XIV International Conference

2025

COMPUTER DATA ANALYSIS AND MODELING:

STOCHASTICS AND DATA SCIENCE

PROGRAM

Belarusian State University

September 24–27, 2025

Minsk, BELARUS

Conference Schedule

Wednesday		**September 24**
8.00–10.00	**Registration**	
10.00–10.20	**Opening of the Conference, room 212, Geography Faculty Building**	
10.20–13.10	**Plenary session 1**	
14.00–17.35	**Contributed session 1**	
18.00	**Conference Party**	

Thursday		**September 25**
10.00–13.00	**Plenary session 2**	
14.00–18.00	**Contributed sessions 2, 3**	

Friday		**September 26**
9.45–12.45	**Contributed sessions 4, 5, 6**	

Saturday		**September 27**
	Departure	

Time and Place of Registration and Sessions

The conference will be held in a hybrid format.
The link for online sessions will be provided shortly before the sessions.

Registration will be held in the Geography Building of the Belarusian State University
(Leningradskaya street,16, Hall of the ground floor).
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),
and in the Main Building of the Belarusian State University (Nezavisimosti av., 4, rooms A, B, C)
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Scientific program

Time	Chairs: Prof. Kharin Yu.S., Prof.Vatutin V.A.	Plenary Session 1
10.00–10.20		**Opening of the Conference**
10.20–13.10		**Plenary Session**
10.20–10.50	**Vatutin V.A., Dyakonova E.E.**	REDUCED PROCESSES IN NON-FAVORABLE RANDOM ENVIRONMENT
10.50–11.20	**Lotov V.I.** (on-line)	ON A SEQUENTIAL PROCEDURE FOR EARLY DETECTION OF CHANGE IN DISTRIBUTION
		11.20–11.40 Coffee Break
11.40–12.10	**Kharin Yu.S**.	STATISTICAL ANALYSIS OF HIGH-ORDER MARKOV CHAINS
12.10–12.40	**Afanasyev V.I.**	DISTRIBUTIONS OF LENGTHS OF EXCURSIONS OF A BROWNIAN BRIDGE
12.40–13.10	**Savelov M.P.**	THE LIMIT JOINT DISTRIBUTIONS OF STATISTICS OF THE NIST TESTS AND THEIR GENERALIZATIONS
		13.10–14.00 Lunch Break
14.00–17.35		**Contributed Session 1(Room 212): Theoretical Statistics & Data Science**
Time	Chairs: Prof. Afanasyev V.I., Prof. Kharin A.Yu.	
14.00–14.15	**Filatova A.A., Ermakov M.S.**	A NEW STOCHASTIC ESTIMATOR FOR SYMMETRY CENTER IN MULTIDIMENSIONAL SPACE
14.15–14.30	**Khil E.V., Shklyaev A.V.**	DISCRETIZATION OF DATA THAT DO NOT CHANGE THE LIMIT DISTRIBUTION OF ASYMPTOTICALLY NORMAL STATISTICS
14.30–14.45	**Kharin A.Yu.**	SEQUENTIAL ANALYSIS OF DATA UNDER DISTORTION: PERFORMANCE, ROBUSTNESS AND IMPLEMENTATION
14.45–15.00	**Shevtsova M.A., Kharlamov V.V., Zasko G.V.**	DETECTING SAMPLE RATIO MISMATCH WITH SEQUENTIAL TESTING
15.00–15.15	**Vorobejchikov S.E., Burkatovskaya Yu.B.**	PARAMETER ESTIMATION FOR MMPP WITH TWO STATES OF THE CONTROLLING MARKOV CHAIN
15.15–15.30	**Mukha V.S.**	ON THE GENERALIZED INVERSE MOORE-PENROSE MATRIX FOR MULTIDIMENSIONAL MATRICES
		15.30–15.50 Coffee Break

