

Abstract Submitted  
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**Quantum Optimization: Spin Glasses and Wavefunction Annealing** JAVIER RODRIGUEZ-LAGUNA, GIUSEPPE SANTORO, International School for Advanced Studies (SISSA), Via Beirut 2-4, I-34014 Trieste, Italy and CNR-INFM Democritos National Simulation Center — The density matrix renormalization group (DMRG) has been extended in order to analyse the quantum spin glass transition (QSGT) for a random Ising model in a transverse field  $-\Gamma$  on a random graph with fixed connectivity  $K = 3$ . The system is solved easily for a high value of  $\Gamma$ , and the wavefunction is *annealed* decreasing it slowly until the transition is reached. This way, the QSGT has been characterized in detail. A further decrease of  $\Gamma$ , down to  $\Gamma = 0$ , allows to obtain the solution of the classical minimization problem associated, thus providing a possible alternative route to quantum annealing methods. Reference: J. Rodriguez-Laguna, G.E. Santoro, *Quantum Spin Glass Transition: the Ising model on random graphs*, submitted to Phys. Rev. B. ArXiv: `cond-mat/0610661` (2006).

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