



Contribution ID: 312

Type: **not specified**

## Exact Calculation of Disconnected Loops

*Thursday, 17 June 2010 15:30 (20 minutes)*

The exact computation of the disconnected diagram contribution to a number of hadronic observables, such as the eta prime mass and the nucleon isoscalar form factors, is considered to explicitly expose the gauge noise associated with these diagrams. A Wilson action on lattices of SU(3) SESAM gauge field configurations with two dynamical flavors and a volume of  $16^3 \times 32$  are utilized. An exact inversion method is employed to perform  $O(10^6)$  inversions of the Wilson-Dirac matrix per configuration. To accelerate computations, GPGPU technology is exploited by utilizing conjugate gradient solvers on the NVIDIA CUDA platform. A modified interface to QUDA library is employed which provides mixed precision implementations of both CG and BiCGstab algorithms. In particular, it allows one to achieve a performance level in excess of 100 Gflop/s with respect to NVIDIA GT200 micro-architecture.

### Please, insert your presentation type (talk, poster)

Talk

**Primary author:** O'CAIS, Alan (Cyprus Institute)

**Co-authors:** Dr STRELCHENKO, Alexei (Cyprus Institute); Prof. ALEXANDROU, Constantia (University of Cyprus); Mr CHRISTARAS, Dimitrios (University of Cyprus)

**Presenter:** O'CAIS, Alan (Cyprus Institute)

**Session Classification:** Parallel 41: Algorithms and machines

**Track Classification:** Algorithms and machines