



2022

International Conference

COMPUTER DATA ANALYSIS AND MODELING: STOCHASTICS AND DATA SCIENCE

PROGRAM

Belarusian State University
September 6–10, 2022
Minsk, BELARUS



Conference Schedule

Tuesday		September 6
8.00–20.00	Registration	
Wednesday		September 7
9.00–10.00	Registration	
10.00–10.20	Opening of the Conference, room 212, Geography Faculty Building	
10.20–11.20	Plenary session	
11.40–17.00	Contributed sessions	
19.00	Bolshoi Theater of Belarus: Ballet "Sleeping Beauty" (P. Tchaikovsky)	
Thursday		September 8
10.00–11.00	Plenary session	
11.20–17.00	Contributed sessions	
19.00	Conference Party	
Friday		September 9
10.00–11.00	Plenary session	
11.20–16.40	Contributed sessions	
Saturday		September 10
	Excursion	
	Departure	

Time and Place of Registration and Sessions

The conference will be held in a hybrid format
On-line: [\(code\)](https://meet.bsu.by/bsu_skype/(code))
(code) will be sent to on-line participants.

Registration will be held in the Main Building of the Belarusian State University (Nezavisimosti av. 4), Room 331.

Conference sessions (face-to-face and on-line format) will be held in the Building of the Faculty of Geography and Geoinformatics of the Belarusian State University (Leningradskaya street,16), Room 212.

Contacts: Prof. A. Kharin, Dept. of Probability Theory and Mathematical Statistics, BSU, 4 Nezavisimosti av., 220030, Minsk, BELARUS

Phone/Fax: +375 17 209 51 29 / +375 17 209 51 04

E-mail: KharinAY@bsu.by **Web-site:** <http://www.cdam.bsu.by>

Scientific program

Wednesday, September 7

Room 212

Time	Chair (Moderator): Prof. Yu. Kharin	Invited Plenary Session
10.00–10.20		Opening of the Conference
10.20–10.50	W. Trutschnig	QUANTIFYING AND ESTIMATING (MULTIVARIATE) DIRECTED DEPENDENCE
10.50–11.20	K. Hron	ORTHOGONAL DECOMPOSITION OF BIVARIATE DENSITIES USING THE BAYES SPACE METHODOLOGY.
11.20–11.40 Coffee Break		
11.40–17.00		Contributed Session
Time	Chair (Moderator): Prof. Yu. Kharin	
11.40–12.00	E. Palamarchuk	ON ROBUSTNESS OF THE OPTIMAL FEEDBACK LAW IN A STOCHASTIC LINEAR-QUADRATIC CONTROL PROBLEM UNDER COST UNCERTAINTY
12.00–12.20	A.D. Egorov	ON THE CALCULATION OF FUNCTIONALS FROM THE SOLUTION TO LINEAR SDU WITH FIRST ORDER CHAOS IN COEFFICIENTS
12.20–12.40	S.E. Vorobejchikov, Yu.B. Burkatovskaya	USING OF CUSUM CHANGE-POINT DETECTION ALGORITHM FOR MARCOV-MODULATED POISSON PROCESS IDENTIFICATION
12.40–13.00	A.Yu. Kharin, T.T. Ton, I.Yu. Sheuka	PERFORMANCE AND ROBUSTNESS IN SEQUENTIAL ANALYSIS OF STOCHASTIC DATA FLOWS
13.00–14.00 Lunch Break		
Time	Chair (Moderator): Prof. A. Kharin	
14.00–14.20	V.A. Voloshko, Yu.S. Kharin	ON DISCRETE-VALUED TIME SERIES BASED ON MULTIDIMENSIONAL EXPONENTIAL FAMILY
14.20–14.40	A.V. Zorine	TEST OF EXPONENTIALITY WITH SHIFT BASED ON CONDITIONAL DISTRIBUTION RELATIVE TO SUFFICIENT STATISTICS
14.40–15.00 Coffee Break		
15.00–15.20	E.A. Tsirul, I.A. Badziahin	MODIFICATIONS OF THE IMPUTATION METHOD FOR PARAMETER ESTIMATION OF CENSORED AUTOREGRESSIVE TIME SERIES
15.20–15.40	M.V. Sokolova, O.N. Romanova, N.D. Kolomiets, S.M. Bosiakov	FORECASTING CASES OF CHILDREN DESEASE BY NON-INVASIVE FORMS OF PNEUMOCOCCAL INFECTION