15.50–16.05	Pastukhov N.V.	A TWO-SAMPLE TEST BASED ON MULTIVARIATE RANKS
16.05–16.20	Andreev D.E.	ADAPTIVE CHI-SQUARE TEST FOR GOODNESS-OF-FIT
16.20–16.35	Beliauskene E., Ustinova I., Konstantinov L.	A STATISTICAL STUDY OF THE SPATIAL AND TEMPORAL VARIABILITY OF TEMPERATURE AND WIND FIELDS
16.35–16.50	Voloshko V.A., Kharin Yu.S.	ON A NEW PARSIMONIOUS MODEL FOR HIGH-ORDER MARKOV CHAINS BASED ON SUFFICIENT STATISTICS
16.50–17.05	Zasko G.V., Kharlamov V.V., Filev R.K.	STATISTICAL PROBLEMS AT COMPUTING ONLINE CONTROLLED: EXPERIMENTS AT SCALE
17.05–17.20	Troush N.N., Tsybulka V.P.	VOLATILITY PREDICTION FOR THE GARCH MODEL
17.20–17.35	Chemykhin V.K. (on-line)	EXPLORING THE INTERCONNECTION BETWEEN INNOVATIVE INITIATIVES AND ESG OUTCOMES IN RUSSIAN FIRMS
		18.00–21.00 Conference Party

Thursday, September 25

Room 212

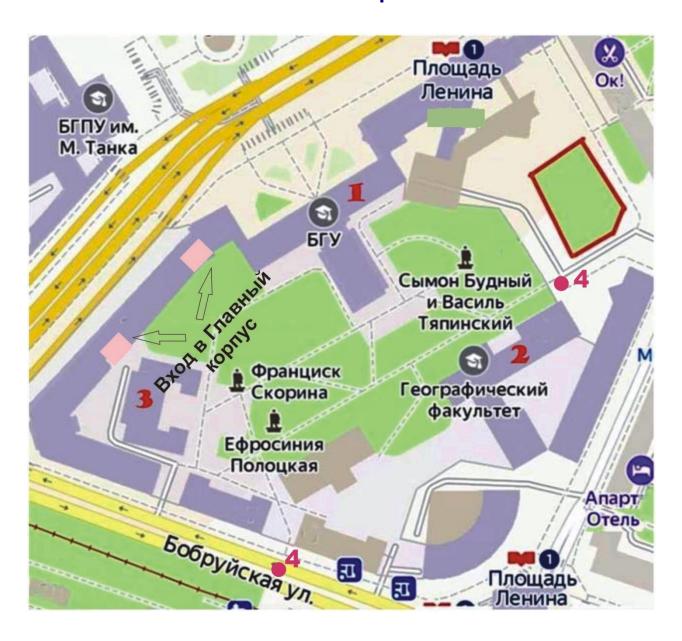| 10.00–12.50		**Plenary Session 2**
Time	**Chairs: Prof. Kharin Yu.S., Prof. Khartov A.A.**	
10.00–10.30	Khromov N.A., Golyandina N.E. (on-line)	TENSORS FOR SIGNAL AND FREQUENCY ESTIMATION IN SUBSPACE-BASED METHODS: WHEN THEY ARE USEFUL?
10.30–11.00	Dzhalilov A.A., Abdusalomov X.Sh. (on-line)	DYNAMICAL BOREL-CANTELLI LEMMA FOR AUTOREGRESSIVE PROCESSES WITH LAPLACE NOISES
		11.00–11.20 Coffee Break
11.20–11.50	Khartov A. A.	RATIONAL-INFINITE DIVISIBILITY OF MIXTURE PROBABILITY LAWS WITH DOMINATED CONTINUOUS SINGULAR PARTS
11.50–12.20	Malugin V.I.	MIXED-FREQUENCY DATA MODELS AND THEIR APPLICATION TO REAL-TIME ANALYSIS AND FORECASTING
12.20–12.50	Voloshko V.A.	LOCAL INFORMATION GEOMETRY FOR HIGH-ORDER BINARY MARKOV CHAINS AND ITS APPLICATIONS
		12.50–14.00 Lunch Break

14.00–15.30		Contributed Session 2 (ROOM 212): Discrete data: Models & Statistical Analysis
Time	Chair: Prof. Kharin Yu.S., Prof. Khil E.V.	
14.00–14.15	Serov A.A.	RELIABILITY OF TWO-LEVEL TESTING APPROACH OF THE NIST TEST SUITE
14.15–14.30	Kruglov V.I.	SUFFICIENT CONDITIONS FOR ASYMPTOTIC NORMALITY OF NUMBER OF MULTIPLE REPETITIONS OF CHAINS IN MARKED COMPLETE TREES AND FORESTS
14.30–14.45	Maltsew M.V.	ON STATISTICAL ESTIMATION OF S-DIMENSIONAL PROBABILITY DISTRIBUTION FOR BINARY RANDOM SEQUENCES
14.45–15.00	Palukha U.Yu., Pardaev A.A.	ESTIMATION OF PARAMETERS OF NLFSR USING MARKOV CHAINS WITH PARTIAL CONNECTIONS
15.00–15.15	Khomidov M.K.	ON PROBABILITY DISTRIBUTION ASSOCIATED BY TODA CHAIN
15.15–15.30	Alexeyeva N.P., Samarin I.A., Sotov A.A.	ANALYSIS OF RHYTHMIC PATTERNS OF THE TIME SERIES BASED ON THE STATISTICAL MODEL OF NBD
		15.30–15.50 Coffee Break

