Contribution ID: **423** Type: **Plenary talk**

Population annealing methods using hybrid parallel computing architecture

Wednesday 9 July 2025 10:00 (30 minutes)

Two methods of population annealing implemented in a hybrid MPI/CUDA architecture are discussed. Examples of applications for classical statistical physics systems are given. The first method is based on annealing with temperature reduction/increase. It can also be used to minimize the functional. The second method is based on lowering/raising the energy of the system and allows investigating the details of the phase coexistence in the vicinity of the phase transition. Examples include parallel and distributed simulations of several million copies of the system under study.

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Session Classification: Plenary