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To whom it may concern

Belfast, 21 August 2019

Dear Sir/Madam,

I am delighted to report on the Habilitation Thesis submitted to Charles University by Mgr Tomáš Maňal, PhD. The thesis focuses on the description of the phenomenology of the quantum evolution of biological systems, covering energy transfer in photosynthetic systems, open-system dynamics and spectroscopic inference. The introductory chapters are corroborated by twelve papers published in some of the higher impact journals in physics and chemical physics, reporting work of both a theoretical and experimental nature.

The thesis is very well written, and provides a good overview of the general context addressed by the reported work. The introductory chapters are very pedagogical and accessible by non-specialists, which gives a token of the capacity of Dr Maňal to reach out to the broadest community. The published results are solid, some of them being influential.

The only criticism that I can move to the unpublished part of the material that has been reported in the submitted thesis (the published work having been through the peer-review process at the well reputed journals where such works have been published) is the questionable use of the term 'quantum thermodynamics': while such terminology refers to a well-defined – and fast growing – research field that aims at investigating how (and if!) thermodynamics should be reformulated when addressing processes occurring at the quantum scale, I believe Dr. Maňal uses such term to broadly identify the dynamics of a quantum system in contact with a thermal bath. In this sense, I would rephrase the text in terms of 'thermal baths' rather than 'thermodynamic baths' and would not use the wording 'quantum thermodynamics', as misleading.

Overall, in light of the quality of the scientific production reported in the submitted thesis, my recommendation is that Dr Maňal is indeed appointed as Associate Professor.

I remain fully available should further information be required

Sincerely

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