

MUSKHELISHVILI INSTITUTE OF COMPUTATIONAL MATHEMATICS
GTU-MICM

GOALS AND PERSPECTIVES

CERN Cognitive Festival in Georgia
GTU, October 22 – 26, 2018

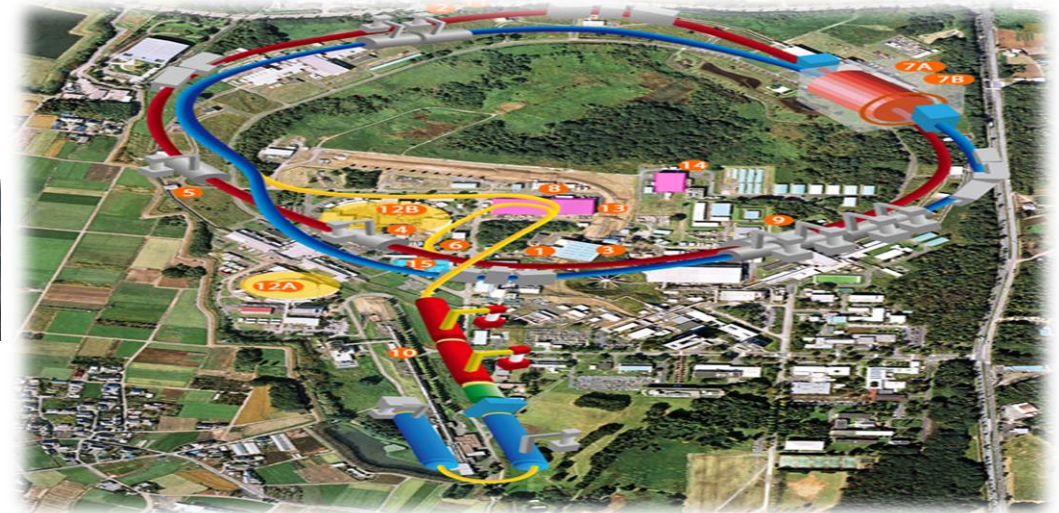
CHALLENGES



Integration of Georgian scientists with the European and wider research centers.

