

NASIR GANIKHODJAEV



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- IIUM Kuantan Campus
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ACADEMIC QUALIFICATION

- Rehabilitation Degree Doctor of Sciences in Physics and Mathematics
- Ph.D in Physics and Mathematics
- Scientific
- Master in Mathematics

TEACHING RESPONSIBILITIES

ADVANCED ANALYSIS	2004/2005 2005/2006 2006/2007 2016/2017 2018/2019 2019/2020
ALGEBRA	2003/2004 2004/2005
ALGEBRA AND NUMBER THEORY	2004/2005
ANALYSIS	2003/2004 2004/2005
ANALYTIC GEOMETRY	2010/2011
ERGODIC THEORY 1	2019/2020
ERGODIC THEORY I	2005/2006 2006/2007 2007/2008 2008/2009 2009/2010 2010/2011 2011/2012 2012/2013 2013/2014 2015/2016 2016/2017 2017/2018 2018/2019
ERGODIC THEORY II	2005/2006 2007/2008
ERGODIC THEORY III	2005/2006 2007/2008 2008/2009 2011/2012 2012/2013 2013/2014 2014/2015 2016/2017 2017/2018 2018/2019 2019/2020
INTRODUCTION TO STATISTICS	2009/2010
LINEAR ALGEBRA	2003/2004
STOCHASTIC PROCESSES	2006/2007 2007/2008 2008/2009 2009/2010 2010/2011 2011/2012 2012/2013 2013/2014 2014/2015 2015/2016 2016/2017 2017/2018 2018/2019 2019/2020
THEORY OF PROBABILITY	2009/2010

RESEARCH PROJECTS

In Progress

2019 - Present Stability Analysis of Nonlinear Operator (Quadratic) and Z_5 -symmetric Models

2017 - Present Models with competing interactions on Cayley tree of higher order

2017 - Present The zeros of Ising model partition function on second order Cayley tree.

2017 - Present The chaos implies the phase transition: p-adic dynamical system approaches to the quest for a new class of p-adic Gibbs measures

2016 - Present Regularity of Quadratic Stochastic Operators on Infinite State Space

2013 - Present DYNAMICAL SYSTEMS AND THEIR APPLICATIONS (DSTA)

Completed

2014 - 2017 Applications of Scrambling Nonlinear Operators in Consensus Problems

2014 - 2017 Dynamic Stochastic Model on Multilateral Trade with Gold

2014 - 2018 Quadratic Stochastic Operators with Infinite State Space and Their Applications

2013 - 2015 Quartic Equation over P-Adic Field

2012 - 2014 Random Binomial Tree Models in Financial Mathematics and their applications

2011 - 2012 KVC Project 2011 - Analytic Geometry

2011 - 2014 RU 2011: Weighted Ergodic Properties for Banach-Kantorovich Lattices

2011 - 2012 KVC Project 2011 - Introduction to Lattice Statistical Mechanics

2011 - 2012 Ising Model on A General Cayley Tree with Competing Next-nearest-neighbour Interactions

2010 - 2013 Phase Diagram of the Potts Model on a Cayley Tree in the Presence of competing interactions and external magnetic field

2009 - 2010 Limit Behavior of Dynamic Systems Corresponding to Lattice Models with Competing Prolonged and one-Level Binary Interactions

2009 - 2012 Generalization of Catalan Number On Cayley Tree Of Order K

2009 - 2011 Dynamics of some class of quadratic stochastic operators and its applications

2009 - 2012 On Generalized Gibbs measures of a countable state p-adic Potts Model and Their Properties

2009 - 2010 On Some Nonlinear Dynamic Systems Arising in Statistical Mechanics

- 2008 - 2011** Quantum Markov Chains, Quantum Quadratic Stochastic Processes
- 2008 - 2009** On Infinite Dimensional Volterra Type Operators
- 2008 - 2010** On Some Application Theory of Quadratic Stochastic Operators in Medicine
- 2006 - 2012** Free Space Quantum Key Distribution: Implementation and Security Analysis
- 2006 - 2009** STATISTICAL MECHANICS OF NONLINEAR DISCRETE SYSTEMS
- 2006 - 2007** Fuzzy correlation Inequalities for Ferromagnetic System
- 2004 - 2006** The Pirogov-Sinai Theory for Lattice Model Cayley Tree
- Unknown - 2016** FUZZY CORRELATION INEQUALITIES FOR FERROMAGNETIC SYSTEMS

