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Decoherence-assisted transport in quantum networks

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Abstract content
 (Max 300 words)

The dynamics of a quantum network under the influence of decoherence is studied. This work is a generalisation of previous research on decoherence-assisted transport in a dimer system [I. Sinayskiy, A. Marais, F. Petruccione and A. Ekert, Phys. Rev. Lett. 108, 020602 (2012)]. The model under investigation consists of a homogenous fully connected quantum network in contact with an environment of spins. Exact analytical expressions for the transition probabilities are obtained. It is shown that there exist well-defined ranges of parameters for which decoherent interactions with the environment assist energy transfer in the quantum network. This model of decoherence assisted energy transfer is applied to energy transfer in the Fenna-Matthews-Olson complex.

Apply to be
 consider for a student
 award (Yes / No)?

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
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 for the Conference
 Proceedings (Yes / No)?

Yes

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