

Abstract Submitted  
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**Google in a Quantum Network** GIUSEPPE DAVIDE PAPARO, Universidad Complutense — In [1] we introduce the characterization of a class of quantum PageRank algorithms in a scenario in which some kind of quantum network is realizable out of the current classical internet web, but no quantum computer is yet available. This class of algorithms represents a quantization of the PageRank protocol currently employed to list web pages according to their importance. The PageRank algorithm’s ranking ability has been instrumental to give structure to the web. This class of algorithms may be able to rank nodes in a quantum network. Furthermore, in this class, we have found an instance of this class of quantum protocols that outperforms its classical counterpart and may break the classical hierarchy of web pages depending on the topology of the web.

[1] G.D. Paparo and M. A. Martin-Delgado; “Google in a Quantum Network”; Sci.Rep. **2** , 444 (2012), arXiv:1112.2079.

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