Professor Andrew Steven DZURAK

Publications and Conference Proceedings

A. EDITED PROCEEDINGS AND BOOK CHAPTERS

1. Editors: J.C. Ciao, D.N. Jamieson, L. Faraone and A.S. Dzurak.
SPIE International Symposium on Smart Materials, Nano- and Micro-Smart Systems,
13-15 December 2004, Sydney, Australia.
Proceedings of SPIE **Vol. 5650**.

2. R.G. Clark, P.C. Hammel, A.S. Dzurak, A.R. Hamilton, L.C.L. Hollenberg, D.N. Jamieson and C.I. Pakes,
Toward a silicon-based nuclear-spin quantum computer,
Los Alamos Science **27**, 284-301 (2002). [One chapter in a special volume on Quantum Computing.]

B. REFEREED JOURNAL PUBLICATIONS (IN PRINT)

60. S.J. Angus, A.J. Ferguson, A.S. Dzurak and R.G. Clark,
Gate-defined dots in intrinsic silicon,
To appear in ***Nano Letters***. Published on Web 06/14/2007 (2007).

59. S.E.S. Andresen, R. Brenner, C.J. Wellard, C. Yang, T. Hopf, C.C. Escott, R.G. Clark, A.S. Dzurak, D.N. Jamieson and L.C.L. Hollenberg,
Charge state control and relaxation in an atomically doped silicon device,
To appear in ***Nano Letters***. Published on Web 06/13/2007 (2007).

58. C C Escott, F E Hudson, V C Chan, K D Petersson, R G Clark and A S Dzurak,
Scaling of ion implanted Si:P single electron devices,
Nanotechnology **18**, 235401 (2007).

57. M. Mitic, M.C. Cassidy, K.D. Petersson, R.P. Starrett, E. Gauja, R. Brenner, R.G. Clark, A.S. Dzurak, C. Yang and D.N. Jamieson,
Demonstration of a silicon-based quantum cellular automata cell,
Applied Physics Letters **89**, 013503 (2006). See *Research Highlights,* ***Nature*** **442,** 226 (2006).

56. T.M. Buehler, V. Chan, A.J. Ferguson, A.S. Dzurak, F.E. Hudson, D.J. Reilly, A.R. Hamilton, R.G. Clark, D.N. Jamieson, C. Yang, C.I. Pakes and S. Prawer,
Controlled single electron transfer between Si:P quantum dots,
Applied Physics Letters **88**, 192101 (2006).

55. V.C. Chan, T.M. Buehler, A.J. Ferguson, D.R. McCamey, D.J. Reilly, A.S. Dzurak, R.G. Clark, C. Yang and D.N. Jamieson,
Ion-implanted Si:P double-dot with gate-tunable interdot coupling,
Journal of Applied Physics **100**, 106104 (2006).

54. F.E. Hudson, A.J. Ferguson, C. Yang, D.N. Jamieson, A.S. Dzurak and R.G. Clark,
Coulomb blockade in a nanoscale phosphorus-in-silicon island,
Microelectronic Engineering **83**, 1809 (2006).

53. D.N. Jamieson, V. Chan, F.E. Hudson, S.E. Andresen, C. Yang, T. Hopf, S.M. Hearne, C.I. Pakes, S. Prawer, E. Gauja, A.S. Dzurak and R.G. Clark,
Quantum effects in ion implanted devices,
Nuclear Instruments and Methods in Physics Research B **249**, 221 (2006).

52. D.N. Jamieson, C. Yang, T. Hopf, S.M. Hearne, C.I. Pakes, S. Prawer, M. Mitic, E. Gauja, S.E. Andresen, F.E. Hudson, A.S. Dzurak and R.G. Clark,
Controlled shallow single-ion implantation in silicon using an active substrate for sub-20-keV ions,
Applied Physics Letters **86**, 202101 (2005).

