

PECULIARITIES OF CONSTRUCTION OF INFORMATION TECHNOLOGIES FOR MODELING DEVELOPMENT PROCESSES OF TOURIST AND INFORMATION COMMUNICATION SYSTEMS

Olga Artemenko, Bogdan Gats, Nataliya Ivanuschak, Dmytro Uhryn

Bukovinian university, Chernivtsi National University named after Y. Fedkovych, Chernivtsi Department of NTU "Kharkiv Polytechnic Institute"

The purpose of research is to develop new, improved, and adapting existing methods and tools for mathematical modeling of effective tourism and information and communication infrastructure in the region, which enable the study of their structure and parameters based on fragmentary data observations, modeling and prediction of their development and structuring based on physical analogies .

The scientific novelty of the research is developed methods and tools for modeling complex objects and tourism infrastructure, information and communication systems based on specific physical analogies phenomena and processes. In particular, by modeling and prediction of the spatial form of tourist infrastructure of settlements based on fractal theory and analogy diffusion processes using mathematical tools of cellular automata . Based on the statistical physics analogy, a new method for generating patterns of high-tech information and communication networks with a given density function of the distribution of degrees of nodes with the use of the theory of complex networks, which makes it possible to play infocommunication network as a stochastic graphs with given probabilistic properties.

Developed as part of research complex of information technologies can be used at the regional and local levels - for the modeling and analysis of the formation and development of some tourist sites and integrated tourism complexes.

At this paper a complex of information technologies for simulation based on physical analogies of tourism industry objects, information and communication infrastructure and processes of formation and development both the individual tourist facilities, and integrated tourist complexes at the regional and local levels have been developed. The complex consists of three components: a set of information technology simulation and prediction of spatial development of tourism industry infrastructure facilities, recreational attractiveness assessment, methods and tools for modeling the structure and study of changes in parameters of computer networks, software and algorithmic system of the development and operation of tourism field data spaces.

Keywords – tourism infrastructure, infocommunication systems, data space, stochastic graph, fuzzy logic, cellular automata, fractal, diffusion.