1145-81-24   **Salvador Elias Venegas-Andraca*** (`salvador.venegas-andraca@keble.oxon.org`), ITESM CEM, Carretera Lago de Gpe. Km. 3.5, Col. Margarita Maza de Juarez, 52926 Atizapan de Zaragoza, EdoMex, Mexico. *Quantum Annealing-Based Algorithms, Quantum Machine Learning and Quantum Walks.*

Research on quantum computation heavily focuses on building and running algorithms which exploit the physical properties of quantum computers. The existence of quantum technology for developing quantum algorithms to solve combinatorial optimization problems has boosted the interest of the scientific and engineering communities to think of novel applications of quantum algorithms in fields like Machine Learning.

The first part of this talk will be focused on presenting the quantum annealing model of quantum computation, succinctly compared with other models of quantum computation. Then, we shall proceed to present a general structure of quantum annealing-based algorithms, followed by an example of this kind of algorithms for solving instances of the Minimum Multicut problem and a concise overview of the emergent field of Quantum Machine Learning and its links with quantum annealing-based algorithms. We will finish our talk by presenting and analysis of the similarities of the quantum annealing model of computation and quantum walks.

This talk is mostly based on **S.E. Venegas-Andraca, W. Cruz-Santos, C. McGeogh and M. Lanzagorta. A cross-disciplinary introduction to quantum annealing-based algorithms. Contemporary Physics 59(02), pp. 174–196 (2018)**. (Received June 11, 2018)