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# International Forum CMMM-2021 – Computational and Mathematical Methods and Models in High-Tech Production

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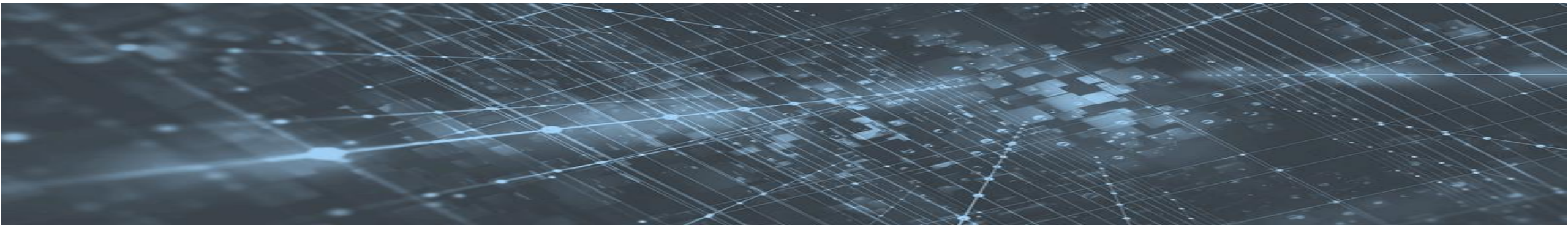
«Mathematical foundation of training students in the field of parallel  
computing in databases»

Alexander Kopyltsov, Meruert Serik, Saule Zhumagulova

# Problem statement

- Problem statement - Development of effective methods of teaching university students parallel computing in databases.
- Task 1 - Development of discipline sections devoted to parallel computing within disciplines related to basic computing;
- Task 2 - An introduction to the basic cycles of mathematics and programming of the initial information about parallel computing;
- Task 3 - Development of a methodology for organizing a seminar on parallel computing in databases;
- Task 4 - Introduction to the course on databases of the section "Parallel Computing in Databases".

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# Solution methods

The main issues of teaching the implementation of parallel computing in a database in the educational process are considered. The active development of parallel computing necessitates the purposeful formation of appropriate skills among students. The analysis of the content of disciplines serving as the basis for education in the field of parallel computing in databases - architecture of computing systems, database programming and computational mathematics. Based on the analysis performed, it was concluded that these disciplines today do not ensure the achievement of the main goal of the user - to learn how to effectively perform parallel queries in software applications being developed with a client-server DBMS. This is, in particular, due to the fact that a number of the most important and fundamental methods and technologies for implementing parallel computing in databases arose as a result of research at the junction of a number of subject areas. The program of modernization of educational courses in the interests of parallel computing in databases for implementation in the educational process is proposed, which will allow students to acquire skills and abilities of parallel processing of a large amount of database information in a short period of time. The proposed training program for future information specialists in parallel computing in databases contributes to the formation and development of their parallel style of thinking, as well as the success of mastering the course content.



# Conclusions

## Results, implementation

The requirements of the modern information society to the level of subject training of future information specialists determine the need to study the basics of parallel programming in the system of subject training. When studying a new programming technology, a specific style of thinking is formed - parallel. The methodical system of training future information specialists in the basics of parallel programming should form a parallel style of thinking through the organization of relevant activities and contribute to the successful assimilation of educational material. The proposed training program for future information specialists in parallel computing in databases contributes to the formation and development of their parallel style of thinking, as well as the success of mastering the course content.

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