

**ScienceWatch Home****Inside This Month...****Interviews**

Featured Interviews  
 Author Commentaries  
 Institutional Interviews  
 Journal Interviews  
 Podcasts

**Analyses**

Featured Analyses  
 What's Hot In...  
 Special Topics

**Data & Rankings**

Sci-Bytes  
 Fast Breaking Papers  
 New Hot Papers  
 Emerging Research Fronts  
 Fast Moving Fronts  
 Corporate Research Fronts  
 Research Front Maps  
 Current Classics  
 Top Topics  
 Rising Stars  
 New Entrants  
 Country Profiles

**About Science Watch**

Methodology  
 Archives  
 Contact Us  
 RSS Feeds

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TRACKING TRENDS & PERFORMANCE IN BASIC RESEARCH



Interviews

**Analyses**

Data &amp; Rankings

Special Topics : Quantum Computers : Most Cited Papers (2 years) - Quantum Computers

**SPECIAL TOPICS****Quantum Computers**

Published: March 2010

**Top Papers - 10 years | 2 years**

The baseline time span for this database is 1999-December 31, 2009 (sixth bimonthly period 2009). The resulting database contained 12,386 (10 years) and 3,541 (2 years) papers. To construct the top 20 papers lists for the past decade and the past two years, the papers were further narrowed down by the title keywords "quantum comput\*." This adjustment resulted in the top 20 papers being selected from a pool of 1,422 (10 years) and 243 (2 years) papers.

**\*\*\*Article 1**

Total Cites: 93

Article Title: Non-Abelian anyons and topological quantum computation

Authors: Nayak, C, Simon, SH, Stern, A, Freedman, M, Das Sarma, S

Journal: REVIEWS OF MODERN PHYSICS

Volume: 80

Page: 1083-1159

Year: 2008

Addresses:

- Univ Calif Santa Barbara, Microsoft Stn Q, Santa Barbara, CA, USA
- Univ Calif Los Angeles, Dept Phys & Astron, Los Angeles, CA, USA
- Alcatel Lucent, Bell Labs, Murray Hill, NJ, USA
- Weizmann Inst Sci, Dept Condensed Matter Phys, Rehovot, Israel
- Univ Maryland, Dept Phys, College Pk, MD, USA

**\*\*\*Article 2**

Total Cites: 37

Article Title: Towards fault-tolerant quantum computing with trapped ions

Authors: Benhelm, J, Kirchmair, G, Roos, CF, Blatt, R

Journal: NAT PHYS

Volume: 4

Page: 463-466

Year: 2008

Addresses:

- Innsbruck Univ, Inst Expt Phys, Innsbruck, Austria
- Austrian Acad Sci, Inst Quantenopt & Quanteninformat, Innsbruck, Austria
- Innsbruck Univ, Inst Expt Phys, Technikerstr 25, Innsbruck, Austria

**\*\*\*Article 3**

Total Cites: 16

Article Title: Quantum computing with trapped ions

Authors: Haffner, H, Roos, CF, Blatt, R

Journal: PHYS REP

Volume: 469

Page: 155-203

Year: 2008

Addresses:

- Austrian Acad Sci, Inst Quantenopt & Quanteninformat, Innsbruck, Austria
- Innsbruck Univ, Inst Expt Phys, Innsbruck, Austria
- Univ Calif Berkeley, Dept Phys, Berkeley, CA, USA
- Lawrence Berkeley Natl Lab, Div Mat Sci, Berkeley, CA, USA
- Austrian Acad Sci, Inst Quantenopt & Quanteninformat, Technikerstr 21A, Innsbruck, Austria

\*\*\*Article 4

Total Cites: 16

Article Title: Active one-way quantum computation with two-photon four-qubit cluster states

Authors: Vallone, G, Pomarico, E, De Martini, F, Mataloni, P

Journal: PHYSICAL REVIEW LETTERS

Volume: 100

Page:

Year: 2008

Addresses:

- Univ Roma La Sapienza, Dipartimento Fis, Rome, Italy
- Consorzio Nazl Interuniv Sci Fis Mat, Rome, Italy
- Univ Roma La Sapienza, Dipartimento Fis, Piazzale Aldo Moro 5, Rome, Italy

\*\*\*Article 5

Total Cites: 15

Article Title: Fault-tolerant linear optical quantum computing with small-amplitude coherent states

Authors: Lund, AP, Ralph, TC, Haselgrove, HL

Journal: PHYSICAL REVIEW LETTERS

Volume: 100

Page:

Year: 2008

Addresses:

- Univ Queensland, Dept Phys, Ctr Quantum Comp Technol, St Lucia, Australia
- Def Sci & Technol Org, Div C3I, Canberra, Australia
- Univ New S Wales, Sch Informat Technol & Elect Engn, Canberra, Australia

\*\*\*Article 6

Total Cites: 11

Article Title: Measurement-based quantum computer in the gapped ground state of a two-body Hamiltonian