PUBLICATIONS

Article

- 2019** [Paramagnetic phases of four-state Potts model on a Cayley tree in the presence of competing interactions.](#) Phase Transitions , 92 (8) pp.730-736
- 2018** [Ising model on the semi-infinite Cayley tree of third order with inhomogeneous interactions.](#) , 1974 pp.030013-1
- 2018** [Weakly periodic Gibbs measures of the ising model on the cayley tree of order five and six.](#) Mathematical Physics, Analysis and Geometry , 21 (1) pp.1-10
- 2018** [Lattice models on cayley tree with competing interactions.](#) Jurnal Fizik Malaysia pp.20041-20049
- 2018** [On non-ergodic Gaussian quadratic stochastic operators.](#) AIP Conference Proceedings , 1974 pp.030021-1-030021-7
- 2018** [Strictly non-volterra Quadratic Stochastic Operator \(QSO\) on 3-dimensional simplex.](#) AIP Conference Proceedings , 1974 pp.030020-1
- 2017** [On Lebesgue nonlinear transformations.](#) Bulletin of Korean Mathematical Society , 54 (2) pp.607-618
- 2016** [Periodic cellular automata of period-2.](#) Malaysian Journal of Mathematical Sciences , 10 (Special Issue) pp.131-142
- 2016** [Nonhomogeneous poisson nonlinear transformations on countable infinite set.](#) Malaysian Journal of Mathematical Sciences , 10 (Special Issue) pp.143-155
- 2016** [Algebras with genetic realization and corresponding evolutionary population dynamics.](#) Contemporary Mathematics , 672 pp.169-178
- 2016** [Ising model with competing "uncle-nephew" interactions.](#) Phase Transitions pp.1-7

- 2015** [Periodic Cellular Automata of Period-3.](#) Journal of Applied Science and Agriculture , 10 (5) pp.89-96
- 2015** [Ising model on the cayley tree with competing interactions up to the third nearest-neighbors with spins belonging to different branches of the tree.](#) Journal of the Korean Physical Society , 66 (8) pp.1200-1206
- 2015** [On volterra quadratic stochastic operators with continual state space .](#) AIP Conference Proceedings , 1660 (050025) pp.1-7
- 2015** [On Gaussian nonlinear transformations.](#) AIP Conference Proceedings , 1682 pp.040009-1
- 2015** [Geometric quadratic stochastic operator on countable infinite set.](#) AIP Conference Proceedings , 1643 pp.706-712
- 2015** [Quadratic stochastic operators on segment \[0,1\] and their limit behavior .](#) Indian Journal of Science and Technology , 8 (30) pp.1-12
- 2015** [Quadratic stochastic operators and zero-sum game dynamics .](#) Ergodic Theory and Dynamical Systems , 35 (5) pp.1443-1473
- 2015** [The Hamiltonian three-parameter spaces of the q -state Potts model with three competing interactions on a Cayley tree.](#) Journal of the Korean Physical Society , 66 (10) pp.1467-1474
- 2015** [Contracting quadratic operators of bisexual population.](#) Applied Mathematics & Information Sciences , 9 (5) pp.2645-2650
- 2014** [On sufficient condition of ergodicity of volterra quadratic operators of bisexual population.](#) Uzbek Mathematical Journal , 2 pp.35-42
- 2014** [Nonergodic quadratic operators for a two-sex population.](#) Ukrainian Mathematical Journal , 65 (8) pp.1282-1291
- 2014** [On poisson nonlinear transformations.](#) The Scientific World Journal , 2014 (832861) pp.1-7
- 2014** [Mutation and chaos in nonlinear models of heredity.](#) The Scientific World Journal , 2014 pp.835069(1)-835069(11)
- 2014** [On rare mutation, chaos and Darwin's theory.](#) Revelation and Science , 4 (1) pp.37-44
- 2013** [The blume-emery-griffiths model on Cayley tree and its phase transitions.](#) Middle-East Journal of Scientific Research , 13 pp.83-89
- 2013** [On non-ergodic transformations on S3.](#) Journal of Physics: Conference Series , 435 (012005) pp.012005-1
- 2013** [Strange attractors in the Vannimenus model on an arbitrary order cayley tree.](#) Journal of Physics: Conference Series , 435 (012031) pp.012031-1
- 2013** [On paramagnetic phases of the Potts model on a Bethe lattice in the presence of competing interactions.](#) Journal of Physics: Conference Series , 435 (012035) pp.1-6

