

List of publications – Dr. K. Fobelets

Regular papers

1. J. Danckaert, K. Fobelets, I. Veretennicoff, G. Vitrant, and R. Reinisch, "Dispersive optical bisability in stratified structures", Phys.Rev. B 44(15), 8214 (1991)
2. K. Fobelets, J. Genoe, R. Vounckx, and G. Borghs, "Determination of the AlAs/InGaAs band offset using resonant tunneling diodes", Microstructures and Superlattices 11(1), 87 (1992)
3. J. Genoe, C. Van Hoof, W. Van Roy, J. H. Smet, K. Fobelets, R. P. Mertens and G. Borghs, "Capacitances in double barrier tunneling structures", IEEE Trans. Elec. Devs. ED-38, 2006-2012 (1991)
4. J. Genoe, C. Van Hoof, K. Fobelets, R. Mertens and G. Borghs, "pnp resonant tunneling light emitting transistor", Appl. Phys. Lett. 61, 1051-1053 (1992)
5. K. Fobelets, J. Genoe, R. Vounckx, R.P. Mertens, and G. Borghs, "Generation of four negative differential resistance regions using two resonant tunnelling diodes", Microelectronic Engineering 19, 887-890 (1992)
6. K. Fobelets, R. Vounckx, and G. Borghs : "Influence of the resistances on the characteristics of vertically integrated resonant tunnelling diodes", Electron.Lett., 29(1), 57 (1993)
7. K. Fobelets, R. Vounckx, and G. Borghs : "Matrix formalism for the triple band effective mass equation", Semiconductor Science and Technology 8, 1815 (1993)
8. K. Fobelets, J. Genoe, R. Vounckx, and G. Borghs : "A proposal for a three bit ADC using three resonant tunneling diodes", Semiconductor Science and Technology 8, 2106 (1993)
9. K. Fobelets, H. Grönqvist, J. Genoe, R. Vounckx, L. Lundgren, and G. Borghs : "High frequency capacitances in resonant interband tunneling diodes", Appl.Phys.Lett. 64 (19), 2523 (1994).
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11. K. Fobelets, G. Borghs, and J. Hegarty, "Experimental drain current drop back in GaAs MESFETs", Electronics Lett. 31 (23), 2042 (1995)
12. K. Fobelets, C. Van Hoof, J. Genoe, J. Stake, L. Lundgren, and G. Borghs, "High frequency capacitance of bipolar resonant tunnelling diodes", J.Appl.Phys. 79(2), 905 (1996)
13. J. Genoe, K. Fobelets, C. Van Hoof, and G. Borghs, "The in-plane dispersion relations of InAs/ AlSb/ GaSb/ AlSb/ InAs interband resonant tunneling diodes", Phys. Rev. B 52 (19), November 15, 1995, pp 14025-14034; *ibid*, Phys. Rev. B 53, May 15, 1996, pp 13194
14. K. Fobelets, B. Kelly, P. Horan, and J. Hegarty, "Controlled shift of the optical resonance of fully processed asymmetric Fabry-Perot modulator arrays", Semiconductor Science and Technology 11(4), 582 (1996)
15. K. Fobelets, and K. Thielemans, "Optical media with an imaginary third order nonlinearity analyzed by Hamiltonian systems", Phys.Rev. A 53, 4400 (1996)

