



Contribution ID: 187

Type: **Oral Presentation**

## Dissipative Dynamics of a Spinless Electron Strongly Interacting with the Environment of Spinless Electrons

*Wednesday, 11 July 2012 17:10 (20 minutes)*

### Abstract content <br> &nbsp; (Max 300 words)

We consider the dissipative dynamics of a spinless electron (fermion) strongly interacting with a finite bath of fermions. The fermionic environment is embedded in a bosonic Markovian bath. The master equation for the fermion interacting with the fermionic bath is derived. Based on the master equation for the fermion interacting with a fermionic bath, the reduced dynamics and thermalization of the spinless electron is studied.

### Apply to be<br> consider for a student <br> &nbsp; award (Yes / No)?

Yes

### Level for award<br>&nbsp;(Hons, MSc, <br> &nbsp; PhD)?

MSc

### Main supervisor (name and email)<br>and his / her institution

Prof. F. Petruccione, UKZN, petruccione@ukzn.ac.za

### Would you like to <br> submit a short paper <br> for the Conference <br> Proceedings (Yes / No)?

Yes

**Primary author:** Mr MWALABA, Michael (National Institute for Theoretical Physics and Quantum Research Group, School of Chemistry and Physics, University of KwaZulu-Natal)

**Co-authors:** Prof. PETRUCCIONE, Francesco (National Institute for Theoretical Physics and Quantum Research Group, School of Chemistry and Physics, University of KwaZulu-Natal); Dr SINAYSKIY, Ilya (National Institute for Theoretical Physics and Quantum Research Group, School of Chemistry and Physics, University of KwaZulu-Natal)

**Presenter:** Mr MWALABA, Michael (National Institute for Theoretical Physics and Quantum Research Group, School of Chemistry and Physics, University of KwaZulu-Natal)

**Session Classification:** Theoretical

**Track Classification:** Track G - Theoretical and Computational Physics