- 2013** [Two potts models on Cayley Tree of arbitrary order.](#) Journal of Physics: Conference Series , 435 (012033)
- 2013** [On pricing futures options on random binomial tree.](#) Journal of Physics: Conference Series , 435 (012043) pp.1-10
- 2013** [International Conference on Advancement in Science and Technology 2012 \(iCAST\): Contemporary Mathematics, Mathematical Physics and their Applications.](#) Journal of Physics: Conference Series , 435 (conf.1) pp.011001-1
- 2013** [Attractors on Ising Model with Restricted Interactions on Cayley Tree of Order 2.](#) AIP Conference Proceedings , 1522 pp.1300-1305
- 2013** [On classification of associative non-division genetic algebras.](#) AIP Conference Proceedings , 1557 (26) pp.26-30
- 2013** [Description of extreme Gibbs measures for the Ising model with three interactions.](#) Acta Physica Polonica A , 123 (2) pp.484-487
- 2013** [Behavior of the phase diagrams of Potts model on Cayley tree for order three.](#) Acta Physica Polonica A , 123 (2) pp.476-479
- 2013** [Phase diagram of the Blume-Emery-Griffiths-Vannimenus model on the Cayley tree.](#) Journal of Physics: Conference Series , 410 (1) pp.1-5
- 2013** [Random Cox-Ross-Rubinstein Model and Plain Vanilla Options.](#) World Applied Sciences Journal , 21 pp.84-87
- 2013** [Mendelian and non-Mendelian quadratic operators.](#) Applied Mathematics & Information Sciences , 7 (5) pp.1721-1729
- 2012** [Potts model with next-nearest-neighbor ternary interactions on an arbitrary-order Cayley tree.](#) Journal of the Korean Physical Society , 61 (7) pp.998-1004
- 2012** [Behaviors of phase diagrams of Ising model with competing ternary and binary interactions on a Cayley tree of arbitrary order.](#) Acta Physica Polonica A , 121 (1) pp.104-107
- 2012** [The competing interactions on a Cayley tree-like lattice: pentagonal chandelier.](#) Acta Physica Polonica A , 121 (1) pp.114-118
- 2012** [Lyapunov exponents and modulated phases of an ising model on cayley tree of arbitrary order.](#) International Journal of Modern Physics C , 23 (5) pp.1250039 (1)-1250039 (15)
- 2012** [Lattice gas and thermodynamics in models of heredity.](#) International Journal of Modern Physics: Conference Series , 9 (1) pp.157-162
- 2012** [Random binomial tree models and options .](#) Journal of Applied Sciences , 12 (18) pp.1978-1981
- 2011** [Competing binary and k-tuple interactions on a Cayley tree of arbitrary order.](#) Physica A: Statistical Mechanics and its Applications , 390 (23-24) pp.4160-4173
- 2011** [On extreme Gibbs measures of the Vannimenus model.](#) Journal of Statistical Mechanics: Theory and Experiment , 2011 (03) pp.P03025