16. T J Thornton, J M Fernandez, S Kaya, P W Green and K Fobelets, "Si:SiGe Quantum Wells grown on (118) Substrates: Surface Morphology and Transport Properties", *Appl. Phys. Letts.* 70 1278-1280 (1997)
17. S Kaya, T J Thornton, P W Green, K Fobelets and J M Fernandez, "Evidence for Inter-Miniband Scattering Due to Electron Heating in Si:SiGe Quantum Wells Grown on Tilted Substrates", *Phys. Stat. Sol(b)* 204, 227-229 (1997)
18. K. Fobelets, and G. Borghs, "Influence of the undoped spacer layer thickness on the DC characteristics of n-type GaAs/AlAs MESFETs", *Semicond.Sci.Technol.* 13, 318-321 (1998).
19. C. Gatzke, S.J. Webb, K. Fobelets, and R.A. Stradling, "In situ Raman spectroscopy of the selective etching of antimonides in GaSb/AlSb/InAs heterostructures", *Semicond.Sci.Technol.* 13, 399-403 (1998).
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21. K. Fobelets, W. Jeamsaksiri, J. Hampson, C. Toumazou, and T.Thornton, "Si:SiGe MODFET current mirror", *Electron.Lett.* 34(22) 2076 (1998)
22. J C Yeoh, P W Green, T J Thornton, S Kaya, K Fobelets and J M Fernandez, "MOS gated Si:SiGe quantum wells by anodic oxidation", *Semicond.Sci.Technol.* 13, 1442 (1998)
23. C. Gatzke, K. Fobelets, A.C. Rowe, R.A. Stradling, and S.A. Solin, "Hot electron effects in InAs/AlSb/GaSb quantum wells," *Compound Semicon 1998 Inst.Phys.Conf.Series* (162) 349-354 (1999)
24. Papavassiliou C., Fobelets K., Toumazou C. "SiGe hetero-FET potential for micro-power applications" invited paper, *IEICE Trans. Electron*, E00-A(2000)
25. W.Jeamsaksiri, J.E. Verlazquez-Perez, K. Fobelets, "Optimised n-channel Si/SiGe HFETs design for V_{TH} shift immunity", *Solid State Electronics* 46 (12): 2241-2245 DEC 2002
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28. S.M. Li, and K. Fobelets, "Si/SiGe n-channel Modulation Doped Field Effect Transistor on air", *IEE Electron. Lett.* 38 (18), 1064 (2002)
29. R.S. Ferguson, K. Fobelets, and L. Cohen, "Kelvin probe force microscopy of bevelled semiconductors", *J Vac Sci Technol B* 20 (5), pp 2133-2136 (Sept/Oct 2002)
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31. R.S. Ferguson, K. Fobelets, and L. Cohen, "Kelvin probe force microscopy of bevelled semiconductors", *Virtual Journal of Nanoscale Science & Technology*, December 23 (2002) at <http://www.vjnano.org>.

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33. A. Vilches, K. Fobelets, K. Michelakis, S. Despotopoulos, C. Papavassiliou, T. Hackbarth, and U. König, "A Novel Monolithic Micropower Amplifier Using a SiGe n-MODFET Device", *IEE Electronics Letters*, 39 (12): 884-886 JUN 12 2003
34. S.H. Olsen SH, O'Neill AG, Norris DJ, Cullis AG, Fobelets K, Kemhadjian HA, "Impact of virtual substrate quality on performance enhancements in strained Si/SiGe heterojunction n-channel MOSFETs", *Solid-State Electronics*, 47 (8): 1289-1295 AUG 2003
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38. J.E. Velazquez, K. Fobelets, and V. Gaspari, "Study of current fluctuations in deep-submicron Si/SiGe n-channel MOSFET: impact of relevant technological parameters on the thermal noise performance", *Semicond. Sci. Technol.* 19 (April 2004) S191-S194
39. V. Gaspari, K. Fobelets, P. W. Ding, S. H. Olsen, A. G. O'Neill, and J. Zhang, "Temperature dependence of sub-micron strained-Si surface channel n-type MOSFETs in dynamic-threshold mode", *IEEE Electron Dev. Lett.* 25(5), 334 (2004)
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41. A. Vilches, K. Michelakis, K. Fobelets, C. Papavassiliou, T. Hackbarth and U. König, "Buried-channel SiGe HMODFET device potential for micropower applications" *Solid State Electronics* 48 (8): 1423-1431 (2004)
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44. A. Vilches, K. Fobelets, K. Michelakis, S. Despotopoulos, C. Papavassiliou, T. Hackbarth, and U. König, "SiGe HMODFET 'KAIST' Micropower Model and Amplifier Realisation", *IEEE Transactions on Circuits and Systems I: Regular Papers* 51(6), p1100-1105 (2004)