15.40–16.00	E. Kudryavtsev, M. Fedotkin	QUASI-OPTIMAL CONFLICT COX-LEWIS FLOWS CONTROL
16.00–16.20	A.V. Spesivtsev, V.V. Mikhailov	THE FUZZY-POSSIBILITY APPROACH TO OVERCOMING COMPLEXITY UNDER UNCERTAINTY
16.20–16.35	K. Kosarava	SIMULATION ALGORITHM FOR THE RETRIAL QUEUEING SYSTEMS AND NETWORKS
16.35–16.50	V.S. Mukha, N.F. Kako	ON THE DUAL STABILIZATION OF THE MULTIDIMENSIONAL REGRESSION OBJECT AT A GIVEN LEVEL
16.50–17.05	D. Kopats	G-NETWORKS WITH BALANCERS

Thursday, September 8

Room 212

Time	Chair (Moderator): Prof. A. Kharin	Invited Plenary Session
10.00–10.30	L. Vana, E. Visconti, L. Nenzi, A. Cadonna, G. Kastner, R. Parzer.	POSTERIOR PREDICTIVE MODEL CHECKING USING FORMAL METHODS
10.30–11.00	Yu.S. Kharin	STATISTICAL ESTIMATION OF HIGH-ORDER DEPENDENCIES IN DISCRETE-VALUED TIME SERIES
11.00–11.20 Coffee Break		
11.20–17.00		Contributed Session
Time	Chair (Moderator): Prof. Yu. Kharin	
11.20–11.40	A.M.Zubkov, A.A.Serov	NOTES ON THE INDEPENDENCE OF TESTS AND ON COMPLETENESS OF NIST PACKAGE
11.40–12.00	S.E. Nysanbayeva, N.A. Kapalova, D.S. Dyusenbayev, K.T. Algazy, K.S. Sakan	INVESTIGATION OF THE STATISTICAL SECURITY OF A PSEUDO-RANDOM SEQUENCE GENERATOR
12.00–12.20	V.I. Kruglov	A GOODNESS-OF-FIT LEMPEL-ZIV TEST FOR EQUIPROBABLE BINARY SEQUENCES
12.20–12.40	M.V. Filina, A.M. Zubkov	COMPUTATION OF DISTRIBUTIONS OF THE KOLMOGOROV-SMIRNOV STATISTIC FOR FINITE SAMPLES
12.40–13.00	M.V. Maltsev, Yu.S. Kharin	ON TESTING RANDOMNESS USING FREQUENCY ESTIMATORS
13.00–14.00 Lunch Break		

Time	Chair (Moderator): Prof. A. Kharin	
14.00–14.20	M.P. Savelov	THE LIMITING DISTRIBUTIONS OF STATISTICS OF SEVERAL CRITERIA FROM THE NIST STATISTICAL TEST SUITE
14.20–14.40	V.A. Voloshko, Yu.S. Kharin, A.I. Trubey	ON POWER COMPARISON FOR SOME TESTS ON PURE RANDOMNESS UNDER MARKOV S-ORDER DEPENDENCIES
14.40–15.00	E. Chernousova, S. Molchanov	COUPON COLLECTOR'S PROBLEM FOR TWO SPECIAL DISCRETE RENEWAL PROCESSES
15.00–15.20	U.Yu. Palukha, Yu.S. Kharin, A.I. Siarheeu, A.A. Arlou.	ON STATISTICAL TESTING OF RANDOM AND PSEUDORANDOM SEQUENCES BASED ON ENTROPY FUNCTIONALS
15.20–15.40 Coffee Break		
15.40–16.00	Ya.M. Khusanbaev, Kh.A. Toshkulov	THE LIMIT THEOREMS FOR THE CONDITIONAL DISTRIBUTIONS OF THE GALTON-WATSON BRANCHING PROCESS
16.00–16.15	S.V. Zubov	MODELING THE MANAGEMENT OF SOCIAL PROCESS THROUGH MASS MAILINGS
16.15–16.30	P.M. Lappo	ABOUT STATIONARY DISTRIBUTION FOR HIGH-ORDER MARKOV CHAINS
16.30–16.45	V.A. Zherelo, E.E. Zhuk	STATISTICAL ANALYSIS OF NON-STATIONARY TIME SERIES BASED ON BROWNIAN MOTION MODEL
16.45–17.00	I.K. Pirshtuk, N.V. Serikova	ON STATISTICAL EVALUATION OF RANDOMNESS BASED ON MINIMUM ENTROPY ESTIMATOR