- 2011** [Phase diagrams of an Ising system with competing binary, prolonged ternary and next-nearest interactions on a Cayley tree.](#) Journal of Concrete and Applicable Mathematics , 9 (1) pp.26-34
- 2011** [Potts model with the simplest modulated phase.](#) Korean Physical Society. Journal , 59 (5) pp.2971-2979
- 2011** [Strange attractor in the Potts model on a Cayley tree in the presence of competing interactions.](#) Journal of Concrete and Applicable Mathematics , 9 (1) pp.47-54
- 2011** [Ising model with restricted interactions on general Cayley tree of arbitrary order.](#) Australian Journal of Basic and Applied Sciences , 5 (8) pp.1296-1304
- 2011** [Phase diagram and extreme Gibbs measures of the Ising model on a Cayley tree in the presence of competing binary and ternary interactions.](#) Phase Transitions , 84 (11-12) pp.1045-1063
- 2011** [Phase diagram of the Ising model with next-nearest-neighbour interactions.](#) Australian Journal of Basic and Applied Sciences , 5 (2) pp.173-181
- 2011** [On non-associativity of Rhesus factor transmission.](#) Journal of Concrete and Applicable Mathematics , 9 (1) pp.55-59
- 2011** [The miracle in the iron and the Ising model of the ferromagnet.](#) Revelation and Science , 1 (1) pp.1-13
- 2010** [Griffith-Kelly-Sherman correlation inequalities for generalized Potts model.](#) Mathematical Physics, Analysis and Geometry , 13 (1) pp.1-18
- 2010** [Stochastic models of heredity rhesus factor.](#) Australian Journal of Basic and Applied Sciences , 4 (8) pp.3306-3310
- 2010** [Linear and nonlinear models of heredity for blood groups and rhesus factor.](#) Journal of Applied Sciences , 10 (16) pp.1748-1754
- 2010** [Modulated phase of an Ising system with competing interactions on a Cayley Tree of arbitrary order.](#) AIP Conference Proceedings , 1281 pp.2074-2077
- 2010** [Phase diagrams of a Potts model with competing Binary and ternary interactions.](#) AIP Conference Proceedings , 1281 pp.2069-2073
- 2010** [On pure phases of the Vannimenus model.](#) AIP Conference Proceedings , 1309 pp.288-293
- 2009** [Ergodicity of nonlinear transformations.](#) Journal of Applied Functional Analysis , 4 (3) pp.430-433
- 2009** [Modulated phase of a Potts Model with competing binary interactions on a Cayley tree.](#) Journal of Statistical Physics , 137 (4) pp.701-715
- 2009** [On phase separation points for one-dimensional models.](#) Siberian Advances in Mathematics , 19 (2) pp.75-84
- 2009** [On Ising model with four competing interactions on Cayley tree.](#) Mathematical Physics, Analysis and Geometry , 12 (2) pp.141-156

- 2009 [Phase diagram of the Potts Model with competing interactions.](#) AIP Conference Proceedings , 1150 pp.407-410
- 2008 [Pirogov-Sinai theory with new contours for symmetric models.](#) International Journal of Geometric Methods in Modern Physics , 5 (4) pp.537-546
- 2008 [Phase diagram of the three states Potts model with next nearest neighbour interactions on the Bethe lattice.](#) Physics Letters A , 373 (1) pp.33-38
- 2007 [Limiting Gibbs measures of Potts model with countable set of spin values.](#) Journal of Mathematical Analysis and Applications , 336 (1) pp.693-703
- 2006 [Phase diagrams of multicomponent lattice models.](#) Theoretical and Mathematical Physics , 149 (2) pp.1512-1518
- 2006 [On quadratic stochastic operators.](#) Regular and chaotic dynamics , 11 (4) pp.467-473
- 2006 [The Potts model with countable set of spin values on a Cayley tree .](#) Letters in Mathematical Physics , 75 (2) pp.99-109
- 2004 [An Ising model with three competing interactions on a Cayley tree.](#) Journal of Mathematical Physics , 45 (9) pp.3645-3658
- 2004 [On a necessary condition for the ergodicity of quadratic operators defined on the two-dimensional simplex.](#) Russian Mathematical Surveys , 59 (3) pp.571-572
- 2003 [Exact solution of an Ising model with competing interactions on a Cayley tree.](#) Journal of Physics A: Mathematical and General , 36 (15) pp.4283-4289

Conference or Workshop Item

- 2019 [On exactly solvable phases of models with competing interactions.](#) In: **14th Asia-Pacific Physics Conference 2019 (APPC-14)**
- 2019 [Rock-paper-scissors lattice model.](#) In: **Workshop on Dynamical Systems and Their Applications in Mathematical Physics, Engineering, and Economics 2019 (WDS 2019)**
- 2018 [Al-Kāshī, the first scientist who introduced dynamical system.](#) In: **25th National Symposium on Mathematical Sciences: Mathematical Sciences as the Core of Intellectual Excellence, SKSM 2017**
- 2018 [On classification of the genetic and evolution rock-paper-scissor algebras.](#) In: **International Conference on Mathematical Sciences and Technology 2018**
- 2017 [On \(3,3\)-Gaussian quadratic stochastic operators.](#) In: **37th International Conference on Quantum Probability and Related Topics (QP37) 2016**
- 2017 [Two-dimensional Ising model with non-homogenous interactions.](#) In: **The 4th International Conference On Mathematical Sciences (ICMS4)**
- 2017 [Lattice models on Cayley tree with competing interactions.](#) In: **5th International Meeting on Frontiers of Physics (IMFP2017)**
- 2017 [Measure, topology, and compactness.](#) In: **AISMM Lecture Series I: Algebra, Analysis and Applications**