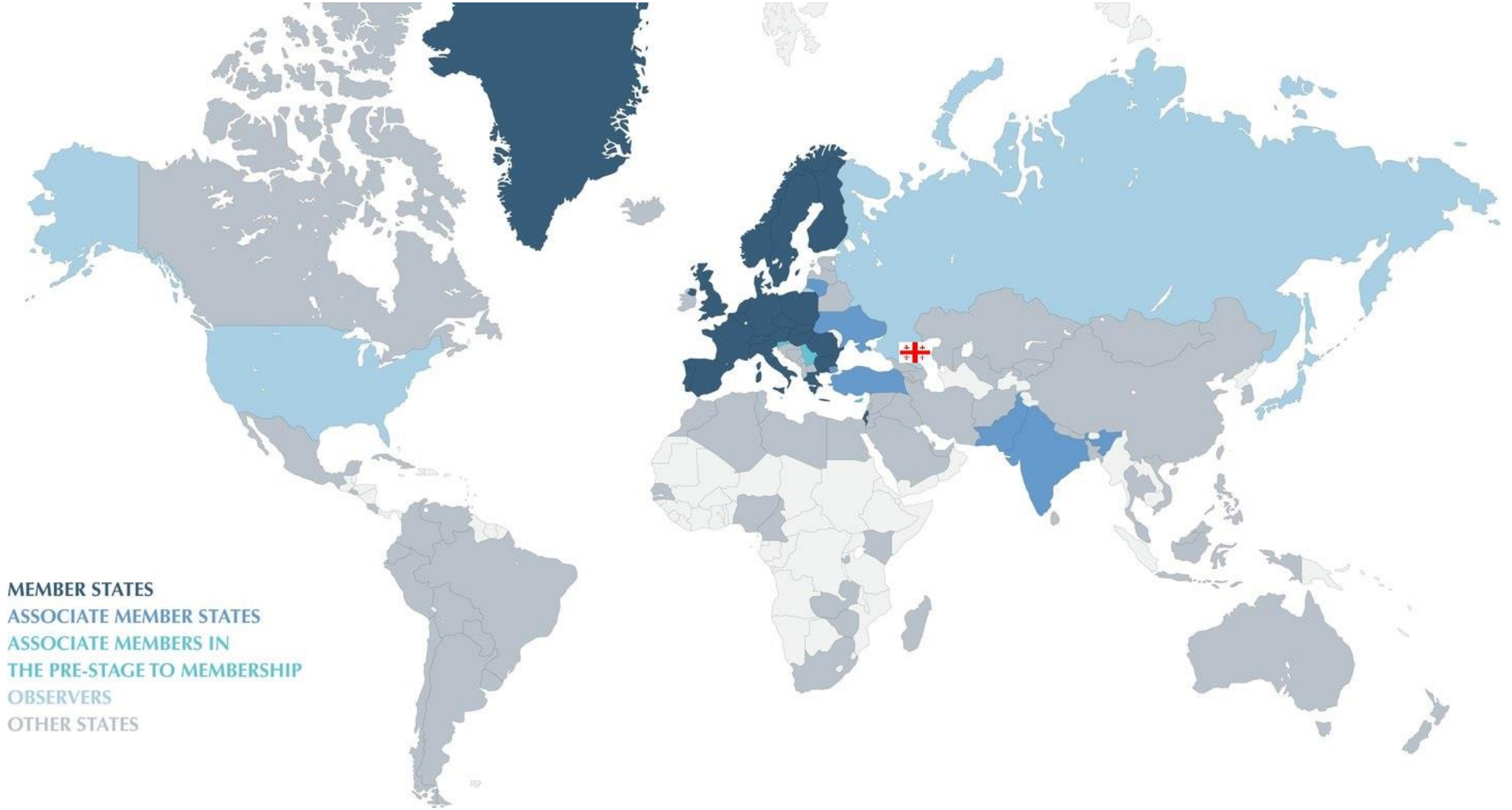


KEK Inter-University Research Institute Corporation
High Energy Accelerator Research Organization





Associate Membership of the CERN



MEMBER STATES
ASSOCIATE MEMBER STATES
ASSOCIATE MEMBERS IN
THE PRE-STAGE TO MEMBERSHIP
OBSERVERS
OTHER STATES

GEO-GRID SYSTEM IN MICM



Project Name: Geo-Grid System
Physical Location: MICM;
Architecture: Intel Xeon (Skyline) (288 proc., 5760 cores);
Intel Xeon Phi Knights Landing (2 gen) (60 proc., 4080 cores);
CPU cores in total: 9840;
RAM : 33.3 TB (DDR4);
Storage: 2 PB;
Performance: 551+ტერაფლოპსი(TerraFLOPs);
Operating System: Scientific Linux-o

