

Quantum Physics Meets Distributed Computing

No one can doubt, that in the near future, our lives will be changed by a number of exciting scientific progresses. The quantum computer could be such a major invention.

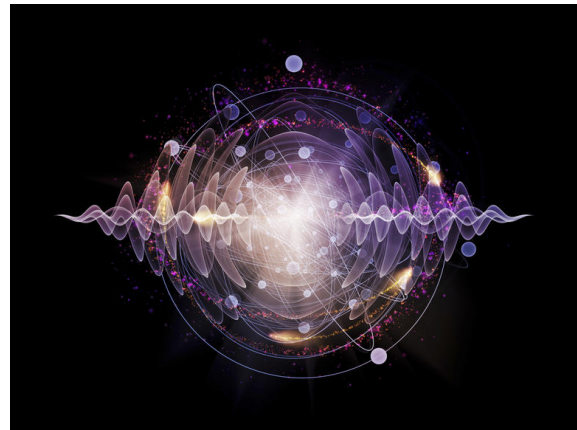
Using quantum-mechanical phenomena, such as superposition and entanglement, a large quantum computer would be able to solve problems (integer factorization, simulation of quantum many body systems, ...) much more quickly than any classical computer.

In this project, our goal is to understand the physics by modeling some quantum physics problems as distributed computing problems. We will consider a given network structure and a task. This work is likely to use so-called Bell inequalities and classical simulation of quantum mechanics.

Note that the two advisors of this project are from ETH Zurich and Univ. of Geneva. Should be fun!

Organization: The thesis can be hosted either by ETH or by Unige. The principal residence (Zurich or in Geneva) will be discussed before the start of the thesis. You will meet with your advisors on a weekly basis to discuss progress and open questions.

Requirements: No background in quantum physics or distributed computing is required. You can choose between theory and programming (for numerical experiments). If you choose theory, basic knowledge in probability theory is helpful.



Interested? Please contact us for more details!

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*Distributed
Computing*



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*Quantum
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