- 2016 [On lebesgue nonlinear transformation with family of continuous measures.](#) In: **4th International Conference on Mathematical Sciences - Mathematical Sciences: Championing the Way in a Problem Based and Data Driven Society, ICMS**
- 2016 [On phase diagram of ising model on the cayley tree with restricted competing interactions up to the third-nearest-neighbor generation.](#) In: **The 3rd International Conference on Mathematical Applications in Engineering 2014 (ICMAE'14)**
- 2016 [The black-litterman model in central bank practice: study for Turkish Central Bank.](#) In: **The 3rd International Conference on Mathematical Applications in Engineering 2014 (ICMAE'14)**
- 2016 [Classification of non-division genetic algebras.](#) In: **Day of Algebra Seminar 7 (DoA7)**
- 2016 [Gaussian quantum quadratic stochastic operators.](#) In: **37th International Conference on Quantum Probability and Related Topics (QP37) 2016**
- 2016 [Quadratic stochastic operators with countable state space.](#) In: **International Conference :Algebra, Analysis and Quantum Probability**
- 2016 [Ising model on the Cayley tree of second order with left and right interactions.](#) In: **2nd International Conference on Mathematical Sciences and Statistics: Innovations Through Mathematical and Statistical Research, ICMSS 2016**
- 2015 [Quadratic stochastic operators with infinite state spaces.](#) In: **International Conference on Algebra, Analysis and Quantum Probability 2015**
- 2015 [Lebesgue quadratic stochastic operators on segment \$\[0,1\]\$.](#) In: **7th International conference on Research and Education in Mathematics (ICREM7)**
- 2015 [Lattice models on the Cayley tree with competing interactions up to the third-nearest-neighbors with spins belonging to the different branches of the tree.](#) In: **Workshop on Modern Methods of Mathematical Physics 2015 in conjunction with Shavkat Alimov's 70th Birthday (WM3P 2015)**
- 2015 [Periodic cellular automata of Period-3.](#) In: **International Postgraduate Conference on Physics, and Mathematical Sciences 2015 (IPCPMS 2015)**
- 2015 [Limit behavior of some quadratic stochastic operators on segment \$\[0,1\]\$.](#) In: **The 4th International Conference on Computer Science & Computational Mathematics (ICSCM 2015)**
- 2015 [Ising model with competing "Uncle-Nephew" interaction.](#) In: **114th Statistical Mechanics Conference Rutgers University**
- 2014 [Random trinomial tree models and gold futures options: how to survive financial crises with mathematics.](#) In: **International Research, Invention and Innovation Exhibition 2014 (IRIIE2014)**
- 2014 [A mathematical model of rare mutations and chaos.](#) In: **International Research, Invention and Innovation Exhibition 2014 (IRIIE2014)**
- 2014 [Associative three-dimensional genetic algebras .](#) In: **International Research, Invention and Innovation Exhibition 2014 (IRIIE2014)**

