubbles**  
R. Barkhudaryan

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