Friday, September 9

Room 212

Time	Chair (Moderator): Prof. Yu. Kharin	Invited Plenary Session
10.00–10.30	V.D. Konakov,	STABILITY OF TRANSITION DENSITIES OF SDEs AND MARKOV CHAINS WITH RESPECT TO PERTURBATIONS OF COEFFICIENTS
10.30–11.00	V.I. Piterbarg, P.N. Alieva.	ON LARGE EXCURSIONS PROBABILITIES FOR GAUSSIAN COPULA VECTOR PROCESSES. APPLICATIONS IN RELIABILITY AND FINANCE
11.00–11.30	V.N. Kolokolsov	GAME-THEORETIC MODELS OF CORRUPTION
11.30–11.45 Coffee Break		
11.45–17.05		Contributed Session
Time	Chair (Moderator): Prof. A. Kharin	
11.45–12.05	A.A.Musaev, D.A. Grigoriev	ANALYSIS OF CHAOTIC PROCESS FORECAST EFFECTIVENESS BASED ON TERMINAL INDICATORS

		OF MANAGEMENT QUALITY
12.05–12.25	A.E. Marshalova, E.P. Bruches, T.V. Batura	ASPECT EXTRACTION FROM SCIENTIFIC TEXTS
12.25–12.40	V. Kondratyev, V. Berikov	SOLVING WEAKLY SUPERVISED MULTI-OUTPUT REGRESSION
12.40–12.50	Yu.S. Kharin, V.A. Voloshko, S.N. Staleuskaya, N.V. Sinkevich	ON SOFTWARE LIBRARY FOR STATISTICAL CLASSIFICATION OF DISCRETE-VALUED MULTIVARIATE DATA, TIME SERIES AND RANDOM FIELDS
12.50–13.00	V.V. Krasnoproshin, V.V. Matskevich	RANDOM SEARCH IN NEURAL NETWORKS TRAINING
13.00–14.00 Lunch Break		
Time	Chair (Moderator): Prof. A. Kharin	
14.00–14.20	A.F. Pranevich, G.A. Khatskevich	DYNAMIC THREE-FACTOR PRODUCTION FUNCTION WITH HICKS-NEUTRAL TECHNOLOGICAL PROGRESS
14.20–14.40	N.V. Agabekova, Abdo Ali Nasser Aldine	USING ADAPTIVE MODELS IN STATISTICAL FORECASTING OF STOCK PRICES IN LEBANON
14.40–15.00	L.A. Soshnikova	USING THE LOGISTIC REGRESSION IN ANALYSIS OF RESULTS FROM STATISTICAL OBSERVATIONS
15.00–15.20	V.I. Malugin, A.K. Kornievich	MULTI-COUNTRY ANALYSIS OF THE COVID-19 PANDEMIC TYPOLOGY USING MACHINE LEARNING ALGORITHMS
15.20–15.40 Coffee Break		
15.40–16.00	V.P. Kochyn	DESIGN OF COMPLEX INTEGRATED SYSTEMS
16.00–16.15	B.A. Zhalezka, A.O. Stadnik, V.A. Siniavskaya	COMPLEX 5-COMPONENT OSCILLATOR AS A TOOL OF TECHNICAL ANALYSIS IN ALGORITHMIC TRADING
16.15–16.30	N. Bokun	LABOR MARKET: PROBLEMS AND SURVEYS
16.30–16.45	S. Vysotski	MODELLING THE SPATIAL EFFECTS OF ECONOMIC DEVELOPMENT OF BELARUS
16.45–17.00	E. Sharilova	STATISTICAL ASSESSMENT OF THE REAL DEMOGRAPHIC SECURITY OF THE REPUBLIC OF BELARUS