

# Rafayel Hrayr Barkhudaryan

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

☎ 11-07  
(060) 71-01-07

✉ barkhudaryan@ysu.am



## 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 |

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

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| <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

Armenian Journal of Mathematics 2021 1-44

*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. Arzumanian, 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,

Journal of Contemporary Mathematical Analysis (Armenian Academy of Sciences) 2013 139-144

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*Article*

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

*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. Нерсисян, 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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