



Name: Lyailya Karimova, Candidate of Sciences (Institute of Mathematics and Mechanics under the Ministry of Education and Science, Kazakhstan)

Rank: Senior Lecturer

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College: Bang College of Business

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Areas of Research:

Fractal Geometry, Mathematical Morphology, Neurocomputing,

Deterministic Chaos

Research Interests:

Lyailya Karimova's past research involved such fields of science as observations of satellites and Earth atmosphere. Working at the Institute of Mathematics as applied mathematician, Lyailya dealt with analysis and diagnostics of nonlinear dynamical systems, investigating stochastic fields by fractal and integral geometry methods to explore radionuclide contamination of the former Semipalatinsk nuclear test site and Semipalatinsk and Karaganda regions. Currently, Lyailya deals with testing non-linear time series by means of fractal geometry, multifractal formalism, topological dynamics methods and using neural networks for their prediction. Using morphological image analysis, solar magnetic charts were analyzed and underlying dynamics of solar magnetic field was revealed. The other of recent projects investigates time series of Finland's temperature and Greenland's oxygen isotope records. The enhancement of Holder regularity has given possibility to estimate interrelation between climatic indicators on the time scale of about 8000 years.

Main Publications:

Books:

Journal articles:

1. 'The Genetic Algorithm for a Signal Enhancement', Nuclear Instruments and Methods in Physics Research, vol. A 534, 2004, Tsukuba, Japan, pp. 170-174. (coauthored with Makarenko, N. G. and Y.B. Kuadykov)
2. 'Nonlinear Dynamics and Prediction of the Caspian Sea Level', Thinking in Patterns, FRACTAL 2004 International Conference, World Scientific Publ. Co, 2004, pp. 91-101. (co-authored with Makarenko, N. G. and Y.B. Kuadykov)
3. 'Application of Fractal and Morphological Methods in Radioecology', Health Physics, 85(3), 2003, p. 330-338. (co-authored with Makarenko, N. G. and M. Novak)

Book Chapters:

Conference Proceedings:

1. 'Enhancement of the Prediction of Actual Market Prices by Modifying the Regularity Structure of a Signal', The Application of Econophysics, Proceedings of the Second Nikkei Econophysics Symposium, Springer, 2003, pp. 125-130. (coauthored with Kuadykov, Y.B.)

Patent:

Conferences attended:

Seminars:

Research funds received in the last five academic years:

- (a) Internal (KIMEP)

Consulting Projects

- (a) Supporting Company:
- (b) Project Title:
- (c) Team:
- (d) Amount:
- (e) Year:

- (b) External

If external funds received, indicate below:

- (a) Name (s) of the supporting organization (s)
- (b) Project titles

Other members of the research group, if any:

Affiliations of the group members, if any:

Local collaboration, if any:

International collaboration, if any:

Consolidated Information:

Research Outcomes in the last five years

- (a) No of refereed published papers.....3
- (b) No of internal working papers/reports
- (c) No of conferences attended
- (d) No of papers published in refereed conference proceedings.....1
- (e) No of refereed books
- (f) No of refereed book chapters
- (g) No of patents developed
- (h) No of consulting projects
- (i) No of Seminars