Contribution ID: **121**   Type: **Plenary**

Memory Models in HPC: Successes and Problems

Tuesday, 2 September 2014 11:50 (35 minutes)

Performance and scaling of many algorithms in scientific and distributed computing crucially depend on the memory model, organization and speed of access to the memory hierarchy. We will review parallel computing strategies and memory models in modern HPC, discuss MPI and OpenMP parallelization paradigms, as well as hybrid programming approach and memory mismatch problem. We will comment on the emerging hybrid programming hierarchy due to introduction of GPGPUs, FPGAs and other types of accelerators.

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Session Classification: Plenary

Track Classification: Computing Technology for Physics Research