Authors: Brennen, GK, Miyake, A

Journal: PHYSICAL REVIEW LETTERS

Volume: 101

Page:

Year: 2008

Addresses:

- Macquarie Univ, Dept Phys, Sydney, Australia
- Austrian Acad Sci, Inst Quantum Opt & Quantum Informat, Innsbruck, Austria
- Innsbruck Univ, Inst Theoret Phys, Innsbruck, Austria

\*\*\*Article 7

Total Cites: 11

Article Title: Quantum Computing with Alkaline-Earth-Metal Atoms

Authors: Daley, AJ, Boyd, MM, Ye, J, Zoller, P

Journal: PHYSICAL REVIEW LETTERS

Volume: 101

Page:

Year: 2008

Addresses:

- CALTECH, Pasadena, CA, USA
- Innsbruck Univ, Inst Theoret Phys, Innsbruck, Austria
- Austrian Acad Sci, Inst Quantum Opt & Quantum Informat, Innsbruck, Austria
- Natl Inst Stand & Technol, JILA, Boulder, CO, USA
- Univ Colorado, Boulder, CO, USA

\*\*\*Article 8

Total Cites: 11

Article Title: Cavity grid for scalable quantum computation with superconducting circuits

Authors: Helmer, F, Mariantoni, M, Fowler, AG, von Delft, J, Solano, E, Marquardt, F

Journal: EPL-EUROPHYS LETT

Volume: 85

Page:

Year: 2009

Addresses:

- Univ Munich, Dept Phys, CENS, Munich, Germany
- Univ Munich, ASC, Munich, Germany
- Bayer Akad Wissensch, Walther Meissner Inst, Garching, Germany
- Tech Univ Munich, Dept Phys, Garching, Germany
- Univ Waterloo, Inst Quantum Comp, Waterloo, Canada
- Univ Pais Vasco, Dept Quim Fis, Bilbao, Spain
- Univ Munich, Dept Phys, CENS, Theresienstr 37, Munich, Germany

\*\*\*Article 9

Total Cites: 10

Article Title: Thermally assisted adiabatic quantum computation

Authors: Amin, MHS, Love, PJ, Truncik, CJS

Journal: PHYSICAL REVIEW LETTERS

Volume: 100

Page:

Year: 2008

Addresses:

- D Wave Syst Inc, Burnaby, Canada
- Haverford Coll, Dept Phys, Haverford, PA, USA
- D Wave Syst Inc, 100-4401 Still Creek Dr, Burnaby, Canada

\*\*\*Article 10

Total Cites: 10

Article Title: Weaving light-matter qubits into a one way quantum computer

Authors: Angelakis, DG, Kay, A

Journal: NEW JOURNAL OF PHYSICS

Volume: 10

Page:

Year: 2008

Addresses:

- Univ Cambridge, Dept Appl Math & Theoret Phys, Ctr Quantum Computat, Cambridge, England
- Natl Univ Singapore, Ctr Quantum Technol, Singapore, Singapore
- Tech Univ Crete, Dept Sci, Khania, Greece
- Univ Cambridge, Dept Appl Math & Theoret Phys, Ctr Quantum Computat, Wilberforce Rd, Cambridge, England

\*\*\*Article 11

**Special Topic Interview with: Daniel Lidar**

Total Cites: 10

Article Title: Towards fault tolerant adiabatic quantum computation

Authors: **Lidar, DA**

Journal: PHYSICAL REVIEW LETTERS

Volume: 100

Page:

Year: 2008

Addresses:

- Univ So Calif, Dept Chem, Ctr Quantum Informat Sci & Technol, Los Angeles, CA, USA
- Univ So Calif, Dept Elect Engr, Ctr Quantum Informat Sci & Technol, Los Angeles, CA, USA
- Univ So Calif, Dept Phys, Ctr Quantum Informat Sci & Technol, Los Angeles, CA, USA

\*\*\*Article 12

Total Cites: 10

Article Title: One-way quantum computing in the optical frequency comb

Authors: Menicucci, NC, Flammia, ST, Pfister, O

Journal: PHYSICAL REVIEW LETTERS

Volume: 101

Page:

Year: 2008

## Addresses:

- Princeton Univ, Dept Phys, Princeton, NJ, USA
- Univ Queensland, Dept Phys, Brisbane, Australia
- Perimeter Inst Theoret Phys, Waterloo, Canada
- Univ Virginia, Dept Phys, Charlottesville, VA, USA

## \*\*\*Article 13

Total Cites: 10

Article Title: Holographic quantum computing

Authors: Tordrup, K, Negretti, A, Molmer, K

Journal: PHYSICAL REVIEW LETTERS

Volume: 101

Page:

Year: 2008

Addresses:

- AARHUS UNIV, Dept Phys & Astron, Lundbeck Fdn Theoret Ctr Quantum System Res, Aarhus, Denmark
- Univ Aarhus, Dept Phys & Astron, Lundbeck Fdn Theoret Ctr Quantum System Res, Aarhus, Denmark