51. T.M. Buehler, D.J. Reilly, R.P. Starrett, A.D. Greentree, A.R. Hamilton, A.S. Dzurak, R.G. Clark,
Single-shot readout with the rf single electron transistor in the presence of charge noise,
Applied Physics Letters **86**, 143117 (2005).

50. K.H. Lee, A.D. Greentree, J.P. Dinale, C.C. Escott, A.S. Dzurak and R.G. Clark, *Modeling single electron transfer in Si:P double quantum dots*, ***Nanotechnology* 16**, 74 (2005).

49. T. Hopf, D.N. Jamieson, S.M. Hearne, C. Yang, C.I. Pakes, A.S. Dzurak, E. Gauja and R.G. Clark, *Ion beam induced charge and modeling study of novel detector devices for single ion implantation*, ***Nuclear Instruments and Methods in Physics Research B* 231**, 463 (2005).

48. M. Mitic, S.E. Andresen, C. Yang, T. Hopf, V. Chan, E. Gauja, F.E. Hudson, T.M. Buehler, R. Brenner, A.J. Ferguson, C.I. Pakes, S.M. Hearne, G. Tamanyan, D.J. Reilly, A.R. Hamilton, D.N. Jamieson, A.S. Dzurak, R.G. Clark, *Single atom silicon nanoelectronics using controlled single-ion implantation*, ***Microelectronic Engineering* 78**, 279 (2005).

47. L.C.L. Hollenberg, A.S. Dzurak, C. Wellard, A.R. Hamilton, D.J. Reilly, G.J. Milburn, R.G. Clark, *Charge-based quantum computing using single donors in semiconductors*, ***Physical Review B* 69**, 113301 (2004).

46. T.M. Buehler, D.J. Reilly, R.P. Starrett, V. C. Chan, A.R. Hamilton, A.S. Dzurak, and R.G. Clark, *Observing sub-microsecond telegraph noise with the radio frequency single electron transistor*, ***Journal of Applied Physics* 96**, 6827 (2004).

45. T.M. Buehler, D.J. Reilly, R.P. Starrett, N.A. Court, A.R. Hamilton, A.S. Dzurak, and R.G. Clark, *Development & operation of twin rf single electron transistor for cross-correlated charge dete*ction, ***Journal of Applied Physics* 96**, 4508 (2004).

44. T.M. Buehler, D.J. Reilly, R. Brenner, A. Hamilton, A.S. Dzurak and R.G. Clark, *Correlated charge detection for read-out of a solid-state quantum computer*, ***Applied Physics Letters* 82**, 577 (2003).

43. R.G. Clark (and 26 others, including A.S. Dzurak), *Progress in silicon-based quantum computing*, ***Philosophical Transactions of the Royal Society of London A* 361**, 1451 (2003).

42. R. Brenner, A.R. Hamilton, R.G. Clark and A.S. Dzurak, *Double-island single-electron transistor for noise-suppressed detection of charge transfer*, ***Microelectronic Engineering* 67**, 826 (2003).

41. T.M. Buehler, D. J. Reilly, R.P. Starrett, S. Kenyon, A.R. Hamilton, A.S. Dzurak and R.G. Clark, *The twin rf-SET for correlated charge detection on μs time scales*, ***Microelectronic Engineering* 67**, 775 (2003).

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38. C.I. Pakes, D.P. George, C.J. Yang, D.N. Jamieson, A.S. Dzurak and R.G. Clark, *Technology computer-aided design modeling of single-atom doping for fabrication of buried nanostructures*, ***Nanotechnology* 14**, 157 (2003).

37. C.I. Pakes, V. Conrad, J.C. Ang, F. Green, A.S. Dzurak, L.C.L. Hollenberg, D.N. Jamieson and R.G. Clark, *Modeling single-electron-transistor-based readout in the Kane solid-state quantum computer*, ***Nanotechnology* 14**, 161 (2003).

