82nd International Scientific Conference of the University of Latvia 2024

Use of High Performance Computing in Numerical Simulations

Thursday, 22nd February **2024, 10.00 AM**, University of Latvia House of Sciences, Riga, 3 Jelgavas Str. and *zoom* platform.

Programme

Chair: Jānis Virbulis		
9.30-10.00	**Registration and Coffee**	
10.00–10.10	**Opening**	
10.10–10.30	**Valters Dzelme** *University of Latvia*	**Simulation of liquid metal MHD with free surface**
10.30–10.50	**Maksim Sokolov, Yuri A. Mastrikov, Guntars Zvejnieks, Eugene A. Kotomin** *Institute of Solid State Physics University of Latvia*	**Modeling of hydrogen production on stepped surfaces of $SrTiO_3$ perovskite nanoparticles - ab initio computational study**
10.50-11.10	**Antun Balaz** *Institute of Physics Belgrade, Serbia*	**Numerical modeling of dipolar quantum gases: from Bose-Einstein condensates to supersolids**
11.10-11.30	**Heiko Hermmann** *Tallinn University of Technology (TalTech)*	**OpenFOAM Simulation of Fiber Concrete Flow**
11.30-11:50	**Valters Ribickis, Valters Dzelme** *University of Latvia*	**Numerical analysis of heat exchange in a double layer system with opposing fluid flow**
11:50-12:10	**Jurijs Ješkins** *University of Latvia*	**HPC demonstration in practice. Jupyterhub example. Questions and answers (*in latvian*)**
12.10-12.50	**Lunch and Discussions**	
Chair: Jānis Virbulis		
12.50–13.10	**Andrejs Sabanskis, Dagnis Daniels Vidulejs, Jānis Virbulis, Andris Jakovičs** *University of Latvia*	**Numerical simulations of air disinfection using a UV purifier**
13.10–13.30	**Andrejs Timuhins, Juris Seņņikovs, Uldis Bethers** *University of Latvia*	**Dam installation and peat restoration: a hydrogeological modeling approach for Pelečāre and Cena mire**

13.30-13.50	**Kirils Surovovs, Jānis Virbulis** *University of Latvia*	**Investigation of the scalability of OpenFOAM hydrodynamic simulations on HPC clusters**
13:50-14.10	**Prof. Emanouil Atanassov** *Institute of Information and Communication Technologies – Bulgarian Academy of Sciences*	**Optimization of execution on HEMUS supercomputer**
14.10-14.30	**Resume, Concluding Discussion, Coffee**	