45. V. Gaspari, K. Fobelets, J. E. Velazquez-Perez, M. J. Prest, and T. E. Whall, “Dynamic threshold mode operation of p-channel Si and strained-SiGe MOSFETs between 10 K and 300 K”, *Semiconductor Science and Technology* 19(9) L95-L98, (2004)
46. A. Vilches, R. Loga, M. Rahal, K. Fobelets, C. Papavassiliou, and T. J. Hall, “Monolithic Large-Signal Transimpedance Amplifier for use in Multi-Gigabit, Short-Range Optoelectronic Interconnect Applications”, *IEEE T Circuits-II* 52 (2): 102-106 (2005).
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48. Gaspari V., Fobelets K., Velazquez-Perez J.E., and Hackbarth T., “DC performance of deep submicrometer Schottky-gated n-channel Si:SiGe heterostructure field effect transistors at low temperatures” *IEEE Trans Electron Dev* 52(9):2067 – 2074 (2005)
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50. Fobelets K., P.W. Ding, and Velazquez-Perez J.E., “A novel 3D embedded gate field effect transistor: Device concept and modelling”, *Solid State Electronics* 51(5), p749-756 (2007)
51. S. L. Rumyantsev, K. Fobelets, T. Hackbarth, M. S. Shur, “Low frequency noise in insulated-gate strained-Si n-channel modulation doped field effect transistors”, *Jap. J. Appl. Phys.* 46(7A), pp. 4011-4015 (2007).
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53. K. Fobelets, and J.E. Velazquez-Perez, “Rectification in unipolar nanowires”, *Physica E: Low-Dimensional Systems and Nanostructures*, 40(7) 2481-2484 (2008)
54. K. Fobelets, S.L. Rumyantsev, S. Olsen, M.S. Shur, , “Low frequency noise in strained-Si surface channel MOSFET as a function of Ge concentration”, *J. Appl. Phys.* 103(4) 044501 (2008)
55. Y. Shadrokh, K. Fobelets, and J.E. Velázquez-Pérez, “Two Device Screen Grid Field Effect Transistor Logic”, *Romanian Journal of Information Science and Technology* 11(1) 37-48 (2008)
56. Y. Shadrokh, K. Fobelets, and J.E. Velázquez-Pérez, “Comparison of the multi-gate functionality of Screen-Grid Field Effect Transistors with finFETs”, *Semicond. Sci. Technol.* 23(9) 095006 (9pp) (2008)
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58. Fobelets K, Ding P.W., Shadrokh Y. and Velazquez-Perez J.E., “Analog and digital performance of the Screen-Grid Field Effect Transistor (SGrFET)”, *International Journal of High Speed Electronics and Systems (IJHSES)* 18(4), Chapter 1 (2008) – best invited paper award

59. K. Fobelets, S. L. Romyantsev, T. Hackbarth, and M. S. Shur, "Trap density in Schottky-gated n-channel strained-Si/SiGe modulation doped field effect transistors", *Solid State Electronics* 53(6), p. 626-629 (2009). (1.438)
60. M. Zaremba-Tymieniecki, Chaunbo Li, K. Fobelets, and Z. A. K. Durrani, "Field-effect transistors using silicon nanowires prepared by electroless chemical etching", *IEEE Electron Devices Letters*, 31(8),860 (2010)
61. K. Fobelets, Z.A.K. Durrani, P.W. Ding, and N. Mohseni Kiasari, "Electrical transport in polymer covered Si nanowires", *IEEE Transactions on nanotechnology* 99, 1 (2010) (1.864)
62. Y. M. Meziani, E. Garcia, E. Velazquez, E. Diez, A. Elmoutaouakil, T. Otsuji, and K. Fobelets, "Strained Silicon Modulation Field Effect Transistor as a new Sensor of terahertz radiation", *Semicond. Sci. Technol.* **26** (2011) 105006 (4pp) (1.323)

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63. K. Fobelets, J. Calvo-Gallego, and J. E. Velázquez-Pérez, "Effect of the gate scaling on the analog performance of s-Si CMOS devices", accepted in *Semiconductor Science and Technology*. (1.323)
64. C. B. Li, K.Fobelets and Z.A.K Durrani, "Study of Two-Step Electroless Etched Si Nanowire arrays", accepted in *Advanced Materials Research* Sept (2011)

Submitted/In preparation

65. K. Fobelets, C.B. Li, D. Coquillat, P. Arcade, and F. Teppe, "Fourier Transform Spectroscopy of metal-assisted electroless etched silicon nanowire arrays", to be submitted 2011
66. C.B. Li, Z.A.K. Durrani, and K. Fobelets, "Influence of Ammonia on Conductance and Noise Characteristics of Si Nanowire Arrays", submitted to *Nanoletters* Sept. 2011 (IF - 12.186)
67. K. Fobelets, M. Meghani, and C.B. Li, "Low frequency noise in silicon nanowire arrays under different ambient", in preparation Sept. 2011.

List of conference papers

1. J. Dankaert, K. Fobelets, G. Cauwenbergs, and I. Veretennicoff, "Static plane wave response of nonlinear multilayered structures for optical bistability", *The international conference on optical science and engineering*, Den Haag, The Netherlands (1990)
2. S.C. Jain, K. Fobelets, J. Poortmans, L. Buydens, P. Demeester, J. De Boeck, G. Borghs, R.P. Mertens, and R. Van Overstraeten, "Semiconductor strained layers and their applications", *Proceedings VI International workshop on physics of semiconductor devices*, Delhi (1991)
3. K. Fobelets, J. Genoe, R. Vounckx, and G. Borghs : "Generation of four negative differential resistance regions using two resonant tunneling diodes", *Proc. 22nd ESSDERC*, 887 (1992)
4. J. Genoe, K. Fobelets, C. Van Hoof, A. Müller, R. Mertens, and G. Borghs, "The concept of Quantum Capacitance and its influence on Resonant Tunneling Transistors", *CAS conference*, Sinaia-Romania (1992) (Invited paper)