MUSKHELISHVILI INSTITUTE OF COMPUTATIONAL MATHEMATICS

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GTU-MICM



2011



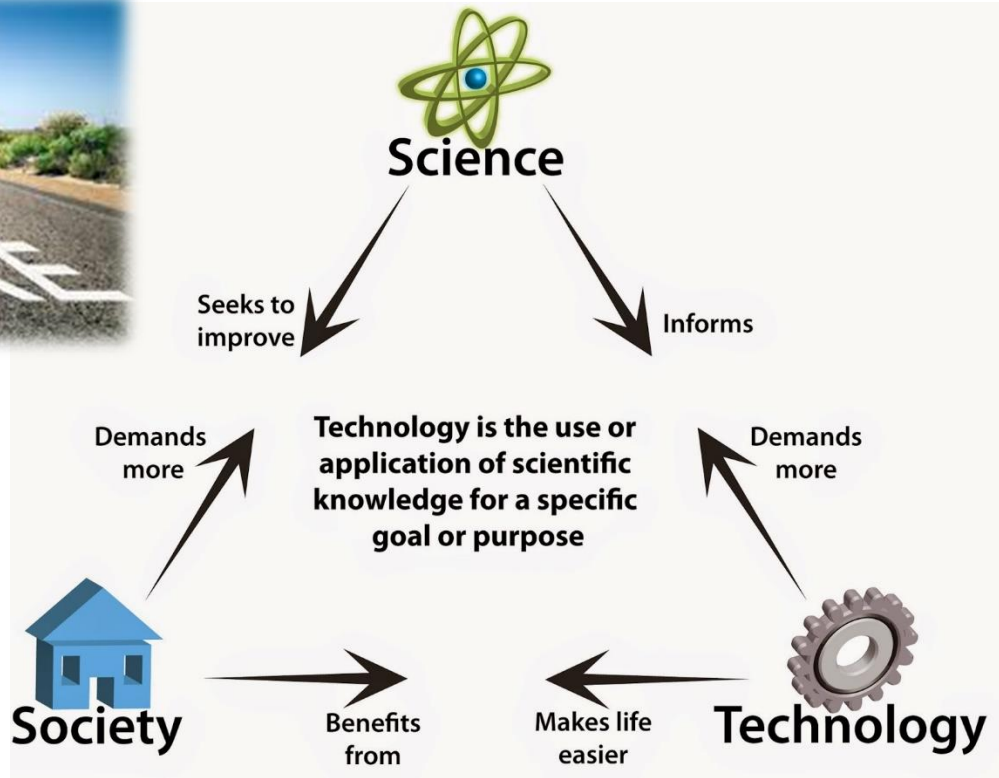
Scientific Departments of MICM

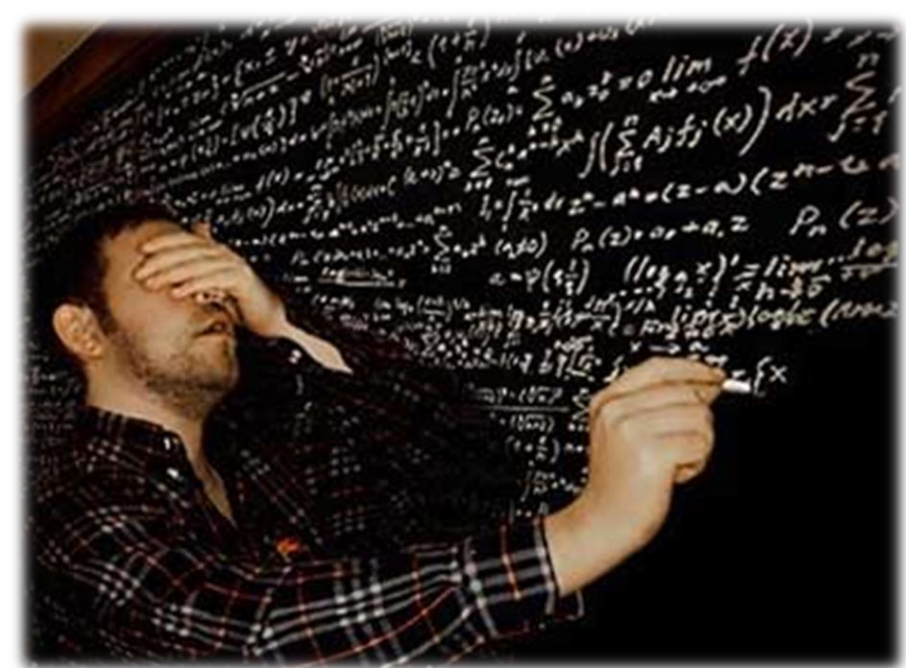
- **Department of Computational Methods**
- **Department of Probabilistic and Statistical Methods**
- **Department of Mathematical Modeling**
- **Department of Informatics**

Main Research Fields

- ✓ **Information Technologies**
- ✓ **Computational Methods**
- ✓ **Probability Theory and Mathematical Statistics**
- ✓ **Operations Research**
- ✓ **Problems of Mathematical Physics**
- ✓ **Analysis and etc.**