## \*\*\*Article 14

Total Cites: 9

Article Title: Deterministic optical quantum computer using photonic modules

Authors: Stephens, AM, Evans, ZWE, Devitt, SJ, Greentree, AD, Fowler, AG, Munro, WJ, O'Brien, JL, Nemoto, K, Hollenberg, LCL

Journal: PHYSICAL REVIEW A

Volume: 78

Page:

Year: 2008

Addresses:

- Univ Melbourne, Ctr Quantum Comp Technol, Melbourne, Australia
- Res Org Informat & Syst, Natl Inst Informat, Chiyoda Ku, Tokyo, Japan
- Univ Waterloo, Inst Quantum Comp, Waterloo, Canada
- HEWLETT PACKARD CORP, Bristol, England
- Univ Bristol, Ctr Quantum Photon, HH Wills Phys Lab, Bristol, England
- Univ Bristol, Dept Elect & Elect Engr, Bristol, England

## \*\*\*Article 15

Total Cites: 9

Article Title: Controllable coherent population transfers in superconducting qubits for quantum computing

Authors: Wei, LF, Johansson, JR, Cen, LX, Ashhab, S, Nori, F

Journal: PHYSICAL REVIEW LETTERS

Volume: 100

Page:

Year: 2008

Addresses:

- JST, CREST, Kawaguchi, Japan
- SW Jiaotong Univ, Lab Quantum Optoelect, Chengdu, Peoples R China
- RIKEN, Inst Phys & Chem Res, Wako, Japan
- Sichuan Univ, Dept Phys, Chengdu, Peoples R China
- Univ Michigan, Dept Phys, CSCS, Ctr Theoret Phys, Ann Arbor, MI, USA
- Japan Sci & Technol Agcy, CREST, Kawaguchi, Japan

## \*\*\*Article 16

Total Cites: 8

Article Title: Accuracy threshold for postselected quantum computation

Authors: Aliferis, P, Gottesman, D, Preskill, J

Journal: QUANTUM INFORMATION &amp; COMPUTATION

Volume: 8

Page: 181-244

Year: 2008

Addresses:

- CALTECH, Inst Quantum Informat, Pasadena, CA, USA
- Perimeter Inst, Waterloo, Canada
- CALTECH, Inst Quantum Informat, Pasadena, CA, USA

## \*\*\*Article 17

Total Cites: 8

Article Title: Quantum computing with a single molecular ensemble and a Cooper-pair box

Authors: Tordrup, K, Molmer, K

Journal: PHYSICAL REVIEW A

Volume: 77

Page:

Year: 2008

Addresses:

- AARHUS UNIV, Dept Phys & Astron, Lundbeck Fdn Theoret Ctr Quantum Syst Res, Aarhus, Denmark
- Univ Aarhus, Dept Phys & Astron, Lundbeck Fdn Theoret Ctr Quantum Syst Res, Aarhus, Denmark

## \*\*\*Article 18

Total Cites: 8

Article Title: Rovibrational wave-packet manipulation using shaped midinfrared femtosecond pulses toward quantum computation: Optimization of pulse shape by a genetic algorithm

Authors: Tsubouchi, M, Momose, T

Journal: PHYSICAL REVIEW A

Volume: 77

Page:

Year: 2008

Addresses:

- Univ British Columbia, Dept Chem, Vancouver, Canada
- JST, CREST, Kawaguchi, Japan
- Univ British Columbia, Dept Chem, 2036 Main Mall, Vancouver, Canada

## \*\*\*Article 19

Total Cites: 8

Article Title: How good must single photon sources and detectors be for efficient linear optical quantum computation?

Authors: Varnava, M, Browne, DE, Rudolph, T

Journal: PHYSICAL REVIEW LETTERS

Volume: 100

Page:

Year: 2008

Addresses:

- Univ London Imperial Coll Sci Technol & Med, Blackett Lab, QOLS, London, England
- UCL, Dept Phys & Astron, London, England
- Univ Oxford, Dept Mat, Oxford, England
- Univ London Imperial Coll Sci Technol & Med, Inst Math Sci, London, England
- Univ London Imperial Coll Sci Technol & Med, Blackett Lab, QOLS, Prince Consort Rd, London, England

## \*\*\*Article 20

Total Cites: 7

Article Title: Fault-tolerant quantum computation against biased noise

Authors: Aliferis, P, Preskill, J

Journal: PHYSICAL REVIEW A

Volume: 78

Page:

Year: 2008

Addresses:

- IBM Corp, Thomas J Watson Res Ctr, Yorktown Hts, NY, USA
- CALTECH, Inst Quantum Informat, Pasadena, CA, USA
- IBM Corp, Thomas J Watson Res Ctr, POB 218, Yorktown Hts, NY, USA

**Top Papers - 10 years | 2 years**[back to top](#) 

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