5. J. Genoe, C. Van Hoof, K. Fobelets, and G. Borghs, "Transport in the base of a resonant tunneling light emitting transistor", SPIE conference, Physics and Simulation of Optoelectronic Devices II, Los Angeles, U.S. (1994)
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7. S. Kaya, T.J. Thornton, K. Fobelets, P.W. Green, and J.M. Fernandez, "Strained Si:SiGe quantum wells and wires grown on vicinal (118) Si substrates", Si nanoelectronics workshop 1997, Kyoto, Japan (June 8-9 1997)
8. T.J. Thornton, S. Kaya, K. Fobelets, P.W. Green, and J.M. Fernandez, " Evidence for inter-miniband scattering due to electron heating in Si:SiGe quantum wells grown on vicinal substrates", International conference on Nonequilibrium carrier dynamics in semiconductors HCIS-10, Berlin, Germany (28July-1August 1997)
9. C. Gatzke, S.J. Webb, K. Fobelets, and R.A. Stradling, "In-situ monitoring of the selective etching of antimonides in GaSb/AlSb/InAs heterostructures using Raman spectroscopy," 24th International Symposium on Compound Semiconductors 1997 San Diego, California. September 7-11th (1997).
10. C. Gatzke, K. Fobelets, A.C. Rowe, R.A. Stradling, and S.A. Solin, "Hot electron effects in InAs/AlSb/GaSb Quantum wells", 25th International Symposium on Compound Semiconductors, October 12-16, Nara Japan (1998)
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15. C. Papavassiliou, K. Fobelets, W. Jeamsaksiri, C. Toumazou, "Potential of SiGe Heterostructure FETs for Micropower Applications", TWHM'00, August, Japan (2000)
16. Velazquez J.E., Jeamsaksiri W., Yeoh J. , Fobelets K. "Design of nearly body-effect free Si/SiGe MODFETs" IEEE conference "EDMO2000", 13th - 14th November (2000)