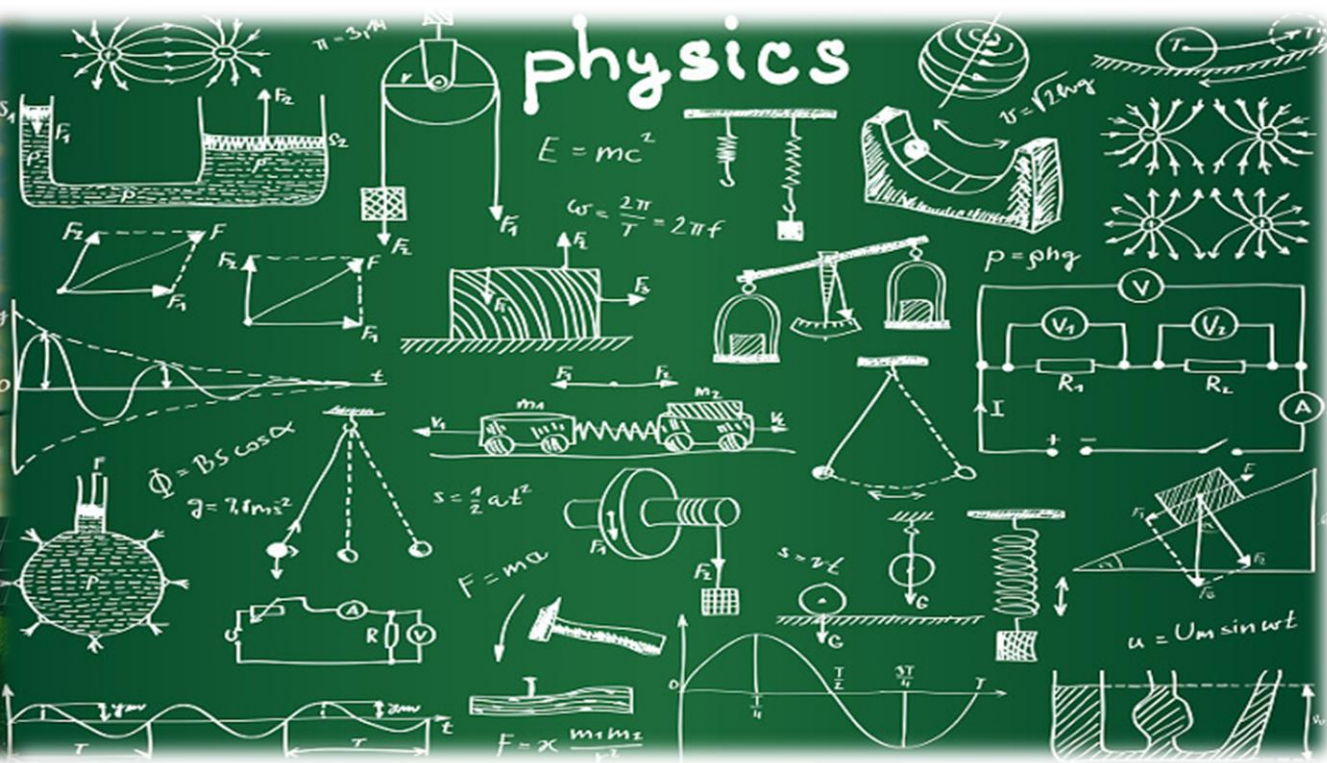
Challenges and Problems of the Science and Society





COMPUTATION

EVOLUTIONARY FACTOR
ANALOG VERSUS
CALCULATION
SCIENCE
PURELY THEORETICAL
COMPUTATION
EVOLUTION
LOGIC
DISCIPLINE
ALGORITHM
CONCURRENT
FINITE
MATHEMATICAL
MACHINE
MECHANICAL
MOLLECULAR
SIMULATION
PARAMOUNT
ARTIFICIAL
AUTOMATON
COMPUTER
DIGITAL
VIEW
PHENOMENON
POSTULATE
COMPUTING
RADICAL
SEQUENTIAL
PHYSICAL
WORD
BRANCH
MODE
OCCURRING
QUANTUM



Nowadays the Paradigm in a broad sense is much the same, but the research tools have changed and heavily depend on large scale computing with enormous data as well as on relevant mathematical algorithms



The main goal of MICM is to integrate and synchronize its research with the current mainstreams.

Goals and Objectives!



- ✓ Have a mixture of HPC (High Performance Computing) and HTC (High Throughput Computing) oriented architectures.
- ✓ HPC platform will serve as a multipurpose super computer for solution and analysis of tasks and challenges mainly from environmental, water resources and Geophysics related research domains.
- ✓ Appropriate Scientific Cluster/Consortium, consisting of the research institutes of GTU will be created, where MICM with its Computational capacities will be in the center of this Cluster.



The inflow of the Young Generation with the knowledge of modern research technologies is crucial for us. We are lucky to say that this process has started and we already have several young scientists.

THANK YOU FOR YOUR ATTENTION!