15.50–18.00		Contributed Session 3 (ROOM 212): Stochastics
Time	Chair: Prof. Vatutin V.A.	
15.50–16.05	Egorov A.D.	ON APPROXIMATE FORMULAS FOR MATHEMATICAL EXPECTATIONS OF NONLINEAR FUNCTIONALS OF RANDOM PROCESSES
16. 05–16.20	Zherelo A.V.	APPROXIMATE FORMULA FOR THE MATHEMATICAL EXPECTATION OF THE SOLUTION OF A SPECIAL TYPE OF SDE WITH JUMPS
16.20–16.35	Aliev A., Dzhalilov A., Fontana R. (on-line)	A NOTE ON EXIT TIMES FOR NONLINEAR AUTOREGRESSIVE PROCESSES
16.35–16.50	Poteshkin E., Golyandina N. (on-line)	MONTE-CARLO SSA FOR EXTRACTING WEAK SIGNALS
16.50–17.05	Berikov V.B., Kutnenko O.A. (on-line)	MULTIPLE INSTANCE LEARNING BASED ON SAMPLE SELF-CORRECTION, FEATURE SELECTION AND ENSEMBLE CLASSIFICATION
17.05–17.20	Terekhov I.N.	LIMIT THEOREM FOR SUBMISSION PROCESS IN ONLINE CONTEST
17.20–17.35	Jalilov A.A.	WEAK CONVERGENCE OF HITTING TIMES FOR CRITICAL CIRCLE MAPS
17.35–17.50	Romanchak V.M., Lappo P.M.	RELATIVITY PRINCIPLE AND MEASURE THEORY
17.50–18.00	Zuev N.M., Lappo P.M.	SOME APPROXIMATIONS OF REPLICATING PORTFOLIO

9.45–12.30		Contributed Session 4 (ROOM A):
		Econometrics & Official Statistics
Time	Chair: Prof. Afanasiev M.Yu., Prof. Malugin V.I.	
9.45–10.00	Afanasiev M.Yu., Gusev A.A.	ON THE ASSESSMENT OF THE IMPACT OF THE STRUCTURAL COMPLEXITY OF REGIONAL ECONOMIES ON GRP
10.00–10.15	Kudrov A.V.	SECTORAL STRUCTURE AND PROFITABILITY OF GRP: REGIONS OF RUSSIAN FEDERATION
10.15–10.30	Agabekova N.V., Bendega A.G.	APPLICATION OF R LANGUAGE TO DECOMPOSE THE GENDER GAP IN AVERAGE, HOURLY WAGES IN THE REPUBLIC OF BELARUS
10.30–10.45	Bokun N.	QUALITY OF LIFE EVALUATION: PROBLEMS, METHODS AND SURVEYS
10.45–11.00	Bout T.A., Malugin V.I.	SHORT-TERM FORECASTING AND NOWCASTING OF GDP GROWTH RATES IN THE REPUBLIC OF BELARUS USING MIXED FREQUENCY VECTOR AR MODELS
		11.00–11.30 Closing Coffee Break
11.30–11.45	Bazhanova N.D., Malugin V.I.	SHORT-TERM FORECASTING AND NOWCASTING OF REAL GDP USING COMBINED FORECASTS BASED ON MIDAS REGRESSION MODELS
11.45–12.00	Parkhimenka U., Bykau A.	IMPORT INTENSITY DYNAMICS IN CHINESE ECONOMIC SECTORS: TIME SERIES CLUSTERING OF INPUT-OUTPUT DATA (1981-2018)
12.00–12.15	Rahel D.M.	ASSESSING CONTRACTOR CONNECTIONS BASED ON BIG DATA SETS
12.15–12.30	Lobach V.I., Lobach S.V.	STATISTICAL FORECASTING OF PANEL DATA BASED ON STATE SPACE MODELS
9.45–12.45		Contributed Session 5 (Room B):
		Computer Data Analysis and Modeling: Applications
Time	Chair: Prof. Spesivtsev A.V., Prof. Balametov A.B.	
9.45–10.00	Ivashko A.A., Mazalov V.V.	OPINION DYNAMICS CONTROL IN A SOCIAL NETWORK
10.00–10.15	Balametov A.B., Isayeva T.M.	ASSESSMENT OF THE STATE OF AN AC OVERHEAD LINE BY THE RELINEARIZATION METHOD
10.15–10.30	Kharlamov V.V.	CONDITIONAL OPTIMIZATION IN UPLIFT MODELING
10.30–10.45	Salnikov D.A., Rusilko T.V.	ON THE STOCHASTIC MODEL OF A CLOUD COMPUTING SYSTEM
10.45–11.00	Spesivtsev A.V., Kimyaev I.T., Spesivtsev V.A., Inyutin A.V.	EXPERT KNOWLEDGE PECULIARITIES OF "FUZZY ASSESSMENTS" AND "FUZZY MEASUREMENTS" FOR MODELING THE STATE OF COMPLEX AGRICULTURAL OBJECTS

