



Contribution ID: 213

Type: Poster

An application of the hybrid Monte Carlo algorithm for realized stochastic volatility model

Wednesday, 15 July 2015 18:30 (2h 30m)

The hybrid Monte Carlo (HMC) algorithm has been widely used for dynamical lattice QCD simulations. One of the advantages of using the HMC algorithm is that it is a global algorithm that can update all link variables simultaneously. In this way we can greatly reduce computational cost concerning the fermionic part. We utilize this advantage for parameter estimations of the realized stochastic volatility model which has been used for modelling time series data. The realized stochastic volatility model includes a number of volatility variables to be updated. We update those variables by the HMC algorithm. It is found that the HMC algorithm de-correlates effectively Monte Carlo samples of volatility variables. We also show that the algorithm can be accelerated by the GPU computing.

Primary author: Prof. TAKAISHI, Tetsuya (Hiroshima University of Economics)

Co-authors: Dr CHEN, Tingting (Hiroshima University); Prof. LIU, Yubin (Nankai University)

Presenters: Prof. TAKAISHI, Tetsuya (Hiroshima University of Economics); Prof. LIU, Yubin (Nankai University)

Session Classification: Poster Session

Track Classification: Algorithms and Machines