

Close

Web of Science  
Page 1 (Records 1 -- 1)

Print

**Record 1 of 1****Title:** Generation of elementary gates and Bell's states using controlled adiabatic evolutions**Author(s):** Benmachiche, A (Benmachiche, Abderrahim); Sellami, A (Sellami, Ali); Turaev, S (Turaev, Sherzod); Bahloul, D (Bahloul, Derradjji); Messikh, A (Messikh, Azeddine); Wahiddin, MR (Wahiddin, Mohamed Ridza)**Source:** INTERNATIONAL JOURNAL OF QUANTUM INFORMATION **Volume:** 17 **Issue:** 3 **Article Number:** 1950020 **DOI:** 10.1142/S0219749919500205 **Published:** APR 2019**Times Cited in Web of Science Core Collection:** 0**Total Times Cited:** 0**Usage Count (Last 180 days):** 0**Usage Count (Since 2013):** 0**Cited Reference Count:** 32

**Abstract:** Fundamental quantum gates can be implemented effectively using adiabatic quantum computation or circuit model. Recently, Hen combined the two approaches to introduce a new model called controlled adiabatic evolutions [I. Hen, Phys. Rev. A, 91(2) (2015) 022309]. This model was specifically designed to implement one and two-qubit controlled gates. Later, Santos extended Hen's work to implement n-qubit controlled gates [A. C. Santos and M. S. Sarandy, Sci. Rep., 5 (2015) 15775]. In this paper, we discuss the implementation of each of the usual quantum gates, as well as demonstrate the possibility of preparing Bell's states using the controlled adiabatic evolutions approach. We conclude by presenting the fidelity results of implementing single quantum gates and Bell's states in open systems.

**Accession Number:** WOS:000473351000001**Language:** English**Document Type:** Article**Author Keywords:** Controlled adiabatic evolutions; quantum gates; Bell's states**Addresses:** [Benmachiche, Abderrahim; Messikh, Azeddine; Wahiddin, Mohamed Ridza] Int Islamic Univ Malaysia, Dept Comp Sci, Jalan Gombak, Kuala Lumpur 51300, Malaysia.

[Sellami, Ali] Univ Ctr Tamanrasset, Inst Sci &amp; Technol, Fort Laperine 11110, Tamanrasse, Algeria.

[Turaev, Sherzod] Int Islamic Univ Malaysia, Dept Informat Sci, Jalan Gombak, Kuala Lumpur 51300, Malaysia.

[Bahloul, Derradjji] Batna 1 Univ, Dept Phys, Biskra Rd, Batna 05010, Algeria.

**Reprint Address:** Benmachiche, A (reprint author), Int Islamic Univ Malaysia, Dept Comp Sci, Jalan Gombak, Kuala Lumpur 51300, Malaysia.**E-mail Addresses:** ab3@live.fr; sellami2003@hotmail.com; sherzod@iium.edu.my; dbahloul@gmail.com; messikh@iium.edu.com; mridza@iium.edu.my**Publisher:** WORLD SCIENTIFIC PUBL CO PTE LTD**Publisher Address:** 5 TOH TUCK LINK, SINGAPORE 596224, SINGAPORE**Web of Science Categories:** Computer Science, Theory & Methods; Quantum Science & Technology; Physics, Particles & Fields; Physics, Mathematical**Research Areas:** Computer Science; Physics**IDS Number:** IF80D**ISSN:** 0219-7499**eISSN:** 1793-6918**29-char Source Abbrev.:** INT J QUANTUM INF**ISO Source Abbrev.:** Int. J. Quantum Inf.**Source Item Page Count:** 17**Funding:**

Funding Agency	Grant Number
Malaysia Education Ministry Research Grant	FRGS17-024-0590

This project was supported in part by the Malaysia Education Ministry Research Grant FRGS17-024-0590.

**Output Date:** 2019-07-31

Close

Web of Science  
Page 1 (Records 1 -- 1)

Print



Clarivate

Accelerating innovation

© 2019 Clarivate Copyright notice Terms of use Privacy statement Cookie policy

Sign up for the Web of Science newsletter Follow us

