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**Polyak B.T.**

The history of automatic control research in the Institute for Control Science from its establishment to the present day is considered. The prominent scientists of the Institute which have made a considerable contribution in development of control theory are mentioned. Modern research directions are briefly addressed.

**Keywords:** automatic regulation, control theory, linear systems, nonlinear systems, discrete-time systems, relay systems, optimal control, adaptive control, robustness.

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**Dorofeyuk A.A.**

The history and perspectives of development of complex organized data structure-ranging analysis methodology – a swiftly developing scientific branch both in Russia and abroad, which emerged from the statistical methods of data processing and pattern recognition methods – are examined. Both theoretical and applied results drawn in this scientific field are described.

**Keywords:** expert-ranging analysis; automatic classification; optimal parameters grouping; piecewise complicated dependence approximation; hierarchical and combined piecewise approximation; collective conflict-free, structural-hierarchical and correspondence expertise.

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**Burkov V.N., Novikov D.A.**

The development and modern state of the active systems theory – the branch of control theory, taking into consideration the human factor in essential degree, is described. The main results and scientific groups are presented.

**Keywords:** active system, mechanisms of staff and structure management; institutional, motivational, and informational management.

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**Keywords:** elements, facilities, technical means, automation, control systems, logical control, technical diagnostics, reliability.

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chives and knowledge base are proposed. An associative search procedure for the construction of virtual models is produced.

**Keywords:** identification of technological processes, knowledge base, associative search models, soft sensors.

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**Keywords:** decision-making support, ill-structured situations, linear cognitive maps, fuzzy cognitive maps, intellectual technology.

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**Keywords:** analysis, Synthesis, structure, modularity, real time, information management systems, data base, scenario approach, emergency situation, computerized designing.

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**Keywords:** control system, liquid-propellant rocket engine, artificial earth satellite, flexible spacecraft, rocket, airplane, image processing.

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**Keywords:** automation, control systems, marine vessels.

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**Keywords:** maritime mobile vehicles, control systems, computer technology, algorithms, simulation systems, training systems.

