



Национален център за високопроизводителни и  
разпределени пресмятания

**HPC for Mathematics and Applications**  
**Работен семинар, 28.06.2023**  
**Институт по математика и информатика при БАН**

09:55 – 10:00 Откриване

### **Coding Theory**

10:00-10:20 **Ts. Baicheva**, S. Topalova, Upper Bounds on the Size of  $(v,6,2,1)$  and  $(v,7,2,1)$  Optical Orthogonal Codes.

10:20-10:40 **Y. Borissov**, M. Markov, On an Approach for Computing Weight Distribution of Binary Reed-Muller Code

10:40-11:00 **M. Markov**, Y. Borissov, Our Experience with NCHDC Resources, Gained in Finding the Weight Distribution of the Binary Reed-Muller Code  $R(4; 9)$

11:00 – 11:20 Coffee break

11:20-11:40 **N. Manev**, H. Kostadinov, A General Construction of Integer Codes Correcting Specific Errors in Binary Communication Channels

11:40-12:00 **M. Pashinska-Gadzheva**, I. Bouyukliev, Library for Computing Weight Invariants of Linear Codes Using Vectorization

12:00-12:20 **I. Bouyukliev**, Implementation of Some Combinatorial Algorithms and Mathematical Software

### **Big Data**

14:00-14:20 **E. Atanasov**, Novel Developments at the HPC Centre of ICT-BAS

14:20-14:40 **S. Jordanov**, HPC Accounting System

14:40-15:00 **A. Karaivanova**, On the Low Discrepancy Sequence Generation on Heterogeneous HPC Systems

15:00-15:20 **A. Tchorbadjieff**, L. Tomov, V. Velev, G. Dezhov, V. Manev, P. Mayster, On Regime Changes of COVID-19 Outbreak

15:20-15:40 **G. Gadjev**, Study of the heat and cold bio-climatic indices for the city of Sofia

15:40 – 16:00 Coffee break

## Combinatorics

16:00-16:20 Z. Liu, **P. Kazakov**, OBZCP for higher dimensions

16:20-16:40 S. Topalova, **S. Zhelezova**, On the scalability of two algorithms for construction of parallelisms

16:40-17:00 **P. Boyvalenkov**, P. Lyakhov, N. Semyonova, M. Valueva, G. Boyvalenkov, D. Minenkov, D. Kaplun, Residue Number Systems with Six Modules and Efficient Circuits based on Power-of-Two Diagonal Modulus