

INVITED SESSION SUMMARY

Title of Session: Models in Smart E-Learning System Theory and Practice (MSTP)

Name, Title and Affiliation of Chairs:

Professor Lakhmi C. Jain,
PhD | ME | BE(Hons) | Fellow (Engineers Aust),
Founder KES International | <http://www.kesinternational.org/organisation.php>

Professor Natalia A. Serdyukova,
Russian Customs Academy, Komsomolsky prospect 4, Moscow region, Lyubertsy, 140015, Russia

Details of Session (including aim and scope):

Digital transformation processes cover almost all spheres of our society, combining real and virtual worlds.

The prerequisites for the processes of digital transformation of almost all spheres that ensure and connect the functioning of social society were noted in the works of I.R. Shafarevich as mathematization of science and development of technologies based on the latest achievements of the natural sciences. Modern digital transformation is the next stage in the implementation of mathematics in practice, which began with the advent of mathematics. It should be noted that digital transformation is also the next stage in the implementation of the systems approach developed in 1937 by Ludwig von Bertalanffy. Algebra and logic are currently key areas in digital transformation research and can be seen as the most important mechanisms enabling the strategic, fundamental achievements of digital transformation.

The role of mathematical methodology and methods underlying the digitalization of complex intelligent systems is increasing. Modeling, mathematics, education, economy are the links of this combining. This position determines the choice of invited session scope.

Research papers are invited in all areas related to the [Models in Smart E-Learning System Theory and Practice](#).

The topics of interest include, but are not limited, to:

- Verbal models in Smart E-Learning System Theory and Practice, or models of Pedagogical Theories of the Smart E - Learning System and their practical Implementations.
- Mathematical models in Smart E-Learning System Theory and Practice, or computational aspects, mechanisms and instruments of Smart E-Learning System Theory and Practice. The scope includes, but are not limited, to:
- Algebraic Methods in Smart E-Learning System Theory and Practice, as algebra and logic are currently key areas in digital transformation research and can be seen as the most important mechanisms enabling the strategic, fundamental achievements of digital transformation.
- Probability Methods in Smart E-Learning System Theory and Practice,
- Graph Theory Methods in Smart E-Learning System Theory and Practice,
- Geometric Methods of Smart E-Learning System Theory and Practice,
- Category Theory Methods in Smart E-Learning System Theory and Practice

The essence of ideology of Pedagogical Theories of the Smart E - Learning System and their practical Implementations can be based, but not limited to the book:

- Mirjana Ivanović, Lakhmi C. Jain, Editors, E-Learning Paradigms and Applications. Agent-based Approach, Studies in Computational Intelligence, Volume 528, Springer-Verlag Berlin Heidelberg, 2014

The mathematical part of the research on the proposed topic can be based, but not limited to the ideology developed in the works of A.I. Maltsev, I.R. Shafarevich, Saunders MacLane, Benoit Mandelbrot. To get acquainted with possible technical tools of the session, the following works may be useful:

- I.R. Shafarevich. Basic concepts of algebra. - Izhevsk: Izhevsk Republican Printing House, 1999.
- A.I. Malt'sev. Algebraic systems. - Moscow: Science, 1970.
- Saunders Mac Lane, Categories for the working mathematician, - New York, Berlin, Heidelberg, Springer – Verlag, 1991.
- B. Mandelbrot, The Fractal Geometry of Nature. - San Francisco: W.H. Freeman, 1983.
- N. Serdyukova, V. Serdyukov, Algebraic Formalization of Smart Systems. Theory and Practice, Smart Innovation, Systems and Technologies, Volume 91, - Switzerland, Springer Nature, 2018.
- N. Serdyukova, V. Serdyukov, Algebraic Identification of Smart Systems. Theory and Practice, Intelligent Systems Reference Library, 191, Springer, Nature, - Switzerland, 2021.

Timelines:

- **20 Jan. 2024**—Paper submission deadline
- **20 Feb. 2024** --Notification to the corresponding author
- **6 March 2024**---Camera-ready paper due

Main Contributing Researchers / Research Centres (tentative, if known at this stage):

Website URL of Call for Papers (if any):

Email & Contact Details:

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