17. Velaquez J.E., Jeamsaksiri W., Fobelets K., Yeoh J.C., Thornton T.J. "Experimental and theoretical study of backgating in Si/SiGe modulation-doped field-effect transistors" CDE 2001, Granada, Spain, February (2001)
18. K. Fobelets, R.S. Ferguson, V. Gaspari, J.E. Velazquez-Perez, K. Michelakis, S. Despotopoulos, J. Zhang, and C. Papavassiliou, "Experimental study of depletion mode SiGe MOSFETs for low temperature operation", ESSDERC 2002, Italy (2002)
19. A.M. Vilches, M. Rahal, and K. Fobelets, "Monolithic AMS Foundry BiCMOS SiGe HBT Based PIN Photodetector Analysis for Operation at 9 GBPS", Applied Optics and Optoelectronics Conference 2-5 Sept. 2002, Cardiff, UK (2002)
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22. K. Michelakis, S. Despotopoulos, V. Gaspari, A. Vilches, K. Fobelets, C. Papavassiliou, and C. Toumazou, "SiGe virtual substrate HMOS transistor for analogue applications", ISTDM 2003, Jan 15-17 Japan (2003).
23. V. Gaspari, K. Fobelets, J.E. Velazquez-Perez, R. Ferguson, K. Michelakis, S. Despotopoulos, and C. Papavassiliou, "Thermal study of 0.5 μ m-gate Si/SiGe Depletion-Mode n-MOSFETs", Invited talk, CDE-2003, Calella (Barcelona), Spain (2003)
24. H. S. Yuk, T. Tate, K. Fobelets, J. Zhang, D.S. Mcphail, R.J. Chater, "Fabrication technique of SiGe-on-insulator (SGOI) substrates by ion-implantation of Ge ions for Si-strained SiGe heterostructure-CMOS technologies" IEEE - IEICE 2003 IMFEDK, Osaka, Japan 16-18 July 2003
25. K. Fobelets, V. Gaspari and J.E. Velazquez, "Calculation of the thermal noise of n-channel Si/SiGe MOSFETs using an hydrodynamic transport model", 14th Workshop on Modelling and Simulation of Electron Devices, Barcelona, 16-17 October 2003
26. J.E. Velázquez, K.Fobelets, and V. Gaspari, "Study of current fluctuations in deep-submicron Si/SiGe n-channel MOSFET: Impact of the technology's relevant parameters on the thermal noise performance", 13th International Conference on Nonequilibrium Carrier Dynamics in semiconductors (HCIS-13), Modena - Italy, July 28 – August 1, (2003)
27. H.S. Yuk, K. Fobelets, T. Tate and D.S. McPhail, "Formation of novel SiGe-on-insulator substrate structures by Ge+ implantation and O2 gas annealing", ULIS 2004 Workshop, March 11 (2004)
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29. J.E. Velázquez, K. Fobelets and V. Gaspari, “Impact of the scaling on the noise performance of deep-submicron Si/SiGe n-channel FETs”, SPIE International Symposium, Fluctuations and Noise 26 - 28 May 2004 Maspalomas, Gran Canaria, Spain
30. V. Gaspari, K. Fobelets, S. Olsen, J.E. Velazquez-Perez, and A. O’Neill, “Temperature sensitivity of DC operation of sub-micron strained-Si MOSFETs”, Electronic Materials Conference 2004 June 23-25, 2004 at the University of Notre Dame in Notre Dame, Indiana, USA
31. K. Fobelets, A. Alaudeen, M.M. Ahmad, S. Clowes, and J. Zhang, “Analysis of steam oxidation of crystalline Si_{1-x}Ge_x using AFM and CABOOM”, 2004 Joint International Meeting The Electrochemical Society, The Electrochemical Society of Japan and The Japan Society of Applied Physics, Honolulu, Hawaii, Hilton Hawaiian Village, October 3-8, 2004
32. V. Gaspari, K. Fobelets, J.E. Velazquez-Perez, T. Hackbarth, and U. König, “Anomalous behaviour of buried strained-Si channel Heterojunction FETs at low temperatures”, 2004 Joint International Meeting The Electrochemical Society, The Electrochemical Society of Japan and The Japan Society of Applied Physics, Honolulu, Hawaii, Hilton Hawaiian Village, October 3-8, 2004
33. P.W. Ding, K. Fobelets, and J.E. Velazquez-Perez, “Simulations of embedded-gate screen-grid field effect transistor”, PREP2005, March 30-31 UK, 2005
34. A.N. Christofi, K. Fobelets, J. Walker, and D.S. McPhail, “High depth resolution SIMS Analysis of SiGe Structures”, SIMS Workshop South Carolina, May 2-5 2005
35. J.E. Velazquez-Perez, and K. Fobelets, “Noise in nanometric s-Si MOSFETs for low power applications”, 18th International Conference on Noise and Fluctuations (ICNF 2005), Salamanca Spain Sept 19-23 (2005)
36. K. Fobelets, P.W. Ding, and J.E. Velazquez-Perez, "A novel 3D embedded gate field effect transistor: Device concept and modelling" 25th International Conference on Microelectronics, Serbia and Montenegro 14-17 May 2006
37. P.W. Ding, K. Fobelets, and J.E. Velazquez-Perez, “3D Modelling of the Novel nanoscale Screen-Grid FET”, MRS Spring Meeting 2006, 16-21 April San Fransisco, USA.
38. K. Fobelets, B. Vincent, A. Christofi, M.M. Ahmad, D. McPhail, and J. Zhang, “Visualisation of Ge Condensation in SOI”, MRS Spring Meeting 2006, 16-21 April San Fransisco, USA.
39. K. Fobelets, and J.E. Velazquez-Perez, “Unipolar rectifying nanowires”, E-MRS, Strasbourg 28-30 May (2007)
40. Y. Shadrokh, K. Fobelets, and J.W. Velazquez-Perez, “Single Device Logic using 3D Gating of Screen Grid Field Effect Transistors”, CAS 2007, Bucharest (Romania). Paper appears in: International Semiconductor conference, 2007, CAS 1 p 45-48 (2007)
41. K. Fobelets, S.L. Romyantsev, S.H. Olsen, and M.S. Shur, “Increased flicker noise with increasing Ge concentration in the virtual substrate of strained Si surface channel n-MOSFETs”, WOFE 2007, Dec 15-19 Cozumel (Mexico)
42. K. Fobelets, P.W. Ding, Y. Shadrokh, and J.E. Velázquez-Pérez, “Analog and digital performance of the Screen Grid Field Effect Transistor (SGrFET)” Proceedings of WOFE’07 – Best invited paper award

43. K. Fobelets, S.L. Romyantsev, W. Van Roy, R. Vanheertum, M.S. Shur, "Low frequency noise in ferromagnetic-GaAs contacts", MIEL May 11-14 Nis, Serbia (2008) Best paper award in Microelectronic Reliability.
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