- 2014 [A new approach for istijrar valuation under stochastic volatility.](#) In: **Islamic Business Management Conference (IBMC) 2014**
- 2014 [On Ising model with one-level pentagon interactions on the Cayley tree-like lattice: Pentagonal chandelier.](#) In: **International Conference on Quantitative Sciences and Its Applications (ICOQSIA 2014)**
- 2014 [Geometric quadratic stochastic operators on countable infinite set.](#) In: **The 2nd ISM International Statistical Conference 2014 with Applications in Science and Engineering (ISM II)**
- 2014 [Gaussian quadratic stochastic operator.](#) In: **THE 22nd NATIONAL SYMPOSIUM ON MATHEMATICAL SCIENCES**
- 2014 [On volterra quadratic stochastic operators with continual state space.](#) In: **International Conference on Mathematics, Engineering and Industrial Applications 2014 (ICoMEIA2014)**
- 2014 [Quadratic stochastic operators and evolutionary dynamics of zero-sum games.](#) In: **USA-Uzbekistan Conference on Natural Sciences and mathematics**
- 2013 [Mutation and chaos in nonlinear models of heredity.](#) In: **3rd Annual International Conference on Operations Research and Statistics (ORS 2013)**
- 2013 [On classification of associative non-division genetic algebras.](#) In: **International Conference On Mathematical Sciences And Statistics 2013**
- 2013 [On rare mutation and chaos.](#) In: **International Islamic University Malaysia Congress on Science 2013**
- 2013 [Random binomial tree models.](#) In: **IUM Research, Invention and Innovation Exhibition 2013**
- 2013 [Potts model with next-nearest-neighbor ternary interactions on an arbitrary-order Cayley tree.](#) In: **IUM Research, Invention and Innovation Exhibition 2013**
- 2013 [Which blood group will dominate in Malaysia in the future.](#) In: **IUM Research, Invention and Innovation Exhibition (IRIIE) 2013**
- 2013 [Gibbs Measures of the Blume-Emery-Griffiths-Vannimenus Model on the Cayley Tree.](#) In: **International Seminar on Mathematics and Natural Sciences**
- 2012 [Potts model with the competing interactions on a Cayley tree-like lattice: Quadrangle Chandelier.](#) In: **Malaysia Science and Technology Congress (MSTC 2012)**
- 2012 [The Miracle in the Iron and the Ising Model of the Ferromagnet.](#) In: **IUM Research, Invention and Innovation Exhibition 2012 (IRIIE 2012)**
- 2012 [Multidimensional mappings and Lyapunov Exponent of Potts Model with competing interaction.](#) In: **IUM Research, Invention and Innovation Exhibition 2012 (IRIIE 2012)**
- 2012 [Strange attractors in the Vannimenus Model on an arbitrary order Cayley Tree .](#) In: **4th International Conference on Advancement in Science and**

- 2012 [On Non-Ergodic Transformations on \$S_3\$](#) . In: **4th International Conference on Advancement in Science and Technology**
- 2012 [Random binomial tree models and put options](#). In: **2nd International Conference on Mathematical Applications in Engineering (ICMAE2012)**
- 2012 [On paramagnetic phases of Potts Model on a Bethe Lattice in the presence of competing interactions](#). In: **International Conference of Application Science & Technology (iCAST2012)**
- 2012 [Two Potts Models on Cayley Tree of Arbitrary Order](#). In: **International Conference of Application Science & Technology (iCAST2012)**
- 2012 [Phase transitions in the Blume-Emery-Griffiths model on Cayley tree](#). In: **2nd International Conference on Mathematical Applications in Engineering (ICMAE2012)**
- 2012 [Non-ergodic quadratic stochastic operators on \$S_3\$](#) . In: **Operator Algebras and Related Topics**
- 2012 [Stochastic models in theory of heredity](#). In: **Second Annual International Conference on Operations Research and Statistics ORS 2012**
- 2012 [Phase transitions in the Blume-Emery-Griffiths-Vannimenus model on the Cayley Tree](#). In: **International Conference on Mathematical Modeling in Physical Sciences**
- 2011 [Periodic extreme Gibbs measures with memory length 2 of Vannimenus model](#). In: **ICNAAM 2011: International Conference on Numerical Analysis and Applied Mathematics**
- 2011 [Thermodynamics in models of heredity](#). In: **the Six Fergana Conference "Limit Theorems of the Theory of Probability and its applications"**
- 2011 [Limit behavior of dynamic systems corresponding to Lattice models with competing prolonged and one-level binary interactions](#). In: **IUM Research, Invention and Innovation Exhibition (IRIIE) 2011**
- 2011 [On some nonlinear dynamic systems arising in statistical mechanics](#). In: **IUM Research, Invention and Innovation Exhibition IRIIE 2011**
- 2011 [Lattice gas and thermodynamics in models of heredity](#). In: **International Conference on Mathematical and Computational Biology 2011 (ICMCB 2011)**
- 2011 [Extreme Gibbs measures of the Vannimenus model](#). In: **Weekly Research Meeting National University Uzbekistan**
- 2011 [Phase transition in Ferromagnetic Lattice models on a Cayley tree with non-uniform external magnetic fields](#). In: **Annual International Conference on Operations Research and Statistics (ORS 2011)**
- 2011 [Lattice models of statistical mechanics and their applications](#). In: **Annual International Conference on Operations Research and Statistics (ORS 2011)**

