**14) Topic:** Quantum dynamics for algorithmic applications

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**Abstract:** Quantum devices have are known to have the potential ability to solve problems more efficiently than classical ones [1]. The initial discoveries have spurred the development of a new field at the intersection of physics, computer science and mathematics, ultimately aiming at developing practical hardware implementations of known and future applications. The main challenge on this endeavor are the presence of imperfections and losses generally attributed to open quantum systems. The goal of the work is to find algorithmic or quantum simulation applications of quantum systems admitting a network description with additional ingredients, such as measurement and feed-forward by a controller [4,5] or the environment [6], effects of quantum statistics [2,3], or periodic driving [7]. The exact direction will be chosen based on the specific expertise and interest of the candidate.

**References:**