36. C.J. Yang, D.N. Jamieson, C.I. Pakes, D.P. George, S.M. Hearne, A.S. Dzurak, E.Gauja, F.E. Stanley and R.G. Clark, *IBIC Characterisation of Novel Detectors for Single Atom Doping of Quantum Computer Devices*, ***Nuclear Instruments & Methods in Physics Research Section B* 210**, 186 (2003).

35. C.J. Yang, D.N. Jamieson, C.I. Pakes, S. Prawer, A.S. Dzurak, F.E. Stanley, P. Spizziri, L. D. Macks, E. Gauja, and R.G. Clark,
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34. D.J. Reilly, T.M. Buehler, J.L. O'Brien, A.R. Hamilton, A.S. Dzurak and R.G. Clark,
Density dependent spin polarization in ultra low-disorder quantum wires,
***Physical Review Letters* 89**, 246801 (2002).

33. T.M. Buehler, R.P. McKinnon, N.E. Lumpkin, R. Brenner, D.J. Reilly, L.D. Macks, A.R. Hamilton, A.S. Dzurak and R.G. Clark,
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***Nanotechnology* 13**, 686 (2002).

32. T.M. Buehler, R. Brenner, D.J. Reilly, A.R. Hamilton, A.S. Dzurak and R.G. Clark,
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31. R.P. McKinnon, F.E. Stanley, E. Gauja, L.D. Macks, M. Mitic, V. Chan, K. Peceros, T.M. Buehler, A.S. Dzurak, R.G. Clark, C. Yang, D.N. Jamieson and S.D. Prawer,
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Nanoscale fabrication using single-ion impacts,
***Smart Materials and Structures* 11**, 686 (2002).

29. J.L. O'Brien, S.R. Schofield, M.Y. Simmons, R.G. Clark, A.S. Dzurak, N.J. Curson, B.E. Kane, N.S. McAlpine, M.E. Hawley and G.W. Brown,
Scanning tunnelling microscope fabrication of arrays of phosphorus atom qubits for a silicon quantum computer,
***Smart Materials and Structures* 11**, 741 (2002).

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Modelling of electrostatic gate operations in the Kane solid state quantum computer,
***Microelectronics Journal* 33**, 1053 (2002).

27. C.J. Yang, D.N. Jamieson, S.M. Hearne, C.I. Pakes, B. Rout, E. Gauja, A.S. Dzurak and R.G. Clark,
Ion beam induced charge characterisation of particle detectors,
***Nuclear Instruments & Methods in Physics Research Section B* 190**, 212 (2002).

26. D.J. Reilly, G.R. Facer, A.S. Dzurak, B.E. Kane, R.G. Clark, A.R. Hamilton, P.J. Stiles, J.L. O'Brien, N.E. Lumpkin, L.N. Pfeiffer and K.W. West,
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25. A.S. Dzurak, M.Y. Simmons, A.R. Hamilton, R.G. Clark, R. Brenner, T.M. Buehler, N.J. Curson, E. Gauja, R.P. McKinnon, L.D. Macks, M. Mitic, J.L. O'Brien, L. Oberbeck, D.J. Reilly, S.R.Schofield, F.E. Stanley, D.N. Jamieson, S. Prawer, C. Yang and G.J. Milburn,
Construction of a silicon-based solid state quantum computer,
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***Physical Review B* 61**, 1584 (2000).

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8. B.E. Kane, A.S. Dzurak, G.R. Facer, R.G. Clark, R.P. Starrett, A. Skougarevsky, N.E. Lumpkin, J.S. Brooks, L.W. Engel, N. Miura, H. Yokoi, T. Takamasu, H. Nakagawa, J.D. Goettee and D.G. Rickel,
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4. A.S. Dzurak, C.G. Smith, L. Martìn-Moreno, M. Pepper, D.A. Ritchie, G.A.C. Jones and D.G. Hasko,
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3. A.S. Dzurak, C.G. Smith, M. Pepper, D.A. Ritchie, J.E.F. Frost, G.A.C. Jones and D.G. Hasko,
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2. A.S. Dzurak, C.J.B. Ford, M.J. Kelly, M. Pepper, J.E.F. Frost, D.A. Ritchie, G.A.C. Jones, H. Ahmed and D.G. Hasko,
Two-dimensional electron-gas heating and phonon emission by hot ballistic electrons,
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1. M.R. Lake, G.B. Smith, D.R. McKenzie and A.S. Dzurak,
Properties of powders deposited by silane/hydrogen and silane/methane plasmas,
***Journal of Non-Crystalline Solids* 109**, 318 (1989).