- 2011 [Ising model on a general Cayley tree with competing next-nearest-neighbour interactions.](#) In: **Annual International Conference on Operations Research and Statistics**
- 2011 [Multidimensional mapping for Potts model with competing interactions.](#) In: **Annual Conference on Operations Research and Statistics (ORS 2011)**
- 2011 [Potts model with competing interactions on a Cayley tree of k-th order.](#) In: **Annual International Conference on Operations Research and Statistics (ORS 2011)**
- 2011 [The miracle in the Iron and the Ising model of the Ferromagnet on regular lattice \$Z^2\$.](#) In: **International Conference on Islamisation in Modern Science and Scientification of the Islamic Studies(ICIMSIS 2011)**
- 2010 [On non-associativity of Rhesus factor transmission.](#) In: **3rd International Interdisciplinary Chaos Symposium on Chaos and Complex Systems**
- 2010 [Strange attractor in the Potts model on a Cayley tree in the presence of competing interactions.](#) In: **3rd International Interdisciplinary Chaos Symposium on Chaos and Complex Systems**
- 2010 [Phase diagrams of a Potts Model with competing binary and ternary interactions.](#) In: **ICNAAM 2010: International Conference of Numerical Analysis and Applied Mathematics 2010**
- 2010 [Modulated phase of a Potts model with competing interactions on a Cayley tree.](#) In: **IUUM Research, Innovation & Invention Exhibition (IRIIE 2010)**
- 2010 [Griffith-Kelly-Sherman correlation inequalities for generalized Potts model .](#) In: **IUUM Research, Invention and Innovation Exhibition 2010**
- 2010 [Phase diagram of the Ising model next-nearest-neighbour interactions.](#) In: **International Conference on Mathematical Applications in Engineering (ICMAE'10)**
- 2010 [On pure phases of the Vannimenus model.](#) In: **ICMS 2010: International Conference on Mathematical Science**
- 2009 [Phase diagram and phase transitions of the Potts model with external magnetic field .](#) In: **5th Asian Mathematical Conference, Malaysia 2009**
- 2009 [Linear and nonlinear models of heredity for blood groups and rhesus factor.](#) In: **International Conference of Mathematical Sciences**
- 2009 [Phase diagram of the Potts Model with competing interactions.](#) In: **Frontiers In Physics: 3rd International Meeting**
- 2009 [On nonlinear dynamic system arising in Potts model.](#) In: **Second International Conference and Workshops on Basic and Applied Sciences Regional Annual Fundamental Science Seminar 2009**
- 2009 [On linearization of quadratic stochastic operators .](#) In: **Proceedings of the 4th International Conference on Research and Education in Mathematics**
- 2009 [On some dynamic systems arising in lattice models with competing ternary interactions.](#) In: **Proceedings of Modern Problems of Applied Mathematics and Information Technologies-AI Khowrezmi 2009**

