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# Hamiltonian approach to open quantum Brownian motion.

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## Abstract content <br> &nbsp; (Max 300 words)<br><a href="http://events.saip.org.za/getFile.py/atarget="\_blank">Formatting &<br>Special chars</a>

The microscopic derivation of Open Quantum Brownian Motion (OQBM) is presented [1,2]. OQBM is obtained as a special limit (scaling limit) of the recently introduced Open Quantum Walks [3,4]. The quantum master equation for OQBM is derived for a weakly driven system interacting with the decoherent environment. Examples of the dynamics for initial Gaussian and non-Gaussian distributions are presented.

 M. Bauer, D. Bernard and A. Tilloy, Phys. Rev. A 88
(2013), 062340.
M. Bauer, D. Bernard and A. Tilloy, The Open Quantum Brownian Motion, math-ph/1312.1600.
S. Attal, F. Petruccione and I. Sinayskiy, Phys. Lett. A 376 (2012), 1545.
S. Attal, F. Petruccione, C. Sabot and I. Sinayskiy, J. Stat. Phys. 147 (2012), 832.

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

No

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

PhD

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

Yes

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