C. SUBMITTED PUBLICATIONS & PAPERS ON E-PRINT ARCHIVES

6. S.J. Angus, A.J. Ferguson, A.S. Dzurak and R.G. Clark,
Silicon Radio-frequency Single Electron Transistor,
Submitted to ***Applied Physics Letters***. (July 2007)

5. M.C. Cassidy, A.S. Dzurak, R.G. Clark, K.D. Petersson, C.G. Smith, I. Farrer and D.A. Ritchie,
Charge Sensing Using a Radio-Frequency Quantum Point Contact,
Submitted to ***Applied Physics Letters***. (July 2007)

4. S.R. Ekanayake, T. Lehmann, A.S. Dzurak and R.G. Clark,
Quantum bit controller (write) and observer (read) circuits in RF-CMOS technology for low-temperature operation,
Submitted to ***IEEE-NANO 2007 Conference Proceedings***. (February 2007)

3. S.R. Ekanayake, T. Lehmann, A.S. Dzurak, R.G. Clark and A. Brawley,
Characterization of SOI RF-CMOS FETs at ultra-low temperatures for the design of integrated circuits for quantum bit control and readout,
Submitted to ***IEEE Transactions on Electron Devices***. (February 2007)

2. F. Hudson, A. Ferguson, C. Escott, A.S. Dzurak, D. Jamieson, C. Yang and R.G. Clark,
Towards few-electron double quantum dots in Si:P,
Submitted to ***Nanotechnology***. See *arXiv:cond-mat*/0612507 (2006).

1. A.S. Dzurak, L.C.L. Hollenberg, D.N. Jamieson, F.E. Stanley, C. Yang, T.M. Buehler, V. Chan, D.J. Reilly, C. Wellard, A.R. Hamilton, C.I. Pakes, A.G. Ferguson, G.J. Milburn and R.G. Clark,
Charge-based silicon quantum computer architectures using controlled single-ion implantation,
See Los Alamos Preprint Server - *arXiv:cond-mat*/0306265 (2003).

D. SELECTED PUBLICATIONS IN CONFERENCE PROCEEDINGS

42. M. Mitic, M. Cassidy, K. Petersson, E. Gauja, R. Starrett, R. Brenner, C. Yang, D.N. Jamieson, R.G. Clark and A.S. Dzurak,
Development of a silicon-based quantum cellular automata-cell,
Proc. *2006 NSTI Nanotechnology Conference*, Boston, USA, Vol. 3, p9-12 (2006).

41. F.E. Hudson, A.J. Ferguson, C. Yang, D.N. Jamieson, A.S. Dzurak and R.G. Clark,
Coulomb blockade in a nanoscale phosphorus-in-silicon island,
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Proc. *International Conference on Nanoscience and Nanotechnology*, Brisbane, Australia (2006).

39. C. Yang, D.N. Jamieson, T. Hopf, S.E. Andresen, S. Hearne, F.E. Hudson, C.I. Pakes, M. Mitic, E. Gauja, G. Tamanyan, A. Dzurak, S. Prawer and R.G. Clark,
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38. M. Mitic, T.M. Buehler, V.C. Chan, A.J. Ferguson, S.E. Andresen, E. Gauja, F.E. Hudson, D.J. Reilly, A.R. Hamilton, A.S. Dzurak, R.G. Clark, C. Yang, T. Hopf, C.I. Pakes and D.N. Jamieson,
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Development of a keV single-ion-implanter for nanofabrication,
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