The 33rd International Symposium on Lattice Field Theory (Lattice 2015)



Contribution ID: 33

Type: Talk

## Eigenspectrum calculation of the non-Hermitian O(a)-improved Wilson-Dirac operator using the Sakurai-Sugiura method

Thursday, 16 July 2015 11:20 (20 minutes)

We are developing a computer code for calculating eigenvalues of the non-Hermitian O(a)-improved Wilson-Dirac operator. We introduce here the Sakurai-Sugiura method, which is an eigensolver algorithm based on a contour integral, allowing us to calculate desired eigenvalues located inside a given contour. We report the test results for low-lying eigenvalues obtained with free-case, quenched and full QCD configurations up to a lattice size of 96<sup>4</sup>.

**Primary author:** Dr SUNO, Hiroya (RIKEN Advanced Institute for Computational Science; RIKEN Nishina Center)

**Co-authors:** Dr IMAKURA, Akira (Department of Computer Science, University of Tsukuba); Prof. ISHIKAWA, Ken-Ichi (Department of Physical Science, Hiroshima University); Prof. SAKURAI, Tetsuya (Department of Computer Science, University of Tsukuba; Center for Computational Science, University of Tsukuba); Dr FUTAMURA, Yasunori (Department of Computer Science, University of Tsukuba); Dr NAKAMURA, Yoshifumi (RIKEN Advanced Institute for Computational Science); Prof. KURAMASHI, Yoshinobu (RIKEN Advanced Institute for Computational Science; Center for Computational Science, University of Tsukuba; Faculty of Pure and Applied Sciences, University of Tsukuba)

**Presenter:** Dr SUNO, Hiroya (RIKEN Advanced Institute for Computational Science; RIKEN Nishina Center)

Session Classification: Algorithms and Machines

Track Classification: Algorithms and Machines