- 2009 [On nonlinear dynamic systems arising in Lattice models of statistical mechanics on a Cayley tree.](#) In: **Control and Optimization of Dynamical Systems-CODS-2009**
- 2008 [Application of nonlinear transformation in medicine.](#) In: **International Conference on Advancement in Science and Technology (ICAST,2008)**
- Book**
- 2016 [Introduction to lattice statistical mechanics.](#) IIUM Press . ISBN 978-967-418-427-8
- 2015 [Quantum Quadratic operators and processes.](#) Springer . ISBN 978-3-319-22836-5, 978-3-319-22837-2 (eBook)
- 2011 [Lattice models with competing interactions.](#) IIUM Press . ISBN 9789674180065
- 2011 [Investigations on Pure Mathematics, Finance Mathematics and Optics .](#) IIUM Press . ISBN 9789674181987
- 2011 [Analytic Geometry.](#) Kuala Lumpur . ISBN 978-967-418-007-2
- Book Section**
- 2017 [Quadratic stochastic operators of bisexual populations and its contractibility.](#) In: **Frontiers in science and technology** IIUM Press, International Islamic University Malaysia . ISBN 9789674184469 , pp.238-256
- 2011 [Phase diagram of the Ising model with nearest-neighbor interactions.](#) In: **Recent achievements in dynamical systems: proceedings of Department of Computational and Theoretical Sciences, Faculty of Science, IIUM** IIUM Press . ISBN 9789674182014 , pp.98-106
- 2011 [A renormalization-group study of the Potts model with competing ternary and binary interactions.](#) In: **Nonlinear and Complex Dynamics: Applications in Physical, Biological, and Financial Systems** Springer . ISBN 98-1-4614-0230-5 (P), 978-1-4614-0231-2 (O) , pp.117-125
- 2011 [On nonlinear dynamic system arising in Potts model.](#) In: **Recent achievements in dynamical systems: proceedings of Department of Computational and Theoretical Sciences, Faculty of Science, IIUM** IIUM Press . ISBN 9789674182014 , pp.167-176
- 2011 [On potts model with triple interactions.](#) In: **Recent achievements in dynamical systems: proceedings of Department of Computational and Theoretical Sciences, Faculty of Science, IIUM** IIUM Press . ISBN 9789674182014 , pp.146-151
- 2011 [Phase diagram of the potts model with external magnetic field.](#) In: **Recent achievements in dynamical systems: proceedings of Department of Computational and Theoretical Sciences, Faculty of Science, IIUM** IIUM Press . ISBN 9789674182014 , pp.152-159
- 2011 [A correlation inequality for Potts model.](#) In: **Recent achievements in dynamical systems: proceedings of Department of Computational and Theoretical Sciences, Faculty of Science, IIUM** IIUM Press . ISBN 9789674182014 , pp.160-166
- 2011 [Theory of Markov chains in pediatric diseases .](#) In: **Investigations on Pure Mathematics, Finance Mathematics and Optics** IIUM Press . ISBN 9789674181987 , pp.8-13

- 2011 [On nonlinear dynamic systems arising in Potts model](#). In: **Investigations on Pure Mathematics, Finance Mathematics and Optics** IIUM Press . ISBN 9789674181987 , pp.14-21
- 2011 [The first return time and dimension](#) . In: **Investigations on Pure Mathematics, Finance Mathematics and Optics** IIUM Press . ISBN 9789674181987 , pp.22-30
- 2011 [On as sociative algebraic structure of genetic inheritance](#) . In: **Investigations on Pure Mathematics, Finance Mathematics and Optics** IIUM Press . ISBN 9789674181987 , pp.31-36
- 2011 [Interacting particle system](#) . In: **Investigations on Pure Mathematics, Finance Mathematics and Optics** IIUM Press . ISBN 9789674181987 , pp.37-42
- 2011 [On the elementary charactefization of primes in primality tests: two short studies](#) . In: **Investigations on Pure Mathematics, Finance Mathematics and Optics** IIUM Press . ISBN 9789674181987 , pp.57-63
- 2011 [On associative algebraic structure of genetic inheritance](#) . In: **Investigations on Pure Mathematics, Finance Mathematics and Optics** IIUM Press . ISBN 9789674181987 , pp.64-69
- 2011 [Ising model on a general Cayley tree with competing next-nearest-neighbor interactions](#). In: **Recent achievements in dynamical systems: proceedings of Department of Computational and Theoretical Sciences, Faculty of Science, IIUM** IIUM Press . ISBN 9789674182014 , pp.107-117
- 2011 [Some application of ergodic theory in number theory](#) . In: **Investigations on Pure Mathematics, Finance Mathematics and Optics** IIUM Press . ISBN 9789674181987 , pp.70-75
- 2011 [Study of roles of external magnetic field on Ising and Potts model](#). In: **Investigations on Pure Mathematics, Finance Mathematics and Optics** IIUM Press . ISBN 9789674181987 , pp.76-81
- 2011 [Markov chains and its application: the inventory model](#). In: **Investigations on Pure Mathematics, Finance Mathematics and Optics** IIUM Press . ISBN 9789674181987 , pp.90-95
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