Contribution ID: **158** Type: **Poster Presentation**

A quantum circuit modeling toolkit for high performance computing

Wednesday, 9 July 2014 17:10 (1h 50m)

Abstract content
   (Max 300 words)
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Theoretically, quantum computers are known to solve a certain class of problems more efficiently than their classical counterparts. This is due to parallelism which is inherent in quantum algorithms. However, a full-scale quantum computer has not been realized as yet. Therefore, in order to validate and debug quantum circuits, a classical computer is used. Since most of these circuits are simulated using personal computers (PCs), quantum circuits with a limited number of quantum bits (qubits) can only be simulated, due to computational limitations of PCs. In this work, we report the simulation of quantum circuits on a high performance platform using message passing interface for the Python (mpi4py) package.

Apply to be
 considered for a student
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Yes

Level for award
 (Hons, MSc,
   PhD)?

PhD

Main supervisor (name and email)
and his / her institution

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Would you like to <br> submit a short paper <br> for the Conference
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Yes

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Session Classification: Poster2

Track Classification: Track F - Applied Physics