		11.00–11.30 Closing Coffee Break
11.30–11.45	**Kolesnikov E.Y.**	ON TRUE VALUE AND UNCERTAINTY OF A PHYSICAL QUANTITY
11.45–12.00	**Jiacheng G., Zhalezka B.A.**	A METHOD TO EVALUATE THE ECONOMIC GROWTH QUALITY OF HIGH-TECH INDUSTRY IN CHINA AND ITS REGIONAL LINKAGE
12.00–12.15	**Zhalezka B.A., Korolenok K.S., Shamardzina I.A.**	THE LIGHTWEIGHT PARTS DESIGN PROCESSES IMPROVEMENT BASED ON MODELING STRUCTURES WITH CYLINDRICAL CELLS
12.15–12.30	**Selezneva V.S.**	ON WEB-TEXTS CLASSIFICATION WITH METHODS OF COMPUTER DATA ANALYSIS

9.45–12.15	**Contributed Session 6: (Room C): Machine Learning & Artificial Neural Networks**	
Time	**Chair: Prof. Kharin A.Yu.**	
9.45–10.00	**Chentsov A.M.**	A COMPARISON OF CAUSAL SEARCH AND DOUBLE MACHINE LEARNING USING SIMULATED DATA
10.00–10.15	**Kharin Yu.S., Voloshko V.A., Prokhorchik N.A.**	STATISTICAL CLASSIFICATION OF DISCRETE DATA BY THE SCDD PYTHON LIBRARY
10.15–10.30	**Krasnoproshin V.V., Matskevich V.V.**	ON THE CONVERGENCE OF A TRAINING ALGORITHM BASED ON THE BOLTZMANN ANNEALING OPTIMIZATION SCHEME
10.30–10.45	**Safiullin T.T.**	COMPARATIVE ANALYSIS OF MACHINE AND DEEP LEARNING ALGORITHMS IN NETWORK TRAFFIC ANOMALY DETECTION
10.45–11.00	**Latushkin K.V., Kharin Yu.S.**	ON USING OF ARTIFICIAL NEURAL NETWORKS FOR APPROXIMATION OF BINARY FUNCTIONS
		11.00–11.30 Closing Coffee Break
11.30–11.45	**Mikulich G., Zhuk E.**	STATISTICAL CLASSIFICATION OF STATIONARY TIME SERIES BY AUTOREGRESSIVE MODEL PARAMETERS AND ITS EFFICIENCY
11.45–12.00	**Pleshakou Ya.D., Kharin A.Yu.**	COMPARISON OF TWO APPROACHES FOR FINANCIAL TIME SERIES FORECASTING
12.00–12.15	**Krasnoproshin V.V., Starovoitov A.A.**	ADAPTIVE METHOD OF DYNAMIC LOCAL APPROXIMATION IN IT SERVICE SCALING PROBLEMS

BSU Campus

1 – Main building of the Belarusian State University,
2 – Building of the Faculty of Geography and Geoinformatics,
3 – Rectorate building,
4 – Entrance into the BSU Campus.